

ICAO

JOURNAL

NEWS AND DEVELOPMENTS FROM THE INTERNATIONAL CIVIL AVIATION ORGANIZATION - VOL.68 - NO.5

PROGRESS THROUGH PARTNERSHIP

HOW INCREASED COOPERATION AND MORE INCLUSIVE
PLANNING ARE DRIVING MEASURABLE
AND MEANINGFUL AVIATION SAFETY SUCCESS

**STATE PROFILE SPECIAL FEATURES:
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AVIATION SAFETY IN AFRICA**

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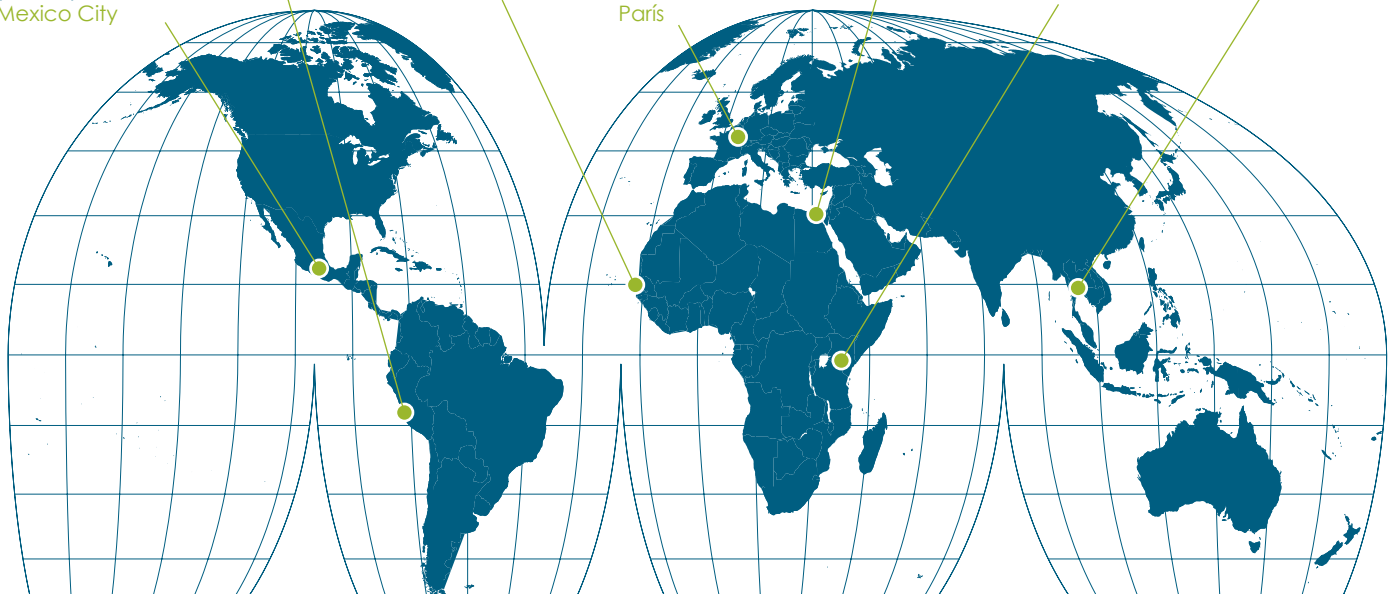
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THE ICAO JOURNAL
VOLUME 68, NUMBER 5, 2013

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Submissions
The *Journal* encourages submissions from interested individuals, Organizations and States wishing to share updates, perspectives or analysis related to global civil aviation.

Subscriptions and single copies
Yearly subscription (six issues) US \$40.
Single copies available for US \$10. For subscription and sales information, please contact the Sales and Customer Relationship Unit
Tel: +1 (514) 954-8022
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Published in Montréal, Canada. ISSN 0018 8778.

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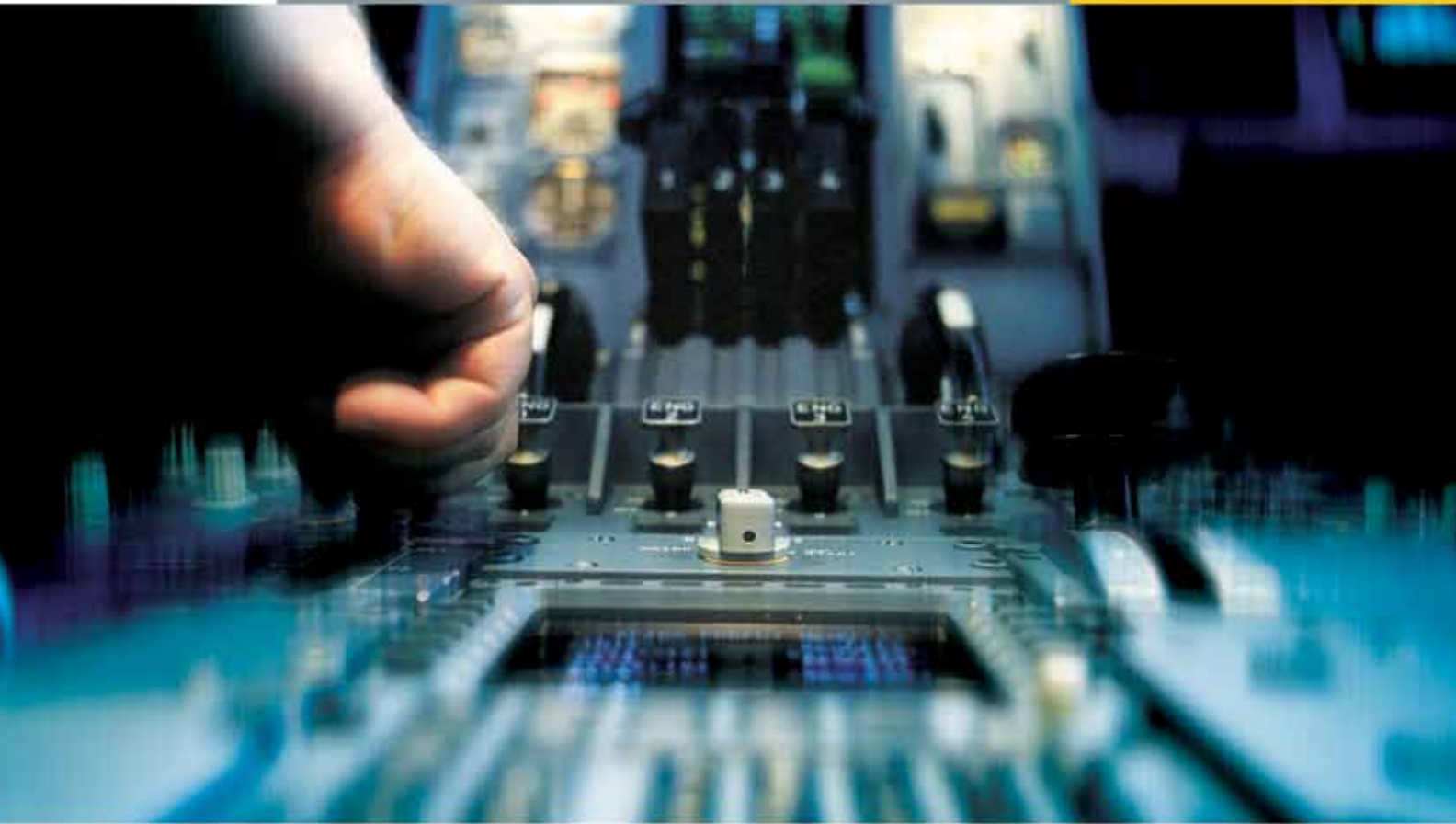
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Help us to shape your MPL future

ICAO's 2013 MPL Symposium will help you learn about the level of implementation of the Multi-crew Pilot Licence (MPL) on a global scale and discover the success stories and viewpoints of air operators and training organizations that have implemented successful MPL training programmes. Participants will discover how States are overcoming challenges associated with the oversight of MPL

and other competency-based training programmes. The safety benefits and improvements in specific areas such as upset prevention and recovery training will be identified, while comparative analyses of MPL training versus non-MPL ab-initio trainees will also be presented.

For content and registration information please visit: www.icao.int/meetings/MPL



| ICAO

SAFETY

PARTNERSHIP AND PLANNING



Nancy Graham

✈ Our approaches to aviation safety have evolved significantly in recent years and this issue of the *ICAO Journal* highlights many recent developments attesting to how we're getting even better today at doing what aviation has always done best. Transitioning from reactive to proactive measures alone has been a sea change for aviation, including ICAO, and it's now clearly recognized

that within our interconnected and multidisciplinary 'system-of-systems' we need broad-based and inclusive partnership to deliver dependable and practical safety progress.

The evolution of our safety strategies has led to the emergence of a new vision and more accountable planning at the global, regional and national levels. This work in turn is being supported by more holistic, risk-based analyses that will help us to define much clearer priorities and targets. ICAO's Regional Aviation Safety Groups (RASGs) are hard at work incorporating these principles and approaches into their latest safety plans, in addition of course to the specific issues and trends that impact their local States.

ICAO, too, is getting more holistic in its safety thinking, having now received Council approval on the first new ICAO Annex in 30 years: Annex 19—*Safety Management*. I say holistic because Annex 19 is actually a consolidation of safety management guidance that had formerly been scattered through six separate Annexes. It also broadens the scope of State safety oversight responsibilities to a much wider variety of aviation service providers.

Pioneering steps towards aviation's more collaborative and comprehensive safety vision were taken in 2012, during the landmark Ministerial Conference on Aviation Safety in Africa (Abuja, Nigeria). ICAO has taken the Abuja Targets, in addition to those already or now being set-out in other regions, under close consideration as we've finalized our latest edition of Global Aviation Safety Plan (GASP).

In parallel to these efforts, the fourth edition of Global Air Navigation Plan (GANP) now provides much greater strategic consensus and clarity in terms of our capacity and efficiency challenges. This latest edition is the result of an unparalleled level of consultation with States and industry, the results of which were thoroughly reviewed and agreed at ICAO's Twelfth Air Navigation Conference. Both Global Plans have now been approved by the Council and will be presented for 38th Assembly discussion and endorsement.

ICAO is pursuing a continuous improvement approach to these objectives and is rolling-out related guidance and planning tools to our States through specialized seminars, courses and updated guidance. Our highly successful Runway Safety Programme (see p. 24), made possible through determined support of our aviation safety partners, is an excellent example of the results we can achieve through these improved measures in the pursuit of tangible safety progress.

But we have to stress as well that none of this is possible without significant human and financial resources being available, a fact that highlights clear challenges for developing States. ICAO is therefore serving as an active promoter and coordinator of targeted assistance provision through our Comprehensive Regional Implementation Plan for Aviation Safety in Africa (AFI Plan, p. 12), Safety Collaborative Assistance Network (SCAN, p. 45), and Safety Fund (SAFE).

Best practices in strategic planning also means that reporting based on real-world metrics is now a fact of life for all of us. At the global level, ICAO's annual Safety Report now serves as our main Safety reporting tool. A new annual Air Navigation Report will complement this document as of March 2014. Metrics and reporting will also factor into the regional Safety and Air Navigation efforts we pursue through the RASGs and PIRGs, and we'll soon have in place online 'dashboards' that will display each region's progress in real-time.

With respect to State safety oversight capabilities, the Universal Safety Oversight Audit Programme (USOAP) provides regular assessments of States' levels of effective implementation (EI) of safety-related Standards and resources. The USOAP functions on a continuous monitoring approach (CMA) and publishes an interactive display of State EI results on ICAO's public website.

Safety is even serving as a logical entry-point for ICAO into global discussions on how we incorporate or align civil aviation and spaceflight frameworks, as services such as space tourism and breakthroughs in re-usable orbital vehicles begin to bring the dream of regularized or even scheduled spaceflight one step closer to reality.

Ultimately I cannot stress enough the importance of partnership in all aspects of how we address deficiencies and overcome our common aviation challenges. Without the tireless efforts and invaluable support of the many organizations who help us do what we do best, ICAO's many recent safety successes would have been much more difficult to achieve. ■




In this report, the Journal presents a review of GASP and GANP initiatives designed to enhance safety programmes and management systems.

Capt. John Illson is Chief, Integrated Safety Management, ICAO, which is responsible for the development of ICAO's Standards and analysis capabilities to promote proactive safety management practices across all domains of the international air transportation system.

Richard Macfarlane is Chief, Integrated Infrastructure Management, ICAO, whose work includes the management of such infrastructure elements as communications, navigation and surveillance in order to increase air navigation capacity and efficiency.

DEVELOPING A GLOBAL SAFETY STRATEGY THAT RESPONDS TO STATES' VARYING NEEDS

 Air transport plays a major role in driving sustainable economic and social development in hundreds of nations. It carries more than 3 billion passengers and \$5.3 trillion worth of cargo annually. In light of air transport's role as a key economic driver, and ICAO's role in ensuring that safety remains paramount to the industry, safety risks must be addressed proactively. This will ensure that the projected expansion of air traffic, anticipated to double (in the next 15 years), is supported through strategic initiatives that will improve regulatory oversight, implementation of safety management practices and advances in aviation infrastructure.

The Global Aviation Safety Plan (GASP) is critical to achieving the ICAO Strategic Objective of enhancing global civil aviation safety by guiding the implementation of international safety Standards to ensure consistent regulatory oversight, and advancing the development of State Safety Programmes and Safety Management Systems that proactively identify hazards and manage the associated risks.

ICAO aims to ensure that continuous safety improvements advocated in the GASP are also harmonized with the modernization initiatives in the Global Air Navigation Plan (GANP), thereby supporting States and stakeholders in achieving safe, sustained growth, increased efficiency and responsible environmental stewardship.

THE REVISED GLOBAL AVIATION SAFETY PLAN (GASP)

The 2007 version of the GASP introduced twelve global safety initiatives to be implemented by States and industry stakeholders. Included in these initiatives are those calling for increased compliance with ICAO Standards, adoption of industry best practices, sharing of information, and improvements in the reporting of safety issues.

With the new edition of the revised GASP, these global safety initiatives have been reorganized as Safety Performance Enablers which, along with the three high-level objectives, comprise the structure of the new document. The Safety Performance Enablers are: Standardization, Collaboration, Resources and Safety Information Exchange. These Enablers provide the structure needed to strategically guide global safety improvements and form the main threads along which improvements can be sought for the GASP objectives.

The Standardization thread serves to “improve harmonization of aviation activities across all ICAO Member States,” explained Nancy Graham, Director, Air Navigation Bureau, ICAO. Second, Collaboration between industry stakeholders is essential to maintain a coordinated effort that minimizes duplication of effort and ensures that the aviation community as a whole is advancing toward the desired safety improvements. The third Enabler, Resources, promotes investments in technology and in the development of aviation professionals required to manage the aviation system safely in the future. Finally, the fourth Enabler, the Safety Information Exchange, is critical to develop proactive as well as predictive safety enhancements.

The Safety Performance Enablers are highly dependent on one another and often overlap in practical application. For example, investments are often examples of collaboration where State and industry stakeholders work together to effectively achieve safety improvements. Safety information exchange is also linked to investment in technical and human resources, and the collaboration between stakeholders that is required to harmonize the exchange process.

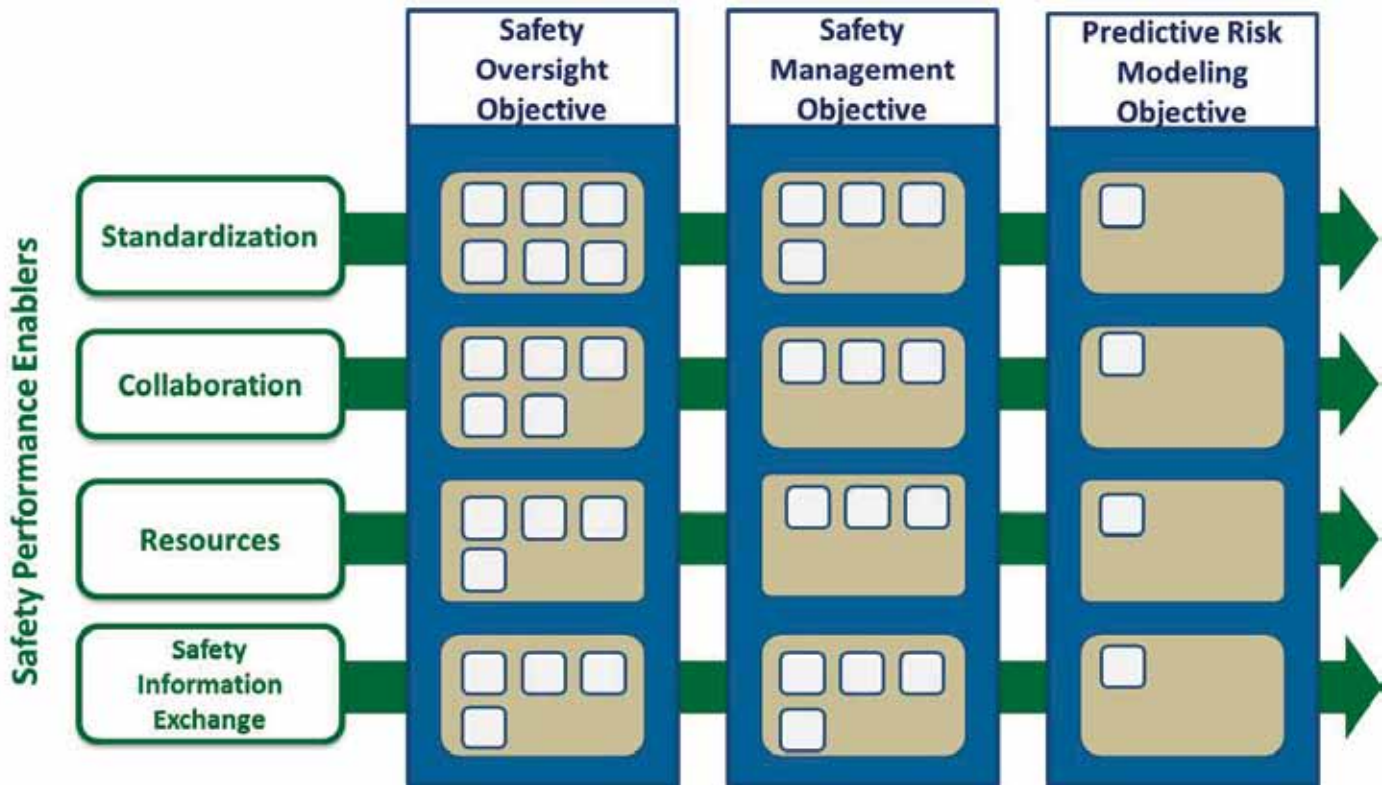
THE GASP OBJECTIVES: WHEN ONE SIZE DOESN'T FIT ALL

The ICAO Annexes contain an increasing number of Standards which States must adhere to in accordance with the Convention on International Civil Aviation, commonly referred to as the Chicago Convention. One of the challenges facing ICAO is to improve standardization, given the diversity of its Member States. The volume and type of aviation activities, as well as a State's capacity to manage its aviation activities, can have a significant impact on safety. The GASP recognizes this variation among its Member States and proposes a tiered plan to provide meaningful and attainable targets relevant to all. “As a matter of policy, the GASP sets a prioritization strategy based in part on the maturity of a State's safety oversight system. This prioritization strategy uses the Universal Safety Oversight Audit Programme (USOAP) average implementation rate of 60 per cent as the level required to achieve fundamental safety oversight capabilities. Therefore, States having USOAP results below the 60 per cent level should first focus on making improvements to their safety oversight systems, to establish a strong foundation for the implementation of safety management practices that involve more complex data collection and analysis capabilities,” explained Ms. Graham.

Thus, the near-term objective of the GASP is that all States achieve the 60 per cent safety compliance level by 2017. Countries that have laid the foundation for the effective safety oversight of their aviation service providers should then focus on the mid-term objective of the GASP, which is to fully implement a State safety programme. “We feel that once a State becomes compliant to an acceptable level, 60 per cent, they need to go a step further and proactively address the residual risks that may exist in a dynamic and complex aviation system,” said Ms. Graham. “This is what we mean by safety management and it translates to monitoring safety on a continuous basis.”

There are multiple factors driving the GASP revisions. Over time, ICAO has identified the need to strategically improve implementation of international aviation requirements. States that face the biggest hurdles in establishing fundamental safety oversight capabilities — such as certifying pilots and operators properly — may not have the resources to simultaneously implement the new safety management Standards. The objective, therefore, is to take a progressive approach. “The GASP is structured to encourage implementation of fundamental safety oversight measures as prerequisite enablers to the establishment of State Safety Programmes,” stated Danial Zeppetelli, a member of the Air Navigation Bureau's Integrated Safety Management section coordinating improvements to the GASP.

In developing the revised GASP, ICAO continually strives to improve safety, especially in areas experiencing growth, to ensure that as aviation industries expand, improvements are made to maintain an acceptable level of safety. Therefore, one of the metrics the Integrated Safety Management team continually examines is traffic growth. “The combination of



rapid air traffic growth and low compliance with international Standards indicates cause for concern and is an example of the process by which ICAO prioritizes needed improvements,” explained Zeppetelli.

In the past, safety achievements have been driven by a number of disparate safety initiatives in various regions. To be effective, these initiatives must be coordinated, fully leveraging the limited resources available to improve safety. Nancy Graham recognized the need for a framework for all aviation safety stakeholders. “International aviation is comprised of a system-of-systems. Therefore, achieving further safety improvements requires collaboration across all domains.”

An important factor in Safety Management is the increased collection and analysis of multiple sources of data that can point to emerging safety risks. Therefore, encouraging operational personnel to report safety issues encountered during routine operations is key to implementing a proactive safety strategy. Accordingly, one of the key Safety Performance Enablers includes initiatives to advance the exchange of relevant safety information. Supporting this initiative is the voluntary reporting of safety issues by operational personnel, including reports of inadvertent errors that may have been committed during routine operations. “Ensuring the availability of this information requires safeguards that encourage reporting without fear of punishment for any deviations that are not the result of willful misconduct

and where there is no concern about the ability of personnel to continue operating competently,” commented Ms. Graham.

RESIDUAL BENEFITS OF IMPROVED SAFETY

In many cases, the barriers to compliance with safety regulations are related to a lack of resources, expertise or knowledge.

In these cases, the objective is to explore ways in which ICAO and the international community can provide assistance to support critical aviation safety initiatives. “Aviation is a key contributor to economic and social development,” said Ms. Graham. “In certain cases, we’re able to improve a State’s ability to import and export goods, develop a tourism trade, or even to get medicine and food to people — to help them see where aviation can fit into their situation. We need to build synergy to improve fundamental living standards by appropriately prioritizing improvements in aviation, initiating a self-perpetuating cycle where benefits to aviation result in additional benefits to society, which circles back to facilitate improvements to aviation again. ICAO is active in assisting States that show political will but simply don’t have the resources to comply with certain safety Standards,” explained Ms. Graham.

While one of the drivers to harmonize the Organization’s safety efforts is finding common ground between States, achieving consensus on the means to measure safety remains a barrier to meeting the GASP objectives. “When we’re measuring a

you're cleared to land

particular safety issue – unstable approaches or crew fatigue, for instance – we need to ensure that the criteria and data collection processes are standardized so that we can benchmark and compare information. The development of safety performance indicators and criteria to measure these risks is something we're working through now so that we can start moving forward in a more meaningful way," stated Ms. Graham.

What does the future hold for the GASP? The near-term (2017) objective is for all States to achieve fundamental safety oversight capabilities by implementing at least 60 per cent of the USOAP protocols. The mid-term (2022) objective of the GASP is that all Member States fully implement the ICAO State Safety Programme (SSP) Framework. In the long-term (2027), the GASP targets are to have Member States implement safety capabilities as necessary to support future air navigation needs, and to have the GASP aligned with the Global Air Navigation Plan (GANP). The vision for the GANP is that by 2027, air navigation will be a highly automated system. "The only way the industry will be able to manage the tremendous growth anticipated is to continually automate the system which will make critical real-time operational decisions. What we traditionally thought of as safety — such as conducting operational safety inspections — is evolving to include systems engineering inputs to understand and manage systemic risks. In 2027, we envision a greater need for systems engineering in our safety work," commented Ms. Graham.



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THE REVISED GLOBAL AIR NAVIGATION PLAN (GANP)

The ICAO Global Air Navigation Plan (GANP) is designed to guide air transport progress from 2013 to 2028, representing an evolving strategic methodology which leverages existing technologies and anticipates future developments based on State and industry agreed-upon operational objectives.

The fourth edition of the GANP was approved by the Council in early June 2013. It originated as an industry-based document reflecting ICAO Partners' request to put in writing for all the States to see what the future might look like in the field of air navigation, with the objective of obtaining a clear understanding of ICAO's future regarding its communications, navigation and surveillance equipment mandates.

The primary result of this was the designation of aviation system block upgrades as part of a five-year planning cycle that clearly enunciates for the industry, States and Air Navigation Service Providers (ANSPs) the strategic direction of ICAO's air navigation system. The upgrades identify in module format the performance improvements the Organization is aiming for in each of the system blocks. This structured approach provides a basis for sound investment strategies and has been developed with a view toward generating commitment from States, equipment manufacturers, operators, and service providers.

The objective for the five years beginning in 2028 is to show what is achievable as a performance capability in that time frame. As Block 3 commences in 2028, ICAO needs to provide all of the Standards and technical specifications for States and industry to implement those performance improvements from 2028 and onward.

One of the motivations behind the revised GANP is operational performance improvement in the aviation system. Incentives for this improvement are capacity drivers and efficiency drivers. These include reductions in fuel consumption and emissions of noxious gases, noise problems and efficiency issues in air traffic management.

The development of the GANP meant first establishing a baseline of the current status of air navigation — a baseline which was not based on ICAO's minimum standards, but rather on current industry-based practice. Once the baseline was determined, the next step was to ask the question, "What are we aiming for in the longer term?" More specifically, these objectives include: four-dimensional trajectory operations in

20 to 30 years' time, integrated arrival and departure management and system-wide information management capability evolved on a global scale. An additional long-term objective is for available airspace to be managed on a business basis rather than on a segregated basis.

For example, the military reserves extensive airspace around the world in order to practice its defense operations, prohibiting civilian aircraft from flying through it. At times, this involves payment of a large fuel or time penalty for the civilian aircraft to fly around that airspace. The resulting question for ICAO is, "If the military isn't using that airspace all the time, why can't we open it up to other potential users?"



ANTICIPATING THE 2015 HIGH-LEVEL SAFETY CONFERENCE

While the agenda for the High-level Safety Conference in 2015 has not yet been established, the overarching purpose of the Conference is to review, revise and update the GASP with industry stakeholders and Member States in attendance, much the same as occurred during the 12th Air Navigation Conference's consideration of the GANP earlier this year.

CONFERENCE PREVIEW

The major theme of the Conference is the improvement of the safety record around the world by identifying targets and strategies which States can employ now and into the future, and the achievement of a global consensus on these matters.

One of the items which will be discussed at the Conference is Safety Information Exchange, the fourth Safety Performance Enabler of the revised GASP. This will include such concerns as: How do we protect the data we've gathered? Does this high volume of data create unnecessary liability for the Organization? How can it be used and shared openly without become a security risk?

These matters involve each State's judicial systems and societal norms. What is considered "just" depends on each country's values. As an agency of the United Nations, ICAO is not in a position to judge what is right or wrong, but it can inform States as to the things they should consider to make that determination. This is where aviation meets the judicial system in the form of aviation law — and in some cases criminal law.

Instead of segregating airspace, the GANP is transitioning to the concept of managing this very finite resource on a business basis, with the result that civilians use available airspace when the military isn't in need of it. This process involves looking at ways to put parameters in place to allow airspace to be managed so that it has the best outcome for the State; it is the sovereignty of the State which is crucial in this matter.

Continuing the military scenario, the steps leading to the accomplishment of this goal involve speaking to the various militaries around the world in order to explore flexibility in the use of their airspace, a process which involves extensive organization and negotiation. Richard Macfarlane, Chief, Integrated Infrastructure Management, ICAO, reported that Europe has been extremely cooperative in this initiative, while other regions have been less willing to accommodate flexible arrangements.

"Our fundamental objective was to make the GANP a simple step-by-step process where the performance improvements are clear. We're providing a global guarantee that we, and the other Standards-making bodies, will deliver all the necessary support for them to be able to implement those performance improvements," said Ms. Graham, Director of ICAO's Air Navigation Bureau. ICAO has no mandate to force States to do so. Rather, the Organization provides such guidance as, "If, as a State, you choose to take advantage of a particular

performance improvement, these are the steps you have to take, according to your implementation capability".

Do most States adopt the improvement measures? That depends on the State's capacity and efficiency drivers. There are some modules in the system block upgrades that certain States will never have to implement. There are, for example, various runway capacity needs in major airports like Charles de Gaulle, John F. Kennedy and Montréal-Trudeau that don't apply to smaller facilities found in Tahiti or the Seychelles. The same principle of applicability applies to all of the block upgrades.

ENABLING STATES TO DEVELOP BUSINESS CASES

Critical to the revised GANP is that it includes the capacity for each State and operator to develop its own business case to see if adopting a particular system block upgrade is warranted in their case, leading to a return on their investment. This involves the consideration of States' facts and figures — such as the number of aircraft and flights, radar system expenditures and the cost of fitting the interior of the aircraft — in order to evaluate the worthiness of implementation.

RASP-PIRG HIGH-LEVEL MEETING – 2013

The RASP-PIRG (Remote Aerodrome Safety Programme-Planning and Implementation Regional Group) High-level Meeting took place in Montreal on 20 March 2013, attended by the Chairmen and Secretaries of each of the RASPs and the PIRGs.

The objective of the meeting was to consider the metrics for each of the groups involved in order to monitor the performance improvements as they occur in their regions. The rationale for this is that ICAO has a lot of positive stories relating to these air traffic management improvements. For instance, in the field of the environment, in recent years aviation has been doing an excellent job in reducing emissions. The RASP-PIRG High-level Meeting is viewed as an opportunity to inform the world about these positive results.


ICAO now expects the PIRGs to consider the Global Air Navigation Plan and then develop regional plans. "Using this methodology," stated Ms. Graham, "the entire world becomes interoperable with a view toward harmonization on a global basis. What we're aiming for is that all of the systems in the world take advantage of the same capabilities, and that the various States' systems are compatible. What's important is that with an aircraft flying anywhere in the world, the systems needed to operate from any one place to another are seamless — pilots can't tell when they're transitioning from one country to another. From a State perspective, this is critical because of the sovereignty of States," commented Ms. Graham.

This concept of seamless movement around the world translates to the notion of "one sky," a theme ICAO is employing to try to harmonize the system block upgrades and to have the entire world buy into the upgrades as the Global Air Navigation Plan. ■



This Journal report presents the progress made in the implementation of the Comprehensive Regional Implementation Plan for Aviation Safety in Africa (AFI Plan) and its associated work programme.

AFI SAFETY PROGRESS: BRINGING THE AFI PLAN INTO ACTION

 **The Comprehensive Regional Implementation Plan for Aviation Safety in Africa (AFI Plan) signifies a far-reaching implementation plan developed to meet the challenges posed by civil aviation difficulties in the African Region.**

The AFI Plan plays a critical part in ICAO's development of a Unified Strategy to resolve safety-related deficiencies that threaten the viability of civil aviation and the economies that depend on its safety and regularity.

Recognition of the fact that the challenges faced by the AFI (Africa-Indian Ocean) Region, including the influence of economic and political issues, demanded a comprehensive regional plan led to the establishment of the AFI Plan, which was adopted by the 36th ICAO Assembly (Assembly Resolution A36-1) and commenced in January 2008 to support African States in addressing aviation safety deficiencies. Under this plan ICAO performs gap analyses, develops prioritized recommended actions and supports their implementation.

In order to implement the AFI Plan, a Steering Committee was established, comprising African States and organizations (Burkina Faso, Cameroon, Egypt,

Ghana, Morocco, Niger, Nigeria, Senegal, South Africa, Swaziland, Uganda, African Airlines Association (AFRAA), African Civil Aviation Commission (AFCAC), African Development Bank (ADB), African Union (AU); and Partners, namely: China, France, Republic of Korea, United Arab Emirates, Saudi Arabia, United States; the European Commission (EC) represented by the European Aviation Safety Agency (EASA); and the International Air Transport Association (IATA) representing the Industry Safety Strategy Group (ISSG). These were joined by numerous Regional Safety Oversight Organizations (RSOOs) and several financial institutions. Since 1 January 2011, the implementation of the AFI Plan has been led by the ICAO Regional Offices in Dakar and Nairobi, supported by ICAO Headquarters, member States and aviation safety partners.

The concerns regarding safety levels among the African States were raised as the result of ICAO Universal Safety Oversight Audit Programme (USOAP) audits and discussions with various safety oversight agencies. "We decided that it was necessary to undertake a gap analysis. Our objective was not only to identify what the problems were, but to focus on why deficiencies were occurring and how ICAO would be able to assist in raising safety levels in the AFI Region," explained Dr. Olumuyia Benard Aliu, Representative of Nigeria on the ICAO Council and Chairperson of the Steering Committee for the AFI Plan.

"Consensus was reached that the low level of implementation was due to a number of factors, notably a lack of expertise and resources in the areas of training safety inspectors, as well as inadequate political awareness concerning safety matters, and as the result of competing priorities," commented Dr. Aliu.

One of the significant events that have helped shape the Region's efforts to improve its safety standing was the Special Africa-Indian Ocean (AFI) Regional Air Navigation (RAN) Meeting which took place in South Africa in November 2008. The Meeting was a watershed event in that its scope was expanded to include issues relating to safety oversight and deficiencies, streamlining of AFI Plan activities, and the establishment of performance objectives in recognition that aviation safety is critical to economic development. Its focus was the development of a vision for the future of aviation safety for the AFI Region. At the same time, however, the Council recognized that the problems facing the States in the AFI Region and many other States are similar in nature.

The AFI Comprehensive Implementation Programme (ACIP) developed its work programme around three focal areas to accomplish the objectives of the AFI Plan. Below is a highlight of the activities undertaken in each focal area by ACIP between 1 January 2008 and 31 December 2010.

1. ENABLING STATES TO ESTABLISH AND MAINTAIN A SUSTAINABLE SAFETY OVERSIGHT SYSTEM THROUGH THE STRENGTHENING OF THE SAFETY MANAGEMENT INFRASTRUCTURE AND CAPACITY-BUILDING OF STATES

Actions taken:

- i. ACIP conducted seven Global Aviation Safety Roadmap (GASR) workshops.
- ii. ACIP worked closely with Regional groupings (BAG, EAC Partner States, CEMAC, UEMOA, SADC, and States in the MID and ESAF Regions) to assist them in establishing Regional Safety Oversight Organizations (RSOOs) and Regional Accident Investigation Agencies (RAIAs).

2. ASSISTING STATES IN RESOLVING IDENTIFIED DEFICIENCIES WITHIN A REASONABLE TIME

Actions taken:

- i. Conducted a number of safety-related seminars and workshops. These included Personnel Licensing and Aircraft Operations, Aircraft Airworthiness and Maintenance, Organization and Management of a State's Safety Oversight System, Air Traffic Control Operations and Safety Aerodrome Safety Management, Aviation Medicine, Transport of Dangerous Goods by Air, and three ECCAIRS training courses.
- ii. Held two Government Safety Inspectors (GSI) courses in Airworthiness and one GSI course in Operations based on training course material provided by the FAA and endorsed by ICAO. In addition, in coordination with ICAO's AGA section, ACIP developed and conducted an Aerodrome Safety Inspector Course.
- iii. Developed a survey on aviation training needs and available capability with the aim of reviewing training needs, evaluating the training capabilities available throughout the continent, and identifying the barriers constraining the availability of affordable quality training programmes in Africa. The results of the survey were analyzed by the Training Expert Working Group (TEWG). The analysis of the TEWG was later discussed at the Second Pan African Aviation Training Conference which developed a roadmap for the harmonization of aviation training in Africa.

3. ENHANCING THE AVIATION SAFETY CULTURE OF AFRICAN AVIATION SERVICE PROVIDERS

Actions taken:

- i. ACIP conducted three State Safety Programme (SSP) and Safety Management System (SMS) seminars and training courses, as well as various high-level meetings in 2009.
- ii. Development of African capabilities was the theme adopted by ACIP in 2010. As a result, 12 safety management courses in English and French were held throughout the continent. In addition, half-day high-level management safety awareness seminars were conducted for senior management personnel of States and service providers. During this period, 29 SSP/SMS Instructors from 14 African States and two Regional Organizations were successfully trained and approved.

One of the gaps identified was the need to build States' capacity in terms of in-region safety management training with a view toward developing the best-trained workforce possible in order to address safety concerns.

A critical deficiency noted in the AFI Region was the lack of adequately trained safety inspectors to oversee such areas as airworthiness, personnel licensing, flight operations, the regulation of dangerous goods, and aerodrome inspection. As a result, particular emphasis has been placed on safety oversight training programmes in these areas with the objective of developing a sustainable system within the region that can continue to provide training that is not only adequate but is also standardized and optimized to meet standards of excellence in aviation training.

"Many States in the AFI Region do have inspectors, but some of these are not well trained. One of our objectives was to pool our inspectors together in a centralized fashion under the AFI Cooperative Inspectorate Scheme, in collaboration with AFCAC, so that when a State needs personnel to undertake a regulatory assignment, under this new scheme they can use safety inspectors from another State," said Dr. Aliu.

"It was clear that in order to enhance States' political awareness of the importance of safety issues, and to engender political will to create sustainable safety systems, we needed to introduce these measures at the highest level. We also became aware at the time that there were a lot of projects being undertaken by various entities and institutions to address the same concerns. We felt it was important to harness all of our resources through the sharing of knowledge, expertise and best practices, and to harmonize our objectives in order to avoid the duplication of effort," stated Dr. Aliu.

Specific plans of action were developed for States in order to address their respective safety concerns and to increase the effective implementation of the eight critical elements of safety oversight: primary aviation legislation; specific operating regulations; State civil aviation system and safety oversight functions; technical personnel qualification and training; technical guidance, tools and the provision of safety-critical information; licensing, certification, authorization and approval obligations; surveillance obligations; and resolution of safety concerns.

The work initiated as part of the Plan includes numerous projects and programmes. Among these was a series of safety-related meetings between ICAO and the African Civil Aviation Commission (AFCAC) whose objectives were to set measurable targets and to develop tools to measure future improvements.

In addition, at the Ministerial Conference on Aviation Safety in Africa held in Nigeria in 2012, specific and measurable aviation

safety targets were established in order to enhance safety standards and implement all safety initiatives in the region. In response to the compelling need to continuously improve aviation safety in Africa and the need to urgently find immediate and sustainable resolution to deficiencies in safety oversight, the Conference developed a Declaration called the Abuja Declaration on Aviation Safety in Africa. The Declaration detailed high-level commitments by the Ministers to provide a common frame of reference on aviation safety initiatives and aviation Safety Targets for implementation within the AFI Region.

It is important to note that the safety improvements that have been achieved in the AFI Region are the result of collaboration with all involved stakeholders — not only the African States and ICAO — but also with all relevant parties and Partners in industry and finance, as well as government.

The Report on the Seventh Meeting of the AFI Plan Steering Committee in April 2011 noted that the AFI Plan continued to support the establishment of Regional Safety Oversight Organizations (RSOOs) and Regional Accident Investigation Organizations (RAIOs) throughout the continent, as instructed by the Council. In this respect it mentioned that the Banjul Accord Group (BAG) Member States have established the Banjul Accord Group Aviation Safety Organization (BAGASOO) which commenced its operations in July 2010.

Progress in the implementation of the Plan has been made on several fronts, while certain areas require ongoing attention. "What is noteworthy is not only what ICAO is doing, but what ICAO has been able to get everybody to do through purposeful leadership leading to the achievement of significant results using minimal resources," concluded Dr. Aliu. During the next triennium, it is expected that the implementation of relevant recommendations of the ICAO Special AFI Regional Air Navigation (SP AFI RAN) meeting which took place in November 2008 in South Africa will reach a satisfactory level of maturity. The high-level safety targets adopted during the Abuja Ministerial Conference on Aviation Safety held from 16 to 20 July 2012 are also expected to be achieved.

MINISTERIAL BRIEFING

A Ministerial Briefing on the AFI Plan will be held on 23 September 2013 in order to inform African Ministers and aviation safety partners on the status of aviation safety in Africa, the enhancements achieved through the implementation of the AFI Plan, and its continuation for the next triennium (2014-2016).

Attendees will also be informed on the progress made in attaining the aviation safety targets adopted during the Ministerial Conference on Aviation Safety held in July 2012 in Nigeria and endorsed by the Assembly of the African Union in January 2013. ■

MAURITANIA ACHIEVES SUCCESS THROUGH REVAMPED AVIATION SAFETY SYSTEM



An interview with Mr. Aboubekrine Seddigh Ould Mohamed El Hacem, Director General of the Mauritanian National Agency of Civil Aviation (ANAC) and recently appointed Interim Chairperson of the RASG-AFI.

✈️ WHAT IS THE SECRET TO YOUR SUCCESS?

Many factors have contributed to Mauritania's success in achieving improvements in safety management. These include: Our continuous efforts to address serious safety deficiencies, including Significant Safety Concerns (SSCs), and removal from the European Union Safety List and the Monitoring and Assistance Review Board (MARB); the desire to be included in the list of "African Champions" praised by Nancy Graham in the course of international meetings on safety in Africa; the will of our Government; the commitment of the civil aviation leadership; the support of all of our management staff; the availability of financial resources; and our quality procedures. All of these elements have been true catalysts for the progress made.

WHAT WAS THE KEY TURNING POINT?

The key turning point in Mauritania was 23 November 2010, after the less than favorable results of the evaluation by the European Commission, which led Mauritanian companies to be banned from operating in the European Union. As a result, the country's high authority made a change in the management in charge of safety oversight, provided guidance on meeting the relevant national and international requirements, and made sufficient financial means available to the civil aviation authority.

WHAT APPROACH HAVE YOU TAKEN?

In order to define the various factors that could have been the source of the deficiencies identified during the USOAP audit, the team from the National Civil Aviation Agency used Professor Ishikawa's Rule of 5 Factors (environment, working method, subject matter, material, and labor), among other tools. It also read and meticulously re-read the Auditors' Report and quickly discovered the enormity of the work to be done.

In this way, we developed a vision, strategic objectives and action plans, and conducted reviews of the various processes in order to measure their performance and undertake relevant actions for improvement.

Maslow's wheel (PDCA) was applied to each critical element and to each field. In every instance, we insisted upon strict adherence to this logic: prepare, do, check and act. The eight critical elements and a summary of the requirements were disseminated at all levels.

The culture of managing through competence has replaced the retention of power through arrogance. And performance measurement has been instituted as a reflection of management's objectives. The various people in leadership positions were briefed daily on any discrepancies and on the development of their action plan.

Reviews of management personnel, measurement tools and follow-up of already initiated or planned actions are being carried out by general management. These actions have been essential because they are a source of staff motivation and improvement in communication. He who does not assess his own performance does not improve!

Moreover, the development of our website, www.ANAC.mr, and the associated intranet have truly served the civil aviation community as platforms for information and exchange.

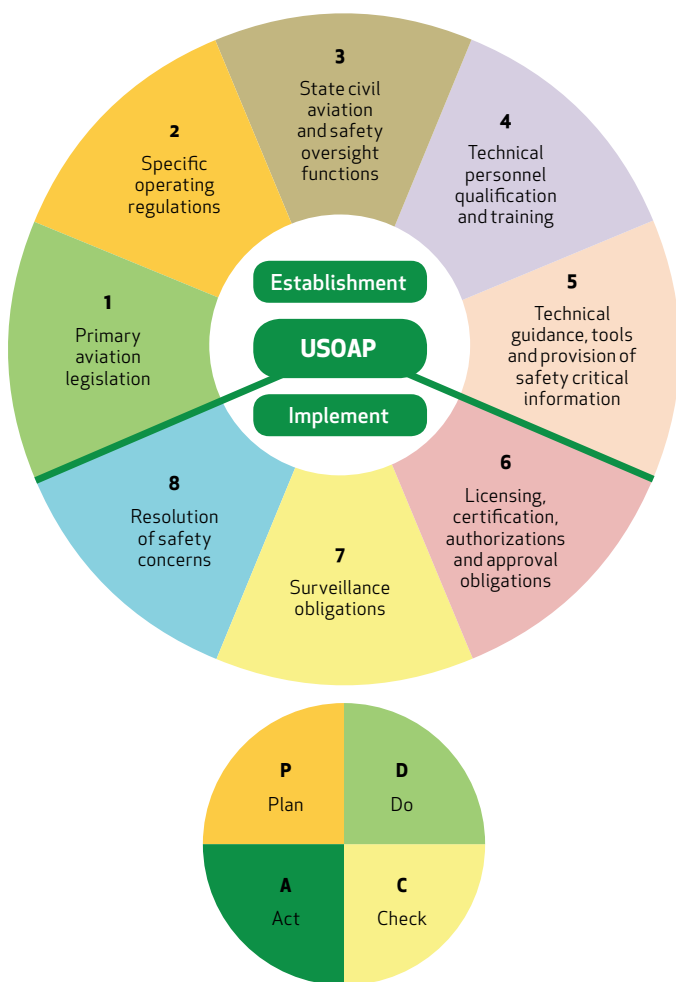
WHAT ACTIONS DID YOU UNDERTAKE?

I will summarize this in five points: The first action was to enhance the credibility of ANAC and its inspectors, to quickly establish the boundaries of its authority and to make absolutely certain that no one crossed these boundaries. In this regard, it should be highlighted that inspectors are the backbone of the system. As such, they should be listened to without fail. They should be well trained and certified, and their decisions should be respected.

Having quickly observed the casualness with which Air Operator Certificates (AOCs) were being issued, it was necessary to take prompt, bold action and to make appropriate decisions.



Mauritania Airlines International



Applying Maslow's Wheel to the Eight Critical Elements of Safety Oversight Systems in Mauritania. Source: ANAC.

Thus, we tackled our entire civil aviation system head on. We underscored the “sacred” nature of inspectors’ decisions as well as our determination to remediate the sector. Those who favored “flags of convenience” quickly came to understand that the Mauritanian Civil Aviation Authority is genuinely committed to the strict application of ICAO safety requirements.

The second action was to issue dozens of draft decrees, orders and instructions relating to legislation, regulations and over 300 procedures and other guidance material designed for industry and the inspectors. In order to obtain industry support for this initiative, the draft regulations were sent to these individuals for their review and appraisal.

The third element focused on resources. We quickly recognized the limits of both our human resources and our finances. We had to provide a precise response to the following question, “Do we have the means to support the objectives arising from our obligations?”

Our status as an EPIC (a public undertaking of an industrial or commercial nature), which grants us legal status and financial

autonomy, as well as the full attention of the government, has enabled us to overcome our financial difficulties by doubling our revenues, which is a prerequisite for the realization of our goals.

In addition, a working group tasked with proposing a roadmap for matching human resources to supervision capacity has led to an action plan to improve the competencies and multi-functionality of our human resources, focusing on recruitment and training in particular.

With this in mind, dozens of engineers have been recruited, and programs and training plans have been established. They have been implemented in the appropriate sequence: AB-initio training, specialized training, on-the-job training (OJT), and continuing education and continual training.

The fourth action was implementation, which was the most difficult part of the process of improving the system. This called for the civil aviation system to adhere to the established rules and to recognize the authority of inspections and their consequences: conclusions and findings, comments, fines, license withdrawals, etc.

We had to be extremely rigorous and strict with respect to the reactions of those who were used to preferential treatment and those who had not recently been subject to bona fide inspections and audits.

In fact, given the lack of implementation, the entire legal and organizational structure we had on paper was pointless.

We were able to improve the level of implementation by placing particular emphasis on daily follow-up, reviews and internal audits.

The fifth action was not the easiest, either. Once we identified the problems, we had to find appropriate long-term solutions to them.

This was a real challenge, because even though some solutions were within the reach of the various people responsible for implementing them, others required more time and patience or even a new vision – a re-engineering of existing systems or, in some cases, the establishment of an entirely new procedure such as airport certification and Safety Management Systems. This is a project in progress and it must be concluded in the months and years to come.

ARE THERE ANY OTHER SECRETS TO YOUR SUCCESS?

Yes – transparency, daring to reveal our problems to others, endurance, and the continuous desire to learn and improve.

It is also noteworthy that the diagnostics carried out by our partners in the area of safety, our internal quality audits and the ICAO Coordinated Validation Mission (IVCM) inspections have enabled us to continue to question our work and to refine our action plans for improvement.

The ICAO websites, particularly the iSTARS site, are goldmines of information and knowledge which have been a great help to us. The virtually daily consultation of these websites has made our management “addicted to iSTARS”. ■

A STATE SAFETY OVERSIGHT SYSTEM IS A PREREQUISITE TO THE FULL IMPLEMENTATION OF A STATE SAFETY PROGRAMME



Henry Gourdji is Chief, Continuous Monitoring and Oversight, ICAO, responsible for the management of the ICAO Universal Safety Oversight Audit Programme (USOAP) - Continuous Monitoring Approach (CMA), which entails mandatory monitoring activities such as audits of all Member States and was created to promote and improve global aviation safety through the correction of deficiencies identified by the monitoring activities.

While the aviation industry, States and international organizations embrace the principles of safety management, ICAO has raised the importance of and expectations towards States related to safety management with the development of a new Annex – Annex 19 – that becomes applicable in November 2013.

The majority of the provisions of Annex 19 are not new to States; the first Edition will primarily be a consolidation of a number of existing Standards and Recommended Practices (SARPs) previously contained in other Annexes.¹ There are, however, some fundamental changes. One such change is that the four components of the State Safety Programme (SSP) framework have been elevated to the status of an ICAO Standard, now matching the status of the Safety Management System (SMS) framework.

Each State is required to establish an SSP for the management of safety in the State, in order to achieve an acceptable level of safety performance in civil aviation. The four key components of an SSP are: 1) Safety Policy and Objectives; 2) Safety Risk Management; 3) Safety Assurance; and 4) Safety Promotion.

Effective SSP implementation is a gradual process, requiring time to mature fully. Factors that affect the time required to establish an SSP include the complexity of the air transportation system and the maturity of the aviation safety oversight capabilities of the State.

How does safety oversight relate to the SSP? If a State establishes and implements an SSP, will that automatically address its safety oversight obligations? To answer these questions, it is necessary to focus on a key phrase: “Safety oversight is a State obligation”.

The Convention on International Civil Aviation, commonly referred to as the Chicago Convention of 1944, is the basic charter of ICAO and of public international

¹ Annex 19 will consolidate safety management provisions presently contained in:

Annex 1 — Personnel licensing
 Annex 6 — Operation of aircraft
 Annex 8 — Airworthiness of Aircraft
 Annex 11 — Air Traffic Services
 Annex 13 — Aircraft Accident and Incident Investigation and
 Annex 14 — Aerodromes

air law. Article 1 of the Convention provides that “contracting States recognize that every State has complete and exclusive sovereignty over the airspace above its territory”. At the same time, the Convention places on States an obligation to “adopt measures to ensure that every aircraft flying over or manoeuvring within its territory and that every aircraft carrying its nationality mark... shall comply with the rules and regulations relating to flight and manoeuvre of aircraft there in force” (Article 12 refers).

A State’s responsibility and obligations under the Convention include the licensing of operational personnel, the certification of aircraft, air operators and maintenance organizations, and the control and supervision of licensed personnel, certified products and approved organizations. The basis of these obligations is the desire to promote and conduct safe and regular aircraft operations through the development and implementation of internationally acceptable certification and licensing processes. These obligations are further extended to domestic operations to ensure the overall safety of aircraft operation wherever it takes place.

To put it simply, in order to comply with the Chicago Convention, States must promulgate legislation and regulations, and adopt measures to ensure compliance with its regulations. They must put in place an effective safety oversight system.

DEFINING THE PARAMETERS OF SAFETY OVERSIGHT

With a new Annex comes a need for new definitions. Not surprisingly, arriving at a formal definition of safety oversight is not as simple as it may seem and remains a work in progress. State safety oversight is not a programme, nor even a specific policy that can be succinctly described and packaged in a standardized template or manual. It is not specifically defined in any of the ICAO Annexes, although ICAO does have a guidance document dedicated to the subject in Doc 9734, *Part A — The Establishment of a Safety Oversight System*. This document describes that safety oversight includes the establishment and implementation of a system by a State to monitor the effective implementation of its national requirements derived from ICAO SARPs and associated guidance material and procedures.

A complementary component of a State’s safety oversight system is the establishment of the SSP. Safety management is intended to assist States in managing aviation safety risks in coordination with their service providers. Given the increasing complexity of the global air transportation system and the inter-related activities required to ensure the safe operation of aircraft, the safety management provisions now found in Annex 19 support the continued evolution of a proactive strategy to improve safety performance. The foundation of this proactive safety strategy is the implementation of an SSP that systematically addresses safety risks, in agreement with the implementation of SMS by the service providers. The establishment and full implementation of an effective SSP must be woven into the fabric of an organization. It therefore becomes part of the organizational culture and guides the way people do their jobs in a more efficient and effective manner.

It is essential that States establish an effective safety oversight system *first*, before focusing on the SSP. By doing so, many elements of the SSP framework will already be firmly in place. With the establishment of an SSP, States will then be complementing their safety oversight systems with risk management and analytic processes that can proactively identify and mitigate safety issues.

Having already received ICAO Council approval but having yet to be endorsed by the upcoming Assembly, the Global Aviation Safety Plan (GASP) 2013 recognizes the importance of the establishment and maintenance of fundamental safety oversight systems as a prerequisite to the full implementation of an SSP. States with mature safety oversight systems have the foundations in place to implement provisions associated with the SSP and progress it to full implementation. The GASP provides a strategy to enhance the implementation of these safety initiatives and establishes targeted safety objectives while ensuring the efficient and effective coordination of complementary safety activities among all stakeholders.

The GASP calls for all States to establish effective safety oversight systems by the year 2017. In addition, States that have demonstrated over 60 per cent effective implementation (EI)

A State’s responsibility and obligations under the Convention include the licensing of operational personnel, the certification of aircraft, air operators and maintenance organizations, and the control and supervision of licensed personnel, certified products and approved organizations.

of the critical elements of a safety oversight system are called upon to achieve full SSP implementation by this time, thereby addressing risks specific to their national aviation systems. By 2022, all ICAO Member States should fully implement the SSP Framework. Reaching these objectives is dependent upon the collective safety achievements of all Member States. This process is progressive in nature and recognizes the importance of fundamental safety oversight systems as a prerequisite to the full implementation of State Safety Programmes.

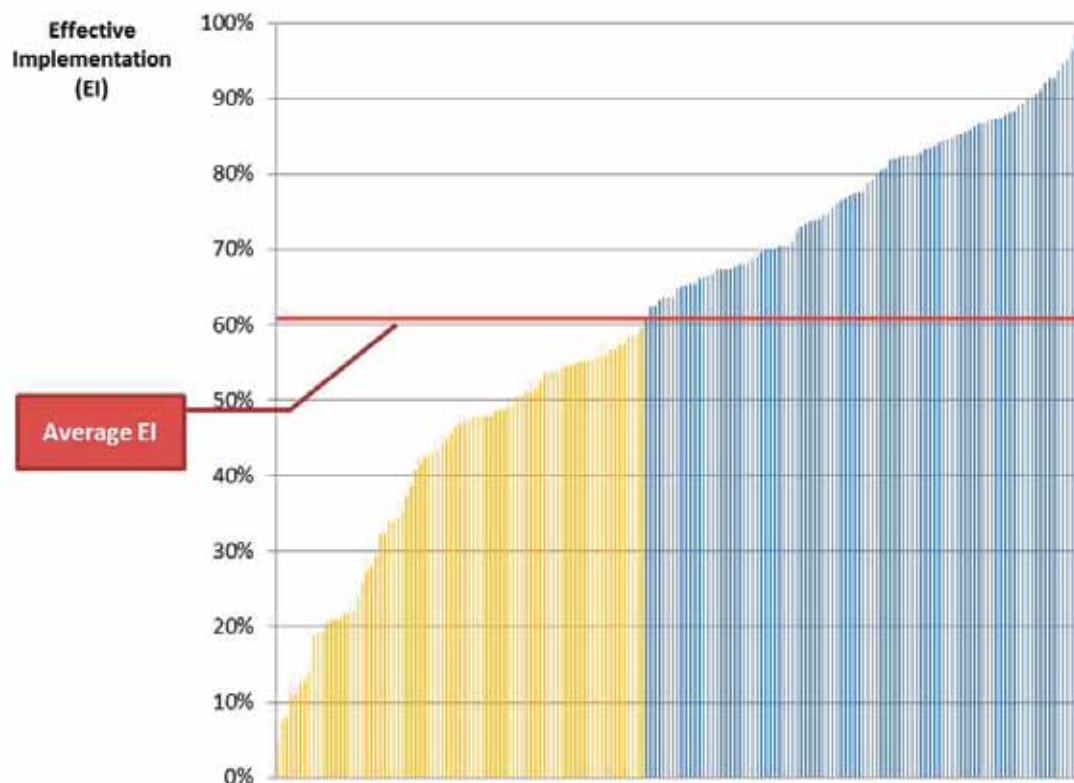
The Universal Safety Oversight Audit Programme will celebrate its 15th year as a mandatory monitoring programme in 2014. Over the years, it has expanded from auditing States for compliance with Annexes 1, 6 and 8 to the latest methodology of monitoring all States continuously in all safety areas capturing 17 of the 19 ICAO Annexes. One hundred and eighty-three Member States have undergone a USOAP audit.

In the graph below, each vertical line represents a State's level of effective implementation of the USOAP critical elements. On average, the effective implementation rate of all USOAP protocols is 61 per cent.

ICAO, States and the aviation industry have matured throughout the years and ICAO has seen much progress in States' oversight capabilities as they progress to the management of safety and monitoring performance of their industry. As indicated above, the levels of maturity of these systems vary considerably among ICAO Member States. Accordingly, the GASP objectives provide a strategy to progressively improve implementation of safety oversight systems and safety management practices.

ICAO, its safety partners, international organizations and States recognize first-hand the challenges that lie ahead in resolving safety deficiencies. The objectives of the ICAO GASP and corresponding target dates for the implementation of SSPs are realistic and applicable to the global aviation community as a whole. Each of the objectives, however, includes specific initiatives and milestones which can be implemented by States in a continuous manner according to their distinct operational profiles and priorities. In this way, the initiatives included in the GASP will serve to deliver tailored progress in each Member State's safety oversight capabilities, SSPs and safety processes necessary to support the air navigation systems of the future. ■


Distribution of ICAO Member States' rates of effective implementation



Note: The vertical lines represent the effective implementation for each of the ICAO Member States audited under the USOAP. Lines depicted in yellow represent the 84 States having effective implementation below the global average. Lines depicted in blue represent the 99 States having effective implementation above the global average.

PROACTIVE APPROACH TO SAFETY INTELLIGENCE GAINS MOMENTUM

Capt. John Illson is Chief, Integrated Safety Management, ICAO, which is responsible for the development of ICAO's Standards and analysis capabilities to promote proactive safety management practices across all domains of the international air transport system.

 Traditional safety reporting has been a reactive, forensic process. Once an event occurred, the factors that led to the event were identified, and safety professionals developed frameworks that would prevent the identified factors from contributing to accidents in the future. "This reactive approach has evolved to become more proactive, where hazards are identified, risks are assessed and actions taken to prevent accidents before they occur," commented Nancy Graham, Director, Air Navigation Bureau, ICAO. "To support this proactive approach, ICAO has been continually refining its safety analysis capabilities to develop what has become known as Safety Intelligence."

A Safety Intelligence Network enables aviation stakeholders to identify areas of current and emerging risks, and to develop specific as well as effective mitigation strategies. Consistent with proactive safety management principles, ICAO's Safety Intelligence provides actionable information with output based on analysis and metrics for use by decision-makers to define aviation safety strategies.

Marco Merens, ICAO Safety Data Analysis Officer responsible for the development of iSTARS, explained the genesis of a more integrated approach to Safety Intelligence. "At the end of 2009,

we began examining the data sources available throughout the Organization. We found accident and traffic information, as well as audit data, but the data was contained in various sections and branches, and each element was quite isolated from the other. Our first project, which began in 2010, was the launch of the Integrated Safety Trend Analysis and Reporting System (iSTARS)."

iSTARS generates the information needed through multiple safety datasets and related web-based applications to perform online risk analysis. Data sources currently integrated into iSTARS include: accident reports, traffic density and growth, aircraft fleet composition, terrain and weather in the airport environment, and Universal Safety Oversight Audit Programme (USOAP) data. Merens noted, "The result is an integrated safety analysis capability that produces various types of output based on user requirements".

The Integrated Safety Management (ISM) section continuously develops new methodologies to assess global aviation risks, as well as to provide information through the use of existing media to better visualize and understand these risks' potential impact on safety. The development of the methodologies is an important multidisciplinary task involving aviation experts with backgrounds in data analysis, system design and all operational domains.

In an effort to apply safety intelligence and produce hands-on applications, ICAO produces reports for decision-makers, containing information that is derived from safety data sources and can be acted upon.

ICAO is also exploring the integration of additional factors into its safety intelligence, including those that increase the complexity of State safety oversight activities, as well as those that can be used to prioritize future investments in aviation infrastructure and technologies. These tools are being developed to support various ICAO Safety initiatives, including the USOAP Continuous Monitoring Approach and activities undertaken by the Regional Aviation Safety Groups (RASGs).

ICAO has developed prototype safety dashboards, providing assessments of multiple risk factors and indications when thresholds have been exceeded. The dashboard concept includes factors such as State compliance with ICAO protocols, traffic growth, historic accident history, and other indicators to provide a high-level overview of the safety issues for a particular State or region. According to Michael Goodfellow, ISM Safety Management Officer, "As the safety intelligence concept evolves, output such as dashboards will become customizable, allowing users to create a suite of discrete indicators and thresholds to suit their particular needs or context". ■





Putting the 'State' in State-of-the-Art

The Ninth MRTD Symposium will focus on the benefits of implementing Automated Border Control (ABC) systems based on ICAO Standards and specifications, as well as the benefits of using effective inspection tools like the ICAO Public Key Directory (PKD) for border control. It will explore a broad range of considerations that shape state-of-the-art ABC developments, including newly-emerging technologies, trust, reliability, non-intrusiveness, biometrics, costs, privacy and human rights.

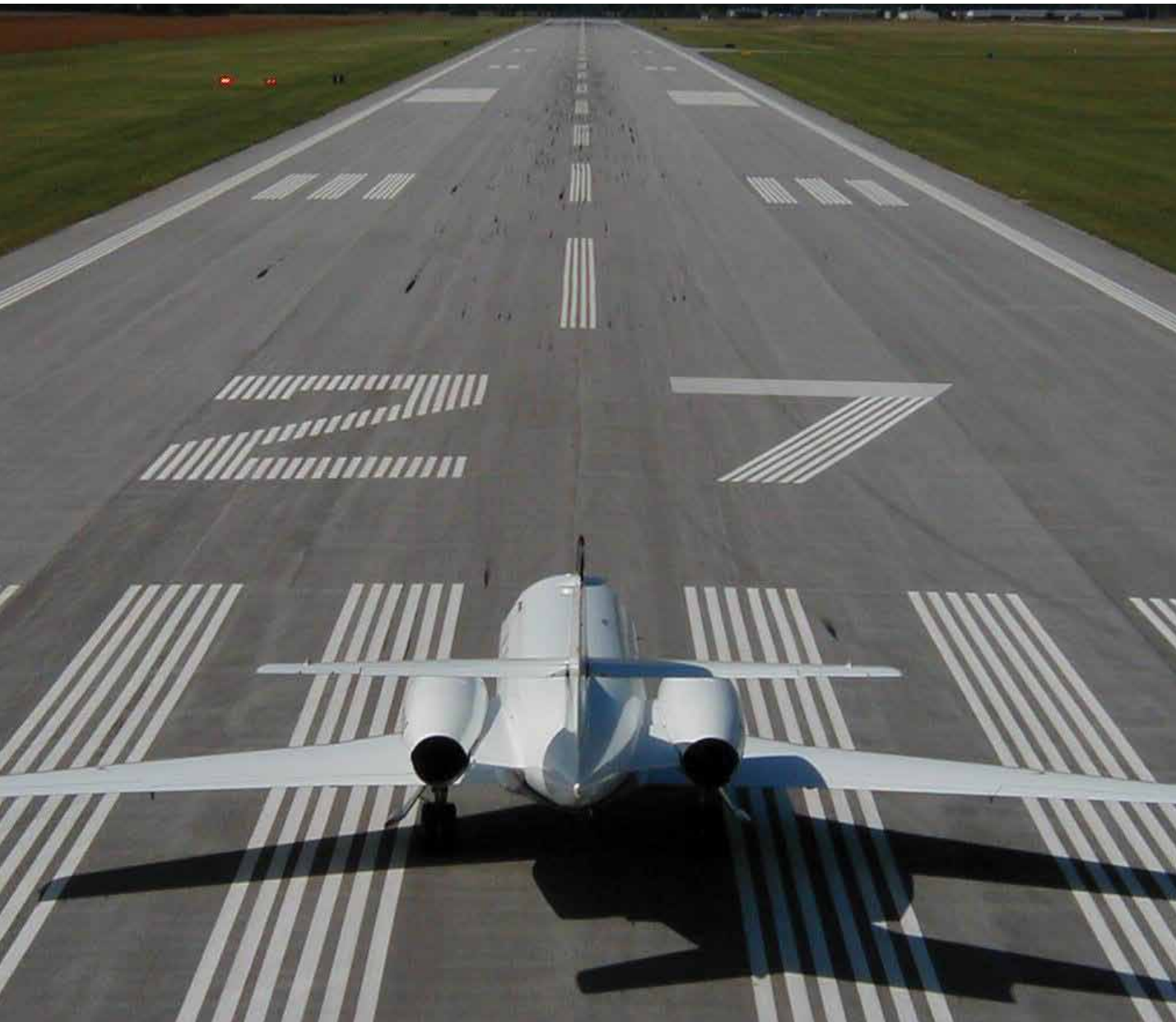
The Symposium also will explore the role of inter-agency and cross-border cooperation in securing border integrity, including the role of ABCs and electronic data sharing. It will address challenges and good practices in providing implementation and capacity-building assistance to States in the ABC and biometric MRTD areas.

For more information on this must-attend border-control gathering please visit:
icao.int/Meetings/mrtd-symposium-2013



| ICAO


SECURITY & FACILITATION



ASSESSING AND MINIMIZING RUNWAY SAFETY RISK THROUGH A COLLABORATIVE APPROACH

Michiel Vreedenburgh is Chief, Implementation Support and Development — Safety (ISD-SAF) Section and the Runway Safety Programme Matrix Manager.

Elizabeth Gnehm is Technical Officer, Integrated Safety Management (ISM) Section Safety Management and Monitoring, Air Navigation Bureau and has been the Runway Safety Programme Focal Point over the past year-and-a-half.

 **In an industry whose challenges and needs are constantly evolving, ICAO's Programme in the area of runway safety is evolving as a consequence.**

The current reality of increasingly congested airspace, safety disparities between regions and, importantly, real-time news reporting of air accidents and public perception of how these accidents are handled, are some of the challenges faced by the aviation sector.

Major progress has been made recently in the area of runway safety. In 2012, there was a significant reduction in runway safety-related accidents (as defined in ICAO Annex 13), with a decrease of 21 per cent. In addition, the global accident rate involving scheduled commercial operations for 2012 decreased significantly to 3.2 accidents per million departures.

While these results are favorable, runway accidents have represented the highest single occurrence category for all air accidents over the past ten years. Assembly Resolution A37-6, entitled Runway Safety, resulting from the 37th Session of the Assembly in 2010, called upon States to undertake initiatives to enhance runway safety through the establishment of a Runway Safety Programme using a collaborative approach including regulators, aircraft operators, aerodrome operators, and air navigation services providers to prevent and mitigate the effects of runway excursions, incursions and other related occurrences.

Pursuant to the Resolution, ICAO held a Global Runway Safety Symposium in 2011 and, following a commitment from 11 partner aviation organizations, Regional Runway Safety Seminars (RRSSs) were introduced. The RRSS Programme was developed to highlight such matters as hazard identification, risk assessment and mitigation strategies; the value of establishing Runway Safety Teams (RSTs); resources available for RSTs; and the regional strategy to establish, promote and provide ongoing support to RSTs. RRSSs are held regionally and are hosted by a State in cooperation with ICAO and at least one of the 12 Runway Safety Partners: ACI, CANSO, EASA, EUROCONTROL, FAA, FSF, IAOPA, IATA, IBAC, ICCAIA, IFALPA, and IFATCA.

“While acknowledging the progress made by the industry, IATA, together with its industry partners, recognizes the need for continued improvement in the area of runway safety, which is

one of the industry's principal risk areas. Events such as runway excursions, runway incursions, hard landings and tail strikes are areas we still have to work on. Therefore, IATA believes that it is appropriate to address all runway safety issues in a comprehensive and collaborative manner and in this regard, we are focusing our efforts, attention and resources on working with other stakeholders including ICAO, Airports Council International and others to develop solutions to address this issue,” stated Guenther Matschnigg, Senior Vice President, Safety and Flight Operations, IATA.

ICAO's overarching focus is on trying to become more preventive and predictive of occurrences and accidents, rather than waiting for something to happen and then trying to learn from investigating an event after it has taken place.

“ICAO feels that the best approach to this is a multidisciplinary one whose objective is to gather together representatives from the various stakeholders in runway safety in order to promote the establishment of local runway safety teams using a proactive approach,” said Nancy Graham, Director, Air Navigation Bureau at ICAO.

To date, RRSSs have been held in a number of countries around the world, with two scheduled for November this year, one in Turkey and another in Malaysia. Each Seminar is adapted to needs of the region and feedback is collected to determine what support is required. For the RRSS held in Antigua and Barbuda, for instance, general aviation issues were considered to be very important. In Morocco, some attendees expressed the need for training in how to work collectively, and in how to negotiate for the implementation of the solutions they develop with the impacted service providers.



Safety Team



Angela Gittens, Director General, Airports Council International (ACI), delivers the Opening Remarks at the Regional Runway Safety Seminar in Agadir, Morocco.



David Gamper, Director, Safety and Technical at Airports Council International (ACI), moderated Session 2 on Runway Excursions — Hazards and Mitigation Strategies at the Seminar in Agadir, Morocco.

Participant feedback has been extremely positive. David Gamper, Director, Safety and Technical at Airports Council International (ACI), has attended several RRSSs and is confident of its benefits. "In Africa, there were excellent interventions and speeches, with a very participative audience and a huge thirst for more information." Gamper noticed great enthusiasm for the sharing of experiences at the various seminars. "I think that these seminars should be continued in all parts of the world and ICAO is certainly playing a key role in working with the rest of the industry," he continued.

Ms. Graham noted that the recent reduction in runway safety-related accidents is encouraging, although a direct cause-and-effect with the RRSSs cannot be established. "For now, it's a positive sign and we need to keep moving in that same direction and see if we can maintain those same results over a more significant period," she stated.

MATRIX MANAGEMENT APPROACH

In August 2013, ICAO introduced the Matrix Management concept to the Air Navigation Bureau, involving a transition from the use of traditional, single-discipline teams to a more flexible multidisciplinary team approach to problem solving.

A matrix structure is conducive to providing the Organization greater agility in setting up projects that require resources from various sections or disciplines. Individuals involved in a matrix team have the opportunity to interact more with their colleagues in other parts of the Bureau. The objective is for flight operations, aerodrome and air traffic management experts, for example, to develop solutions together rather than separately in isolation of each other, which will benefit industry stakeholders, as well.

Matrix Management represents a cultural change in the delivery of implementation assistance that will require training as team members become accustomed to this new way of working. If the Runway Safety Programme is not implemented using a Matrix Management approach, or something similar involving multi-disciplinary collaboration between multiple internal and external entities, it won't be achieved as effectively and efficiently as it could be.

NEW HANDBOOK FOR RUNWAY SAFETY TEAMS

The first edition of the ICAO Runway Safety Team Handbook is being developed in conjunction with ICAO's Runway Safety Partners and a draft of the document appears on the Organization's Runway Safety website (www.icao.int/RunwaySafety).

The purpose of the Handbook is to provide guidance for Runway Safety Teams at airports. It advises them as to Runway Safety Team objectives, possible team participants and how to get set up, and it includes examples of meeting agendas and topics that should be covered. Similar to the Matrix Team concept, ideally it would involve, among other entities, airlines – which are users of the airport – air traffic controllers, aerodrome operators, and the State regulator as a member, observer or facilitator for ideas that may be put forth. ■



Success in aviation safety is inevitably the result of intensive cooperation. The organizations noted here have been instrumental to aviation's recent and improved outcomes in the runway safety area and ICAO is grateful for their continuing commitments to safety progress.



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| ICAO

ECONOMIC DEVELOPMENT

ENHANCING PASSENGER SAFETY THROUGH CABIN CREW COMPETENCY-BASED TRAINING

Martin Maurino is Technical Officer, Safety, Efficiency and Operations, responsible for all of ICAO's activities in the field of Cabin Safety, and acts as Secretary to the ICAO Cabin Safety Group, composed of representatives from Civil Aviation Authorities, airlines, aircraft manufacturers, and international organizations.

 During 2012, the ICAO Flight Operations Section expanded its work in the area of cabin safety. This is the first time that the Organization introduced a dedicated cabin safety programme. Cabin safety is an area of flight operations that aims at enhancing the safety of passengers and of the flight. It encompasses several aspects such as regulations, operator procedures, training, and safety and emergency equipment required on board aircraft.

Cabin crew members are on board commercial passenger aircraft to ensure passenger safety. Traditionally, the role of cabin crew members focused on responding to emergencies, such as in-flight fires or evacuating an aircraft in the event of an accident. However, cabin crew members also play an important proactive role in managing safety, which can contribute to the prevention of accidents. Training is necessary to prepare cabin crew members to conduct their safety-related duties and fulfill their responsibilities during normal day-to-day flights. It is also essential to enable cabin crew to recognize and act during abnormal and emergency situations, particularly since these rarely occur.



As part of its new cabin safety programme, ICAO developed a competency-based approach to cabin crew safety training in order to ensure that cabin crew members are proficient in performing their duties and responsibilities, and with the goal of establishing an international baseline for cabin crew competencies. In order to develop this approach, the Organization established a joint Industry-Regulatory group, named the ICAO Cabin Safety Group (ICSG), composed of experts from civil aviation authorities, airlines, aircraft manufacturers, and international organizations.

The ICAO Cabin Crew Safety Training Manual (Doc 7192 Part E-1) provides guidance related to cabin crew training requirements found in Annex 6 — *Operation of Aircraft, Part I, International Commercial Air Transport — Aeroplanes*. The revised third edition, currently being completed, will contain the competency-based approach to cabin crew training. The Manual will outline the recommended performance standards, knowledge and skills that cabin crew trainees should obtain through training, as well as recommended hands-on exercises and simulated scenarios that they must undertake prior to being assigned as operating cabin crew members on commercial passenger flights.

Alongside the competency-based approach to cabin crew training for normal, abnormal and emergency situations, ICAO is developing guidelines for facilities, equipment and representative training devices required for cabin crew training. Cabin crew training managers, training programme developers, instructors, and examiners are integral to successful training. Likewise, training development and continued evaluation of training programmes are needed to obtain quality training. Guidance material on all of these elements will also be included in the third edition of the Cabin Crew Safety Training Manual.

Additionally, ICAO established recommended content for various types of training (initial, recurrent, aircraft type specific, etc.), cabin crew in-charge specific training, the management of on-board medical events, safety management systems, fatigue management, the transport of dangerous goods by air, human performance and aviation security, as applicable to cabin crew members' duties and responsibilities.

The revised ICAO Cabin Crew Safety Training Manual is scheduled to be released in 2014. More information on ICAO's Cabin Safety Programme can be found at: www.icao.int/cabinsafety. ■



The changing face of aviation in Nigeria





Map of the continent of Africa showing the strategic location of Nigeria



H.E. Dr. Goodluck Jonathan, GCFR,
President of the Federal Republic
of Nigeria

Air Transport has remained the key driver of the on-going transformation agenda of the Federal Government of Nigeria. Over the last few years, no other industry in the transport sector comes close to commercial aviation in terms of the speed and efficiency with which it can foster economic growth in the Country.

Air transport is gradually becoming the Sector which is moving the country into a new

development paradigm. The industry is growing as more of the country's inhabitants are travelling by air. The growth for both domestic and international passenger traffic has been about 20% a year. However, the growing middle class of over 150 million-strong and the flourishing tourism industry, as well as the ever growing business opportunities, are good prospects for the continuous growth of the industry.

Nigeria has positioned itself to take advantage of both its substantial population and its advantageous location, at the center of Africa. Nigeria is a natural hub and the Government is making efforts to promote it as a hub for West and Central Africa. In this vein, the Government is working on various projects in Lagos and Abuja to open up the airspace and have more direct flights to long-haul destinations. It is believed by industry experts that future growth of the Nigerian aviation industry will be fueled by new routes to Europe, Middle East, Asia Pacific, Latin America and North America.

There has been a marked increase in the pace and breadth of progress in the industry especially with the appointment of Princess Stella Oduah, as the Minister of Aviation, by President Goodluck Jonathan. Since she assumed her duties as the Honourable Minister of Aviation, Princess Stella Oduah, has embarked on the transformation of the entire aviation industry, focusing on the revamping of the aviation infrastructure, improving aviation Safety and Security, creating an enabling environment for airlines and other service providers as well as protecting the interests of aviation consumers.

To drive her transformation agenda, the Honourable Minister, put in place a Road Map for the Aviation Industry Master Plan. The Synopsis of the Master Plan is as follows:

- Institutionalize world-class safety and security standards
- Develop Infrastructure
- Reform institutions, develop capacity and increase professionalism
- Transform key airports into a network of domestic and international hubs
- Grow domestic airlines and create financial stability
- Develop airport cities (Aerotropolis) to transform airports into major centres of employment, shopping, trading and leisure
- Create national carriers.

So far the Government of Nigeria under President Goodluck Jonathan has invested huge resources into the remodeling of twenty-two (22) airports and the provision of air navigation facilities. The vision of the President, being driven by the Honourable Minister, is to establish and develop airport cities (Aerotropolis). There have also been on-going institutional reforms and the development of a new Civil Aviation Policy. These efforts are all geared towards the transformation of the industry to international standards.

THE NIGERIAN AVIATION INDUSTRY:
GOVERNANCE, STRUCTURE AND POLICY

The Federal Ministry of Aviation was created by the Nigerian Civil Aviation Act of 1964. It oversees a number of departments which share responsibility for all elements



Dr. Namadi Sambo, GCON Vice President of the Federal Republic of Nigeria in a discussion with Princess Stella Oduah OON Honourable Minister of Aviation and Capt. Mrs C. Kalu Rector Nigerian College of Aviation Technology (NCAT)

of Nigeria's air transport system. Key duties are held by six (6) Parastatals: the Nigerian Civil Aviation Authority (NCAA), Nigerian Airspace Management Agency (NAMA), Federal Airports Authority (FAAN), Nigerian Meteorological Agency (NIMET), Accident Investigation Bureau and the Nigerian College of Aviation Technology (NCAT). In addition, Nigeria maintains a Permanent Mission at ICAO.

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COLLABORATION WITH ICAO

Nigeria fulfills an important role in the field of Air Transport with respect to the air services and the air navigation facilities it provides for International Civil Aviation. The country, since becoming a member of the ICAO Council in 1962, has continued to collaborate with ICAO in making valuable contributions to the sustainable development and growth of international civil aviation, especially in Africa.

Nigerian Representative on the ICAO Council, Dr. Olumuyiwa Bernard Aliu, is the Dean of the ICAO Council as well as the Chairman of the Steering Committee of AFI Comprehensive Implementation Programme (ACIP). He has also served the Organisation in various other capacities such as:

- First Vice-President of the ICAO Council;
- Chairman, ICAO Council Working Group on Governance & Efficiency;
- Chairman, Finance Committee;
- Chairman, Technical Cooperation Committee;
- Chairman, ICAO Conference on Aviation & Alternative Fuels
- Member, Air Transport Committee;
- Member, ICAO Staff Pension Committee; COPAD;
- Member, Governing Body of International Financial Facility for Aviation Safety (IFFAS);
- Member of Air Transport and Edward Werner Award Committees and several other Working Groups of the ICAO Council;
- Member, Working Groups on Human Resources; Regional Bodies; Assembly Resolutions; Technical Coop. Program Development; LAGs.

Nigeria continues to contribute actively to the work of ICAO through participation of its experts in the organization's various Technical Panels and Working/Study Groups such as:

- High Level Group on Climate Change (HGCC)
- Group on International Aviation Climate Change (GIACC)
- DGCA Climate Group (DGClG)
- Aviation Security (AVSEC) Panel
- Airport Economic Panel (AEP)
- Air Navigation Services Economic Panel (ANSEP)
- Air Transport Regulation Panel (ATRP)
- Statistics Panel (STAP)
- Facilitation Panel (FALP)
- Safety Management Panel
- Technical Advisory Group on Machine Readable Travel Documents (TAG/MRTD)
- Regional Traffic Forecasting (Africa/Indian Ocean Traffic Forecasting Group)
- Governing Body International Financial Facility for Aviation Safety (IFFAS)
- Committee on New and Emerging Threats to Civil Aviation
- Commission of Experts of Supervisory Authority of the International Registry (CESAIR)
- Public Key Directory(PKD) Board
- Study Group on New and Emerging Threats to Civil Aviation
- Aeronautical Information Services – Aeronautical Information Management Study Group (AIS-AIMSG)
- Medical Provision Study Group

From left to right: Princess Stella Oduah OON Honourable Minister of Aviation and Ms Ene Ita Special Adviser to Mr. President on Aviation Reform in a discussion with Mr. Roberto Kobeh Gonzalez, President of ICAO.

From left to right: Dr. Elham Ibrahim Commissioner Infrastructure and Energy, African Union Commission, Dr. O. B. Aliu, Nigerian Rep on the ICAO Council and Mr. Roberto Kobeh Gonzalez, President of ICAO during the African Ministerial Conference on Safety held in 2012 in Abuja.

The Federal Ministry of Aviation has, as part of its responsibilities, the formulation of general policy frameworks that encourage the healthy growth of aviation and allied businesses in Nigeria. The Ministry is mandated to ensure an enabling environment for the safe, secure and sustainable development of air transport in Nigeria and towards this end, it formulates, updates and implements the National Aviation Master Plan for the overall development of the aviation industry, in line with the Standards and Recommended Practices (SARPs) of the International Civil Aviation Organization (ICAO) and national objectives.



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- Development of Airport Cities (Aerotropolis) to transform airports into major employment, shopping, trading, business, leisure and cargo village destinations.
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From left to right: Ms Angela Gittens, Director General, Airports Council International (ACI), Dr. O. B. Aliu, Nigerian Rep on the ICAO Council, Mr. Catalin Radu, President, European Civil Aviation Conference, Mr. Roberto Kobeh Gonzalez, President of ICAO during the African Ministerial Conference on Safety held in 2012 in Abuja.



Aircraft of some Nigerian airlines



Nigeria has become a major partner with ICAO in advancing aviation in Africa through various programmes in line with the organization's strategic objectives of enhancing air transport safety, security, sustainability and environmental friendliness. Nigeria has sponsored major ICAO initiatives including the AFI Comprehensive implementation Programme (AFI Plan) to enhance Aviation Safety in Africa, the establishment of regional safety organization and various international as well as regional conferences, seminars, symposia and workshops such as:

- Global Aviation Safety Roadmap Workshop,
- Performance Based Navigation Seminar,
- Air Transport Symposium,
- SMS Training Seminar,
- Regional Seminar on Machine Readable Travel Document (MRTD),
- Regional Ministerial Conference on Aviation Security.

Similar efforts are also being made to support the African Civil Aviation Commission (AFCAC) and the African Union in their programmes aimed at accelerating the growth of aviation in the continent. Nigeria's efforts in this regard include financial contributions and secondment of experts to AFCAC. Nigeria was the headquarters of the COSCAP Project for the Banjul Accord Group (BAG) and is the current Headquarters of the BAG Aviation Safety Oversight Organisation (BAGASOO). Nigeria also hosts the West African office of the International Air Transport Association (IATA). The IATA office in Nigeria covers Ghana, Sierra Leone, Gambia, Liberia and Cape Verde.

"It goes without saying that the Government of Nigeria will continue to support the effectiveness and efficiency of the organization and the achievement of its strategic objectives in collaboration with other Member States" Dr. Aliu remarked.

The Government of Nigeria has therefore decided to present Nigeria's candidature for re-election to Part 2 of the Council of ICAO at the 38th Session of the ICAO Assembly to be held from 24th of September to 4th of October, 2013.

The Government has also decided to present the Candidature of Dr. Olumuyiwa Bernard Aliu, the Nigerian Representative on the ICAO Council for the post of the President of the ICAO Council in November, 2013.

**THE NIGERIAN CIVIL AVIATION AUTHORITY (NCAA):
OVERSEEING A SAFETY AND SECURITY TURNAROUND**

The Nigerian Civil Aviation Authority is the regulatory body for aviation in Nigeria. It was established in 1999 to oversee all aspects of safety and reliability of air navigation, in line with the International Civil Aviation Organization (ICAO).

The Civil Aviation Act of 2006 granted the NCAA autonomy and gave it the tools to regulate the aviation industry in Nigeria. The Government of Nigeria, as part of its transformation agenda, has assembled a highly professional Management team in NCAA that has set out to create a



The National Assembly Complex

dynamic sector that could compare with the best in the world. The objective of the Government is to make the industry not just accident-free, but also investment-friendly.

Nigeria successfully passed the ICAO Universal Safety Oversight Audit Programme (USOAP) in 2006. This was achieved by the total re-certification of the entire industry including: airlines, airports, aircraft and human resources. The skill levels of personnel across all these areas of aviation

activity have been boosted in Nigeria through an aggressive training programme. These efforts helped Nigeria achieve the United States Federal Aviation Administration (FAA) Category One International Aviation Safety Assessment (IASA) Certification. Concerted efforts are being made by NCAA to ensure that the FAA (IASA) Category One status is maintained. Presently, with the Category One status, a Nigerian airline, Arik Air, flies directly to the United States using Nigerian registered aircraft.



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Some of the remodeled Airports' Terminals



Some of Air Navigation equipment installed by NAMA



In order to continue to provide quality services and enhance safety, Nigerian airlines, over the years, have embarked on fleet renewal. This was made possible by the leasing arrangements facilitated by the Cape Town Treaty. This has allowed local carriers to lease brand new airplanes.

The NCAA has continued to coordinate with other aviation parastatals, notably the Federal Airports Authority of Nigeria (FAAN), the Nigerian Airspace Management Agency (NAMA), Nigerian Meteorological Agency (NIMET) and Accident Investigation Bureau (AIB) to ensure a cohesive approach to all aspects of aviation safety.

THE FEDERAL AIRPORTS AUTHORITY OF NIGERIA:

THE TRANSFORMATION OF THE NIGERIAN AIRPORTS

Federal Airports Authority of Nigeria (FAAN), a member of the Airports Council International (ACI), manages all the commercial airports in Nigeria, providing the necessary maintenance and services for air transport in the country. The management of FAAN with the support of the Honourable Minister, Princess Stella Oduah, has completed, under the Transformation Agenda of the Honourable Minister, the remodeling of eleven airports including four International Airports namely: Murtala Muhammed International Airport (MMIA), Lagos, Nnamdi Azikiwe International Airport, Abuja, Mallam Aminu Kano International Airport, Kano and Port Harcourt International Airport, Port Harcourt. This project was undertaken under the first phase of the transformation programme. The remaining airports will be remodeled in the second phase.

The objective of the Government is to transform these airports into world class airports with facilities that meet international standards and ensure passenger comfort as well as to promote facilitation at the airports. Additionally, the Government is making all necessary efforts to provide the required facilities at these airports that will meet the Certification requirements of the NCAA.

In order to optimize the utilization of these airports and sustain the new standards through increased revenue earnings, the Federal Government recently designated 13 airports as perishable cargo airports. Major storage facilities are being developed at these designated airports and cities. The States' Government and the private sector are being encouraged to partner with the Federal Government to revive smaller airports particularly for cargo operations, as well as for local transportation and tourism operations. The Government's efforts are geared towards ensuring that Nigeria maximizes its benefits from the huge air freight export market in Africa.

Additionally, the Government intends to expand the four International Airports in Lagos, Abuja, Kano and Port-Harcourt to create airport cities (Aerotropoli), to attract international and commercial investment. The government believes that airports are much more than aviation infrastructure as they are now leading urban growth generators and are taking on many features of metropolitan business districts.

Notwithstanding the huge investments being made by Government in the transformation of its airports, the government is still

encouraging partnership with the private sector under a public private partnership. In this way, the government has continued to create an enabling environment for both local and foreign investors.

**NIGERIAN AIRSPACE MANAGEMENT AGENCY (NAMA):
TRANSFORMING THE AIRSPACE**

The Nigerian Airspace Management Agency (NAMA) was established in May, 1999 as part of the International Civil Aviation Organization (ICAO) compliance programme, which advocates the separation of aviation service providers from regulators. NAMA, which is a very active member of the Civil Air Navigation Services Organisation (CANSO), was given a clear mandate upon its inception: to provide a safe, efficient and economically cost-effective air navigation system, with a vision to make the Agency a world class Air Navigation Service Provider (ANSP).

NAMA has been a huge success story in terms of both the development of Air Traffic Management (ATM) services and the maintenance of high safety standards. NAMA has completed the total VHF coverage of the nation's airspace. This has enhanced communication between Pilots and Air Traffic Controllers, to the extent that aircraft crew is now in constant contact with any of the pertinent centers within the Nigerian airspace. Aircraft now have complete access to Air Traffic Control Services for more efficient landings all over the Country. This upgrade took into account the shift from terrestrial to satellite based systems, a move that will be completed all over the world by 2015.



Some of Air Navigation equipment installed by NAMA



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TOTAL RADAR COVERAGE

NAMA has also completed the Total Radar Coverage of Nigeria (TRACON). The TRACON equipment enables accurate tracking of all aircraft entering Nigeria. It therefore brings, not just security benefits, but also commercial advantages as it has an in-built Auto Billing System (ABS) which captures any aircraft that enters the Nigerian airspace.

Also, Nigeria is implementing Performance Based Navigation (PBN) which will improve operational safety by providing precise three-dimensional (3D) approach and departure guidance. The PBN technology will be of great benefit to the Nation's airspace in the area of increased capacity, efficiency, environmental improvements and greater access to airports and runways. Furthermore, from the air carrier's perspective, it will bring about reduced flight delays, improved all weather operational reliability, and improved access to airports and increased fuel efficiency.



NCAT training aircraft



NIGERIAN METROLOGICAL AGENCY (NIMET):

PREDICTING THE UNPREDICTABLE

Meteorological service is one area of aeronautical practice that is strictly regulated by the International Civil Aviation Organization (ICAO), working closely with the World Meteorological Organisation (WMO). Every Member State of the ICAO Convention is required to designate a national weather service provider, charged with the responsibility of providing aeronautical meteorological information for the safety of flight operations. The Nigerian Meteorological Agency (NIMET) is the designated national weather service provider in Nigeria.

The Agency was established in 2003 to provide meteorological services in support of human and environmental sustainability, policy development, and safe operation of air, land and marine transportation. A strong, well-equipped and technologically driven meteorological agency such as NIMET is needed to provide accurate and timely weather information in order to achieve aviation safety.

The government of Nigeria is investing huge resources to ensure that NIMET is properly equipped to perform its duties, and the agency now boasts of a wide range of new technological developments that are revolutionizing its capabilities. The Agency has installed Doppler weather radars, Low-Level Wind Shear Alert System (LLWAS) and thunderstorm detectors at some of the Nation's airports. NIMET recently attained ISO 9001:2008 Certification.

NIGERIAN COLLEGE OF AVIATION TECHNOLOGY (NCAT):

TRAINING FOR EXCELLENCE:

The Nigerian College of Aviation Technology (NCAT) located in Zaria, Kaduna State, is the foremost aviation training institution in the West African sub-region. The institution's primary responsibility is the provision of excellent *ab initio* training for Commercial Pilots, Air Traffic Controllers, Aircraft Maintenance Engineers, Aeronautical Telecommunications Engineers, Aviation Technicians, and Aeronautical Meteorologists among several other aviation specialist professions. NCAT was established in 1964 for Nigeria and other African countries in collaboration with ICAO and the UNDP. The College boasts of over 40 years of experience in the development of human resources for the aviation industry in Africa. Academic activities in the College are carried out in five training schools, namely:

- Flying School
- Aircraft Maintenance Engineering (AME) School
- Aeronautical Telecommunications Engineering (ATE) School
- Air Traffic Services/Communications (ATS) School
- Aviation Management School

ACCIDENT INVESTIGATION & PREVENTION BUREAU (AIPB)

The Federal Government of Nigeria through the Civil Aviation Act 2006, Section 29, established the Accident Investigation and Prevention Bureau as a corporate body and an



NAMA

NIGERIAN AIRSPACE MANAGEMENT AGENCY

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THE NEW FACE OF NIGERIAN AIRSPACE

Nigerian Airspace Management Agency (NAMA) since its establishment in January, 2000, has been very consistent in fulfilling its statutory obligation vis-à-vis, the provision of air navigation services to the operating airlines.

Operational facilities like Nav aids have been upgraded to international standard, resulting from massive capital investment by the federal government since the inception of civilian administration in the country.

Provision of navigational equipment which had suffered neglect during the military interregnum, received a boost shortly after the inauguration of the democratic government. New navigational aids like the Instrument Landing System and VOR among others were installed at most of the major airports in the country.



**President Goodluck
Ebele Jonathan**

TRACON WORKING

The vision for a safer sky by the government and with tremendous input from the agency, the federal government on April 8, 2003, awarded a multi-billion naira new radar project to Thales ATM of France to replace the old and analogue radar installed since 1979. The turnkey project had since been completed and delivered by the contractor, according to the specifications of the project. President Goodluck Jonathan commissioned the project on October 18, 2010 and it has been operating at optimal level.

The project has nine radar locations across the country. Specifically, there are four control radar locations in Lagos, Abuja, Port Harcourt and Kano with each having both primary and secondary co-fixed radar head. There are five other stand alone stations in Ilorin, Maiduguri, Talata Mafara, Numan and Obubura. The primary has the range of 65 nautical miles while the secondary covers 250. The overlapping range enables the controllers to see flights beyond the shores of the country.

Still on surveillance, the agency has concluded arrangement to instal a multi-lateration surveillance



**Engr. Mazi Nnamdi Udoh,
MD/CE, NAMA**

system in the Niger Delta Area to cover Helicopter activities of the oil companies. Engr. Mazi Nnamdi Udoh, the managing director of the agency affirmed that this new drive would enhance safety and boost the agency's revenue. Since May 30, 2013, the agency added

another service-Area Radar Control to enhance quality service and traffic management.

We have more than 160 daily flights of such in that region. Interest shown by the operators on this project, has been tremendous and encouraging.

To complement the operation of the radar, the federal government financed the Total VHF Radio Coverage of Nigeria project which has been completed and in operation.



Princess Stella Adaeze Oduah

The airspace has improved greatly in recent times, particularly under the leadership of Princess Stella Adaeze Oduah who has developed an unprecedented passion for high quality service delivery in air traffic management. Features of improvement include; the completion of WGS-84 survey of 26 airports to prepare them for performance based navigation system. Procedures for the four major airports in Lagos, Abuja, Port Harcourt and Kano have been completed while trials for PBN were carried out last year by some airlines and the exercise was amazingly successful!

AIS AUTOMATION

The AIS automation is on course and the progress work on this has been encouraging. The completion of this project will by this year add significant value to the quality of air traffic services in the country and the sub region. This project is expected to come on stream by October this year when it will be on test run. Just completed the refurbishment of 13 towers of some of our airports in the country. The agency plans to install Controller Pilot Data Link Communication (CPDLC) to further boost and enhance smooth communication within the airspace.

MAINTENANCE

Continued sustenance of TRACON with optimum performance and functionality of all deliverables of the project support of air traffic management. Same goes to all our terminal and enroute Navaids all digitalized.

MANPOWER

Obviously, training of our staff is top priority. NAMA is an engineering based agency and as such most of our projects are tied to trainings to allow for easy transfer of technology. Apart from this all cadre of staff involved in the running of air traffic management system are regular trained. In the last three years over 500 ATCs and Engineers have been trained on various systems of running an effective ANSP outfit like NAMA. The agency spends an average of \$3.2 m for both local and foreign trainings. These facts are verifiable. Just recently, the agency trained some ATCs in the United States on Private Pilot License (PPL). Similarly about 24 have been trained on area radar control.

As far as NAMA is concerned, the federal government headed by President Goodluck Jonathan, has been consistent in its drive of transforming the nation's airspace into a world class ANSP with capital investment of more than \$9.5m on various safety critical projects some of which are already highlighted above.



ARIK air's and AEROCONTRACTORS airlines' aircraft



IRS and DANA Air' aircraft



autonomous agency reporting to the President through the Minister in charge of aviation.

The autonomy granted the Bureau was to ensure its independence from government bureaucracy and political influence as well as the credibility of its reports.

AIPB'S ACCIDENT PREVENTION PROGRAMME

Apart from investigating accidents and serious incidents AIPB also gathers air data and conducts studies to uncover trends and traps in the system that could impair safety. Prioritized data is relayed to the industry for necessary action. The

Bureau conducts inspections of various facilities to monitor compliance with safety recommendations. The Bureau's FDR/CVR laboratory will soon be operational to decode Flight Data Recorders and Cockpit Voice Recorders.

NIGERIAN AVIATION SECTOR RESURGENT

The Nigerian airlines have fared better than the global industry average, benefitting from the enormous advances in technology and infrastructure as well as the deregulation of the airline industry. Nigeria now represents an excellent example of an emerging market economy that has bucked the trend in the middle of a global slow-down with an annual average traffic growth of 20%.

One of the most notable developments in the Nigerian aviation industry is the continuous increase in the number of domestic carriers operating within the country. Improved access to finance has spurred operators' competition within Nigeria, while simultaneously encouraging increased standards of service, reliability and choice – all tremendous benefits to passengers.

THE NEW NATIONAL CARRIER

To further strengthen the airline industry, the Federal Government is working towards the establishment of a new national carrier that will be competitive and able to take advantage of the numerous unutilized Bilateral Air Services Agreements existing between Nigeria and other countries. The New National Carrier which is part of the transformation agenda of the Federal Government is expected to be private sector driven.

**NIGERIAN AIRLINES OPERATING SCHEDULED SERVICES
AERO CONTRACTORS AIRLINE**

Aero Contractors has been operating in Nigeria for almost 54 years. The company operates Fixed Wing airline business and Rotary Wing helicopter business. Aero Contractors Airline is known for its safety, security and reliability. It is building on those values to create a world class business that provides new successes for the shareholders, customers and staff. The airline recently adopted Low Cost Carrier principles and has managed to drive down costs of tickets for domestic routes to as low as \$75 USD. Aero Contractors is working towards achieving its vision to be the airline of choice in Nigeria.

ARIK AIR

Arik Air is rapidly establishing itself as the benchmark for quality air transport in West Africa and beyond. The airline provides services to numerous destinations on domestic, regional and intercontinental routes. Arik Air currently flies to over 19 destinations in Nigeria and has 40% market share. A significant milestone was reached when Arik became the first contemporary Nigerian airline to commence operations to the US. The airline's strength was based on the acquisition of brand new aircraft and the established partnership with Lufthansa Technik for the maintenance of its aircraft.



SKYPOWER EXPRESS AIRWAYS

is dedicated to the highest quality of customer services delivered with a sense of warmth, friendliness, individual pride and Company spirit...



SKYPOWER EXPRESS AIRWAYS

was as incorporated on 19th July, 1985 as a limited liability company with a Certificate of Incorporation RC 73845 for the purpose of providing air-transport of passengers, cargo and mails.

Skypower Express Airways was the first to be issued with Air Operator Certificate (AOC) when it was first introduced in 1986 under the guidance of the then Deputy Director of Airworthiness Dr. Harold Demuren.

The Company was also the first Airline to be issued with AirTransport Licence (ATL) with a validity period of 5 years superceding the original 3 years tenor for ATL.

The Airline holds the following valid certificates:

- Air Transport Licence (ATL) No. NCAA/ATRI/ATL63
- Air Operators Certificate (AOC) No. AAR/C/018
- Approved Maintenance Organization (AMO) No. AMO/SN/55A

We have 12 Aircraft under our control including those we handle.

What we do:

- ☛ Schedule/Non-schedule Operation
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- ☛ Aerial Work
- ☛ Fleet of Airlines



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Aircraft of some charter operators



Sahcol and Nahco Groundhandling Companies



State Profile Nigeria

DANA AIR

The airline commenced operation a few years ago with a vision to be recognized as Nigeria's most reliable and customer friendly airline. Despite the challenge the airline had after its crash in 2012, the airline has continued to provide reliable services to its passengers to destinations in Nigeria.

IRS AIRLINES

IRS Airlines has remained a resilient and modest player in the domestic airline market since 2003. Currently, the airline is a visible operator at the country's airports in Lagos, Abuja, Kano, Maiduguri, and Yola. The airline is gradually but steadily growing into a major stakeholder in the market through operational consistency.

MEDVIEW AIRLINE

Med-View airline commenced domestic operation in November 2012 after participating in the airlifting of Pilgrims to Saudi Arabia for Holy Pilgrimage for five years. The vision of the airline is to be the preferred in terms of quick service delivery in the aviation industry. Med-View airline is gradually consolidating its domestic operations and intends to operate regional and international air services in the not-too-distant future.

OVERLAND AIRWAYS

The airline started scheduled domestic passenger service in 2003. It has continued to carve out a niche for itself as a consistent, shuttle operator linking not just Abuja and Lagos with several other airports, but also establishing an important Northern and Western route network connecting other Nigerian cities. This network comprises Kano, Kastina, Jos, Minna, Ibadan and Akure using new generation aircraft that feature Beechcraft and ATR turboprops.

NON-SCHEDULED SERVICES AND GENERAL AVIATION SERVICES

There are also many airlines offering Non Scheduled (Charter) passenger, cargo and oil support Services. These airlines include: Bristow Helicopters, Pan African Airlines, Caverton Helicopters, Dornier Aviation Nigeria AIEP, Kings Airlines, TopBrass, OAS Helicopters and Allied Air.

Also there are some airlines that offer seasonal international charter services from Nigeria to specific destinations outside the country for special events such as Hajj and/or Holy Pilgrimages. These airlines which include, Kabo Air, Max Air and Meridian Airlines use a fleet of wide bodied and long-haul Boeing jets such as B747s.

The Nigerian General Aviation Market has continued to grow at a very high rate over the last few years. Many organizations and private individuals are acquiring brand new corporate jets for their individual use. It is expected that this sector will continue to grow.



Med View airlines' and Overland airways aircraft

ALLIED SERVICE PROVIDERS

There are two major ground handling companies providing various handling services to the airlines. The companies are Nigerian Aviation Handling Company (NAHCO) and Skyway Aviation Handling Company (SAHCOL). The Government has also granted license to Swiss port Handling Company as the third ground handling company. The initiative is to promote competition and ensure more efficient services from the ground handling companies in view of the ever increasing traffic at the nation's airport.

There are also highly reputable companies that provide world class catering services, namely the Aviation Services Limited (ASL) and Skypower Catering Companies.

MAINTENANCE HANGARS

Efforts are on-going by the Federal Government to establish in different parts of the country, six (6) Aircraft Maintenance Hangars in conjunction with a reputable world class maintenance organization. The Hangars, which are expected to serve Nigeria and other African Markets, will be certified to carry out major Aircraft Maintenance, Overhaul and Repairs. Apart from these six (6) Aircraft Maintenance Hangars being proposed by the Government, there are numerous Maintenance hangars owned by airlines including: Arik Air, Aero Contractors Nig Limited, Bristow Helicopters, Caverton Helicopters and Pan African Airlines. Also, there are some privately owned Aircraft Maintenance hangars.

CONCLUSION

Aviation in Nigeria is on an upward swing and the Federal Government of Nigeria has continued to make concerted efforts to strengthen the industry by making substantial investments in the provision and maintenance of infrastructure, facilities and the creation of an enabling environment for private sector participation through Public-Private partnership (PPP) initiatives.

The focus of these efforts is to continue to promote safety, security, efficiency and an environmentally friendly Air Transport Sector in Nigeria, while contributing to the sustainable development of the aviation industry globally. Current statistics attest to the fact that aviation in Nigeria will continue to grow faster than the world average for some time to come. ■



EXECUJET and EAN maintenance hangar



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- Zero tolerance to violation of safety regulations



NIGERIAN CIVIL AVIATION AUTHORITY

Ensuring Safety and Efficiency in Air Transport and Navigation

Aviation House


P.M.B 2129, 21039, Murtala Muhammed Airport, Ikeja, Lagos, Nigeria.

Tel: 234-1-4721521, Fax: 234-1-2790421

E-mail: info@ncaa.gov.ng, Website: www.ncaa.gov.ng

SCANNING FOR SAFETY SUCCESS

Originally from Kenya, Elizabeth Kiguta holds a Bachelor's Degree in law and is also a Masters graduate of the McGill University's Institute of Air and Space Law. From January to July 2013, Kiguta worked as an intern at ICAO under the Office of the Deputy Director, Safety Management and Monitoring.

 With ICAO now pursuing more complementary and strategic global planning, primarily reflected in the Safety and Air Navigation Global Plans which are expected to be endorsed at the 38th Assembly, and as regions around the world continue to revise and evolve their aviation safety targets and programmes through increasingly collaborative ventures, a new tool for information sharing, transparency and establishing best practices on the emerging Safety Collaborative Assistant Network (SCAN) was considered essential for the global air transport community.

I joined ICAO as an intern in January 2013, and was fortunate to participate in upgrading the UN specialized agency's Safety Collaborative Assistant Network (SCAN), which had been officially launched in 2011. The latest version of the SCAN website has been designed to be more accessible, user friendly and comprehensive. Built from the original site that offered an assistance projects database and a visualization map, the new site adds an assistance intelligence section and displays the ICAO Plans of Actions and success stories.

SCAN's Project Database is the heart of the website. By gathering and coordinating information with numerous focal points, the project's database presently contains information on over 250 projects. Consulting with ICT and user experience specialists on the most convenient way to display this information resulted in an organization of the projects into past, current or proposed categories. Under these headings, the viewer is able to analyze and sort information according to, but not limited to, the projects' financial status, objectives and technical areas. This aspect of the site is instrumental to assistance initiatives and will permit any organization, entity or State to make more informed safety investment and collaboration decisions.

ASSISTANCE INTELLIGENCE


A new and appealing feature of the SCAN site is the Assistance Intelligence section. This is divided into two parts: a visual representation of the initiatives in the Project Database that has been updated and modified to be user friendly; and an interactive geo-mapping tool displaying the different regional organizations' memberships, goals and functions. Apart from providing a unique and interesting way to review and assess project data, the Assistance Intelligence section should also promote closer coordination of efforts and the maximizing of resources.

ICAO Safety Assistance Plans of Action (POA) and Success Stories were included on the site to provide a comprehensive platform for reviewing safety assistance initiatives. The ICAO POA recognizes those States whose aviation systems may require more significant levels of assistance. The inclusion of the POAs enables aviation safety partners to better identify and respond to State needs for technical and financial assistance, whereas the Success Stories outline and showcase past achievements. Success Stories are also available in ICAO's annual Safety e-Report, as well as the triennial State of Global Aviation Safety publication.

The SCAN website strengthens international cooperation as well as inter- and intra-State coordination of safety initiatives by engaging a multitude of aviation partners. The upgrading of this site entailed working with different departments within ICAO to produce the most satisfying user experience and exposed me to ICAO as a whole. It was rewarding to discover the level of inter-department cooperation and coordination in ICAO necessary for improving the quality of a project such as the new-and-improved SCAN website and overall the effort and many qualified professionals I had to work with made this work a remarkable experience. ■



ESTABLISHMENT OF ICAO ASIA-PACIFIC REGIONAL SUB-OFFICE

 The unveiling of the sign of the ICAO Asia-Pacific Regional Sub-Office (RSO) by Mr. Roberto Kobeh, President of the Council and Mr. Raymond Benjamin, Secretary General of ICAO, and Mr. Li Jiaxiang, Administrator, Civil Aviation Administration of China (CAAC), followed by a Lion Dance heralded the official inauguration of the ICAO APAC RSO in Beijing, China.

This inauguration on 27 June 2013 was witnessed by a gathering of high-ranking officials from ICAO, Ministers, Vice/Deputy Ministers, Directors General of Civil Aviation, Senior Officials from International Organizations, and Delegates from APAC Member States. It was a truly historic occasion as it marked the unprecedented establishment of the first Regional Sub-Office during the 69-year history of ICAO.

“In the second half of 2011, ICAO began to seek proposals from States to host the Regional Sub-Office (RSO) in the Asia-Pacific Region and to provide voluntary contributions for its functioning,” said Mr. Kobeh. “Consequently, the ICAO Council at the fourth meeting of its 197th session held on 5 November 2012, formally agreed to



Attending the inaugural ceremony were, from left to right: Noppadol Pringvanich, Chief, Asia-Pacific Regional Sub-Office, ICAO; Mokhtar A. Awan, Regional Director, Asia-Pacific Office, ICAO; Raymond Benjamin, Secretary General of ICAO; Roberto Kobeh González, President of the Council, ICAO; Li Jiaxiang, Administrator of Civil Aviation Administration of China (CAAC); Xia Zhanyi, Member of the Communist Party Committee of Beijing Municipal; Xia Xinghua, Deputy administrator of CAAC; Dong Zhiyi, General Manager of Beijing Capital International Airport Group.

establish the first Regional Sub-Office in the Asia-Pacific (APAC) Region in Beijing.”

ICAO established this Regional Sub-Office to enhance support to States in the APAC Region with a mission to improve airspace organization and management in order to maximize air traffic management performance across the APAC Region.

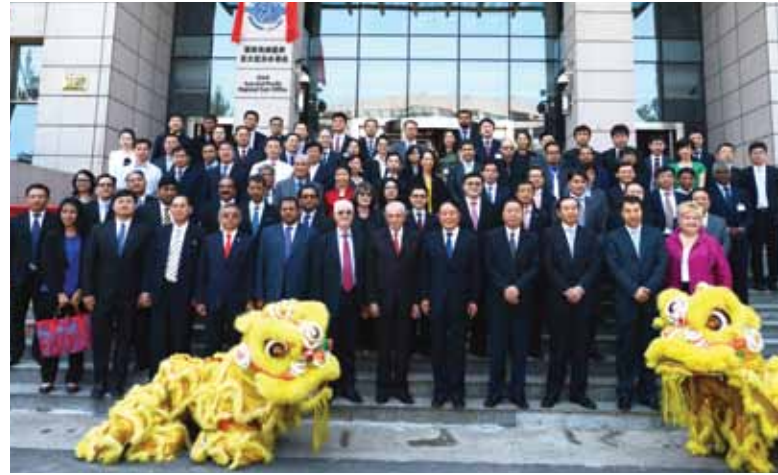
Mr. Li Jiexiang congratulated ICAO on the success of its blueprint, stating, “China is very willing to support the operation of the RSO. The Asia-Pacific Region has the fastest growth in the world as far as civil aviation transportation is concerned. ICAO has forecast that the volume of international revenue passenger kilometers (RPKs) carried in Asia-Pacific will be twice the amount of that in North America by the end of the next decade”. The industry consensus forecast released by IATA indicates that of the 800 million new travellers expected in 2014, 360 million (45%) will travel on Asia-Pacific routes. The ever-growing market in China is expected to contribute the largest portion of the aforementioned volume.

According to the prediction by the Chinese Government, an additional 100 million passengers would be carried per year. To accommodate this, new and optimized air traffic management has to be implemented. Therefore, China attaches great importance to the role to be played by ICAO and the RSO. As part of its bid, China offered 900 square meters of permanent working space with state-of-the-art equipment, 10 experienced, qualified staff, and budgetary support for the operation of this office.

Mr. Li mentioned, “The past five years has witnessed a closer involvement of China with ICAO. We have collaborated on many projects in the areas of civil aviation law and security. A diplomatic conference in Beijing in the autumn of 2010 developed two new treaties that criminalized a comprehensive range of terrorism-related activities. China has also arranged for up to 100 Chinese experts to work in ICAO for the exchange of knowledge and human-capacity improvement”.

One of the collaborative projects was the operation of the ICAO Asia-Pacific Flight Procedure Program (FPP) in China. This landmark programme paved the way for the establishment of the RSO. Many of the training programmes on procedure and airspace design conducted by the FPP have helped APAC Member States to strengthen their capabilities in Performance-Based Navigation (PBN) procedure design. Working together with the Cooperative Development of Operational Safety and Continuous Airworthiness Programme (COSCAP), PBN Implementation Workshops have been conducted successfully in about 20 States across the region and have facilitated the development of robust State PBN implementation plans and successful deployment of PBN procedures.

Recognizing the progress made by the FPP and the ongoing demand for improving the efficiency of Air Traffic Management in the region, the ICAO Council put forward the initiative of establishing the RSO.



The inauguration was witnessed by a gathering of high-ranking officials from ICAO, Ministers, Vice/Deputy Ministers, Directors General of Civil Aviation, Senior Officials from International Organizations, and Delegates from APAC Member States.

The new RSO will not duplicate the mandates of other ICAO Regional Offices. According to Mr. Mokhtar A. Awan, Regional Director of the ICAO APAC Regional Office, “It (the RSO) will unveil a new era of harmonization of airspace organization and management in the Asia-Pacific region”.

The strategic framework of the RSO includes: to improve the safety and efficiency of flight operations through innovative procedures, to enhance airspace capacity and efficiency in order to accommodate Asia aviation growth, to optimize ATM operation and collaborative air traffic flow management, and to ensure the continuous improvement of the Organization’s performance by the effective management of work plans and resources, and the development of team members’ capabilities.

“The APAC RSO will,” said its chief, Mr. Noppadol Pringvanich, “seek cooperation from the Host State and Member States in Asia Pacific and our industry partners.” Since the RSO consists of experts from China, India, Japan, Malaysia, Republic of Korea, and Singapore, this multicultural and multidisciplinary platform will facilitate the realization of its targets with a number of missions such as PBN implementations, Flexible Use of Airspace (FUA), and Collaborative Decision Making /Air Traffic Flow Management (CDM/ATFM).

“In close partnership with China, and acknowledging related commitments from India, Japan, Malaysia, the Republic of Korea, and Singapore, ICAO will be working collaboratively, along with our mutual colleagues in the operator community, to ensure both the initial and longer-term assistance that will be provided by this new ATM resource. By guiding its activities and planning on the basis of specific performance-based success criteria, agreed to by Asia-Pacific States, we will now be able to deliver measurable safety and efficiency outcomes that will prove a significant benefit not only to the region, but to the entire global system,” stated Mr. Kobeh. ■

Partnering on e-Learning



Air Transport Statistics - ICAO (Introductory)

In the first Air Transport Statistics e-learning course ICAO-CAE will provide basic training on international air transport statistics focusing on standard terminology used, how data is collected and what it represents. Participants will be introduced to some of the most important data series that ICAO collects and learn where the data originates, how the different data series may relate to each other and how to verify that the data submitted conforms to the instructions and definitions pertaining to each data series presented.

This course fills a vacuum which has been created over the last decade as some of the international and regional organizations that once provided basic guidance material on air transport statistics to the industry have ceased to do so.

Important: The support document required for this course is:

The Companion Document to the Air Transport Statistics Course

This must be purchased from ICAO before subscribing.



Air Transport Economics and Regulation - ICAO (Introductory)

Air transport development can sometimes diverge with policy objectives and become a highly contentious topic. This course is designed to provide a clear foundation of the underlining principles of airline and airport economics as well as to address aviation regulatory and policy issues. It is a useful introductory course for junior aviation experts in their early career development in the air transport industry or government regulatory bodies. Professionals working in related fields such as finance, economic development or tourism will find this course helpful in their dealings with airline/airport issues.

Important: The support documents required for this course are:

Doc 9626 - Manual on the Regulation of International Air Transport and

Doc 9587 - Policy and Guidance Material on the Economic Regulation of International Air Transport

These must be purchased from ICAO before subscribing.



Forecasting for Air Transportation - ICAO (Introductory)

The air transport world faces major challenges in addressing high fuel prices while catering for demand which is showing greater volatility than in the past. Airports increasingly present a major infrastructure constraint to meeting the demand for air travel and many are already severely congested while the airline industry remains fiercely competitive. A thorough understanding of the nature of demand coupled with the knowledge of how to effectively manage capacity will be essential for success in this fast-changing commercial environment. Measures to expand airport capacity will be considered in relation to both terminals and runways and the interaction with surface transport. This course aims to address key demand and supply issues, assess forecasting methodologies and discuss future strategies.

Important:

The pre-requisite for this course is the:

Air Transport Statistics Course

The support document required for this course is:

Doc 8991 - Manual on Air Traffic Forecasting

This must be purchased from ICAO before subscribing.



MONGOLIA

The world's biggest air bridge
linking Asia and Europe





GREETINGS FROM THE DIRECTOR GENERAL OF THE CIVIL AVIATION AUTHORITY OF MONGOLIA (CAAM)

The Civil Aviation Authority of Mongolia (CAAM) has the honor to express its utmost respect to the International Civil Aviation Organization (ICAO).

We deeply appreciate all the work ICAO has accomplished, especially during the recent years. I would like to emphasize that the CAAM proudly supports and is dedicated to implementing and developing ICAO's programs, standards and initiatives. We recognize that the past achievements and enhancements of Mongolian civil aviation are inseparable from ICAO.

The CAAM's sole objectives are to provide safe, secure and reliable world-class aviation services. We invite readers to review the following pages dedicated to the development, regulations and safety of air services in Mongolia and to welcome you to the open blue skies of Mongolia!

Yours sincerely,

Mr. Buyandalai Senggee
Director General of the Civil Aviation
Authority of Mongolia (CAAM)

CHANGES AND CHALLENGES IN MONGOLIAN AVIATION

An interview with Mr. BUYANDALAI Senggee, Director General of the Civil Aviation Authority of Mongolia (CAAM)

What are your priorities as Director General of CAAM?

As an Implementing agency of the Government of Mongolia, the CAAM provides a broad range of services. Our objectives are to provide high-quality services to our air carriers. With

this in mind, our priorities are to enhance the skills and know-how of our personnel, to introduce new technology and innovations and to meet safety standards and requirements.

Please describe any significant accomplishments and milestones of civil aviation in Mongolia?

The primary indicator of our achievements would be the evaluation results of the Universal Safety Oversight Audit Programme (USOAP), carried out in 2010. Mongolia achieved a compliance rate of 87.39% against a world average of 58.72%.

We are introducing technological innovation in our air navigation services, such as successfully introducing the Reduced Vertical Separation Minimum (RVSM) in 2012. At present, the RVSM of Mongolia's airspace safety operation is being evaluated as 1.56×10^{-9} which is three times lower than the required level of 5×10^{-9} .

We also introduced a modern surveillance system in Mongolia's air traffic control. Therefore, we are also planning to install two more Monopulse Secondary Surveillance Radars (MSSR) in 2013, another two in 2014, and to employ the Automatic Dependent Surveillance — Broadcast (ADS-B) technology in our ground services. In terms of Performance based navigation (PBN), ground stations are being installed for the full coverage of DME/DME systems.

What are the key challenges and issues facing Civil Aviation in Mongolia?

We have to acknowledge that every State and Organization faces challenges. In this context, the Government of Mongolia adopted the Government Policy on Civil Aviation Sector for the first time. We believe that new approaches are evolving for the development of civil aviation sector in Mongolia. The issue of qualified personnel in our sector requires our attention and approaches are being taken to address this challenge.

How would you describe the CAAM's view of ICAO and its role in the international aviation community?

The guidelines, standards and regulations of ICAO play a key role in the States’ effective development of safe and secure operations. Mongolia has been a constant supporter of ICAO; actively participating in the meetings, projects and programs organized by ICAO ever since becoming a Member State. We are grateful for our cooperation with ICAO to ensure the safe, secure and sustainable development of aviation.

HISTORY OF AVIATION IN MONGOLIA

25 May 1925 — the day of the first landing of Y-13 (Yonkers) freight aircraft presented by the former Soviet Union to Mongolia is considered as the foundation day of the Mongolian Air Force. Later, in 1946 Civil Air Transportation is founded with the establishment of a civil air transport detachment with 7 super airplanes and 1 Po-2 aircraft and started civil air services to several domestic destinations.

In 1955, the first group of trainees was sent to Civil Air School in Irkutsk, Russia for An-2 crew training. By 1970, MIAT Mongolian Civil Air Transportation Corporation was serving 130 local destinations.

1987 was an another year of significance — MIAT Mongolian Civil Air Transportation Corporation started its international operation with Tu-154 aircraft leased from the Soviet Union and representative offices in Moscow and Irkutsk, Russia and Beijing, China were opened.

CIVIL AVIATION AUTHORITY OF MONGOLIA

The Civil Aviation Authority of Mongolia (CAAM) was established in 1957 and became a member of ICAO in 1989. CAA of Mongolia is an agency of the Ministry of Roads and Transportation (MRT) with the authority to regulate and oversee all aspects of civil aviation in Mongolia.

The main function of CAAM is to promote the safe and secure development of the civil aviation sector, and at the same time, ensure the safety of Mongolian airspace for aircraft operations. The CAA of Mongolia oversees the implementation of all government regulations pertaining to civil aviation under the Civil Aviation Act.

The Aviation Safety Regulations and Oversight Department was established in 1996 under the Civil Aviation Authority of Mongolia as the “Aviation Security and Aviation Policy Department.” As an independent regulatory body, it implements aviation safety oversight responsibility under the Civil Aviation Law of Mongolia, enacted in 1999.

It is worth highlighting that the 2010 ICAO Universal Safety Oversight Audit Programme and Universal Security Audit Programme made a remarkable contribution to the recognition of the achievements of Mongolian civil aviation development in the world aviation arena and the further development of the civil aviation industry. The last ICAO USOAP audit was carried out in 2010 and Mongolia achieved a compliance rate of 87.39%.

Coordinating Working Group for Aviation Safety Programme	Flight Standards and Operations Surveillance Division	Aerodrome and Air Navigation Divis	Airworthiness Division	Personnel Licensing Division	Rule making Division
Implement SSP	Air Operators Certificate	Issue Aerodrome Certificate	Issue Type Acceptance Certificat	Issue Licenses and Ratings for pilots, engineers and ATCs	Develop draft standards & regulations
Identify acceptable level of SMS	Foreign AOC	Issue Certificate of ANS.Orgs	Issue Certificate of Registration	Issue Med Certificates for pilots and ATC	Exemption
Identifying and meeting customer and client needs	—	Issue Certificate of Avsec.Orgs	Issue Certificate of Airworthiness	Issue Certificate of ATO	Amendments of Annexes to Rules
Establishing internal process control	—	—	Issue Certificate of AMO	—	Provide safety education
—	—	—	—	—	Develop Advisory Circulars

In 2010, Mongolia was also audited under the ICAO USAP from 11 to 18 November, by the ICAO aviation security audit team with an implementation of 87.9%.

AIR NAVIGATION SERVICES

Air navigation services play a significant role within the civil aviation system in Mongolia. Geopolitically, Mongolia has a favorable location linking Asia (especially major air transport markets such as China, South Korea and Hong Kong) with Europe. The number of overflights in the airspace of Mongolia has been increasing steadily over the years following the dissolution of the Soviet Union in 1991.

Overflights represent about 80-90 per cent of the revenues of the Civil Aviation Authority of Mongolia. The Air Navigation Services Administration of the Civil Aviation Authority of Mongolia is the sole provider of air navigation services within the territory of Mongolia, i.e. Ulaanbaatar Flight Information Region. It consists of six different departments and divisions employing over 520 staff. Our goal is to keep air navigation services competitive and international overflights smooth and safe.

Our mission: "To keep air navigation services competitive"

AIRSPACE DESIGN AND STRUCTURE

The number of flights in Mongolian airspace continues to increase as overflights carrying passenger and cargo between Southeast Asia and Europe and North America increase thanks to the favorable geographical location of Mongolia in the heart of Asia. Due to these circumstances, the need to improve airspace infrastructure and optimize flight routes to better suit the airlines is evident.

Our records indicate that 135 airlines from 40 different countries operated flights in Mongolian airspace in 2012. There were overflights departing from 207 different cities in 4 continents and flying over our airspace. 47.4% of them were from Asia and 44% were from Europe.



The airspace of Mongolia is structured as following:

- 1 Flight Information Region (UB FIR)
- 21 Control Areas — 6 Sectors (4 radar controlled and 2 procedural) and 15 TMAs
- 15 Control Zones (CTR)
- 8 Aerodrome Flight Information Zones (AFIZ)
- 50 (approximately) air routes,
- •5 air gates (9 with Russia and 6 with China)

Airspace classification:

- Class A from FL6150 m to FL14600 m,
- Class G above FL14600 m and below FL6150 m excluding TMAs and CTRs.
- Class C — 10 terminal control areas and CTRs
- Class D — 5 terminal control areas and CTRs

10 of the Terminal Control Areas are classified as Class C and the remaining 5 are classified as Class D, depending on navigation facilities and air traffic.

RVSM Monitoring Agency for Asia Pacific (MAAR) has recently ranked Mongolian airspace as 2nd in RVSM safety assessment.

English Language Proficiency of Air Traffic Controllers

English language proficiency of Mongolian air traffic controllers providing air traffic control services to international flights fully meets ICAO language proficiency requirements.

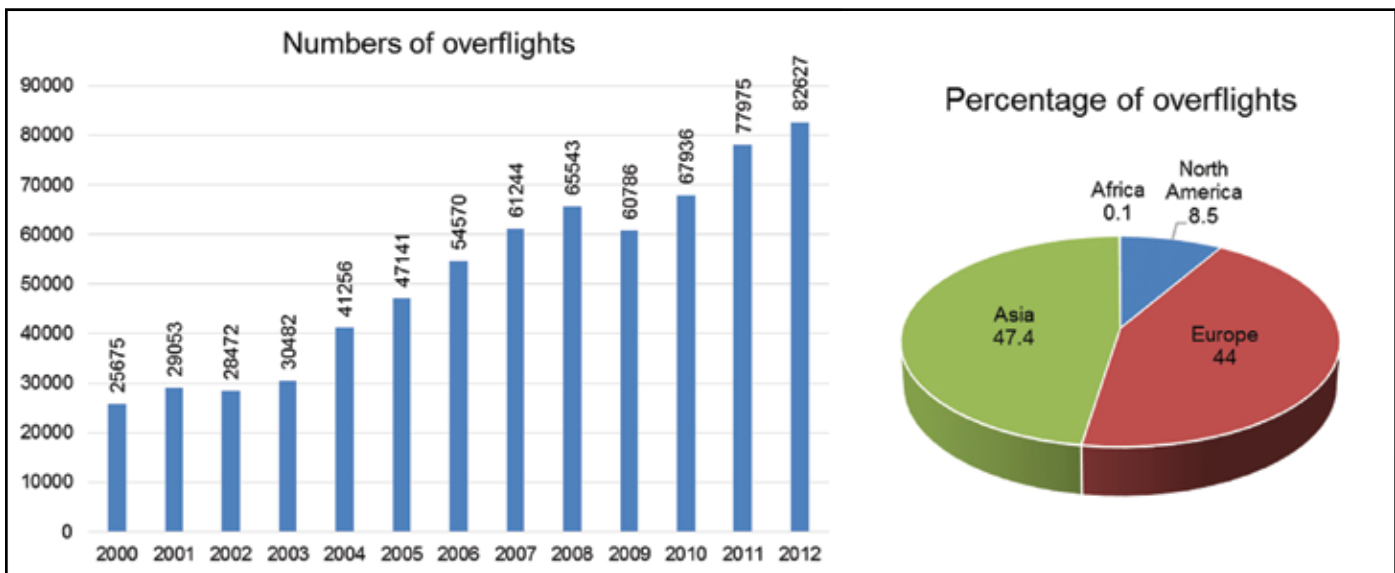
ACTIVITIES FOR SURVEILLANCE SYSTEMS

After careful study and preparation, the Civil Aviation Authority of Mongolia implemented surveillance service in air traffic services. Secondary surveillance radars became operational on 23 August 2012 which resulted in a capacity increase of main routes linking Asia and Europe, a reduction of separation minima to allow aircraft to fly at optimum altitude and better flexibility in air traffic flow management.

We plan to install an additional 2 SSR systems and 5 ADS-B stations in phases. Two of the new SSR systems will be operational in the 4th quarter of 2013 providing seamless surveillance for the entire G218 polar route plus upper airspace of Umnugobi province, where the number of flights is increasing rapidly due to intensive mining activities. In the future, ADS-B will be the primary surveillance system in Mongolia.

PERFORMANCE BASED NAVIGATION (PBN)

In order to accommodate the growth of air traffic in a safe and efficient manner, current airspace capacity must be increased. Mongolia is supporting the use of the Performance Based Navigation initiative of ICAO to provide greater flexibility in airspace design and optimum utilization of available airspace. The PBN implementation plan of Mongolia has been approved and is in the process of being implemented.



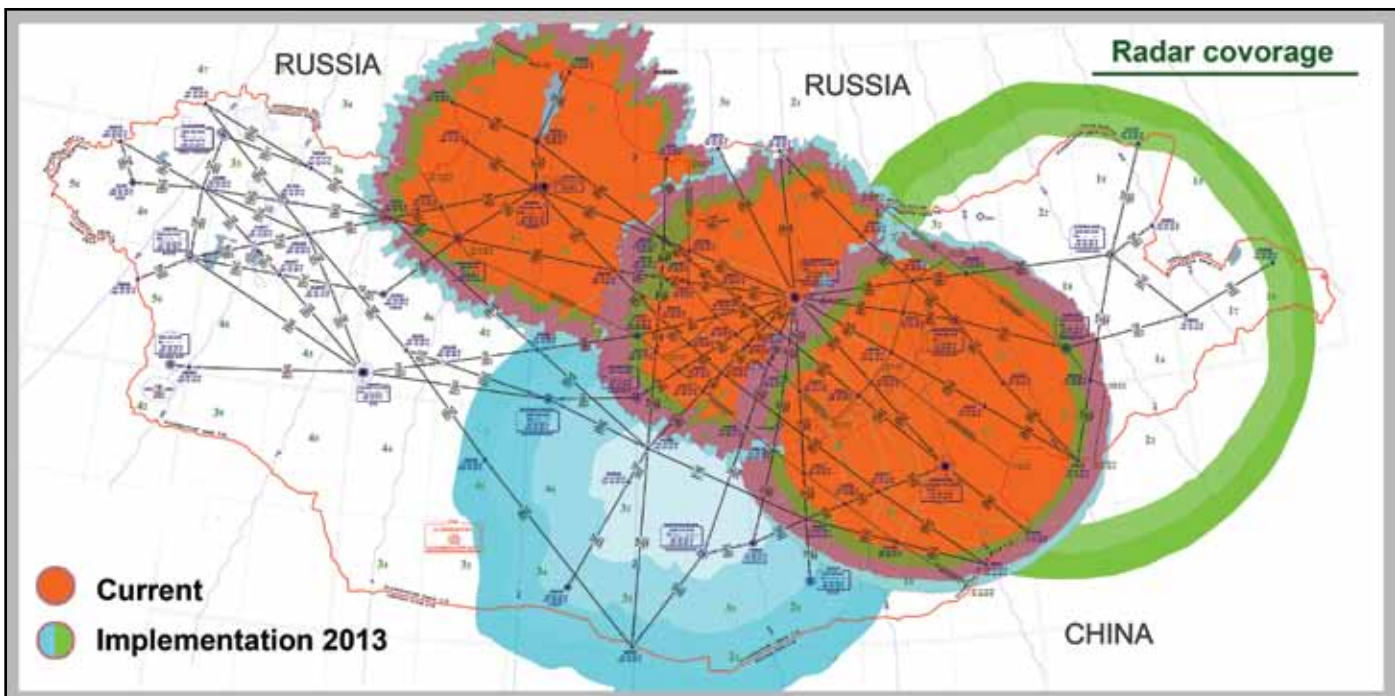
AERONAUTICAL INFORMATION MANAGEMENT

The Aeronautical Information Services Division of Civil Aviation Authority became part of the civil aviation family of Mongolia 11 years ago. It is responsible for the collection and provision of aeronautical information and aeronautical data necessary for safety, regularity and efficiency of air navigation. Even though 11 years is not a long time, AIS has greatly contributed to the development of civil aviation in Mongolia, working hard to improve the quality of its aeronautical information services in accordance with the standards and recommended practices of the International

Civil Aviation Organization (ICAO) as well as its customer expectations and needs.

TRANSITION FROM AIS TO AIM

The aeronautical information service is one of the most important pillars of safe and efficient air navigation and is a fundamental element without which most modern flying would be all but impossible. The future Air Traffic Management (ATM) system is based on global information utilization, management and sharing thus dependent on timely, accurate, and quality assured aeronautical information. AIS is currently undergoing



the most profound change it has ever faced. The product oriented aeronautical information service is gradually being transformed into a data oriented enterprise called Aeronautical Information Management (AIM). Guided by the ICAO Roadmap for the Transition from AIS to AIM, Mongolia has developed its AIM Implementation Plan. The implementation of this plan is currently at 66% and Mongolia is going to fully implement Aeronautical Information Management by 2016.

EAIS AND EAIP AUTOMATION SYSTEMS

Currently, NOTAM, Pre-Flight Information, ATS Messages and Aeronautical Information Publication (AIP) services have been automated and Internet Self-Briefing service has been introduced which has significantly improved our capabilities, effectiveness and readiness in the aeronautical information service environment of the Asia-Pacific region. The next phase is currently underway to extend the system with aeronautical charting functionality and terrain and obstacle data management. The automation systems of AIS Mongolia include electronic databases, system interfaces and systems with production, distribution, retrieval, supervision and investigation capabilities which are crucial to flight safety in the modern air navigation environment. They offer numerous advantages such as reducing the risk of errors due to the human factor, ensuring full consistency between graphic and textual information and saving both time and costs.

AIP of Mongolia is now available in HTML format and the already existing PDF format. The main advantages of e-AIP for the users are:

- The use of web technology;
- Reduced efforts for updates and maintenance;
- Cost reduction in terms of consumables and mail transportation needs;
- Removing any delays of expedition when made available through the internet.

Although it is clear that there is still some room for improvement with regards to some aspects, such as text formats and further improvement of the above-presented advantages, AIS Mongolia recommends e-AIP clearly to subscribers instead of using the traditional paper method.

Link for the AIS website:

<http://ais.mcaa.gov.mn/index.php?lang=en>

The right place for aeronautical information is in the palm of your hand wherever you are

As the sole provider of aeronautical information within the Ulaanbaatar Flight Information Region i.e. the entire territory of Mongolia, AIS stays true to its commitment to delivering timely, accurate and quality aeronautical information using up-to-date advanced technologies to meet our users' satisfaction. Due to the increased popularity of tablets and smart phones throughout the globe, we have introduced the

iNOTAM application for iPhone and iPod Touch for A series and C series NOTAMs of Mongolia and most recently, iAIP Mongolia at the Appstore of Apple. Soon, iNOTAM and iAIP will be introduced for Android operating systems.

Link for the iAIP:

<https://itunes.apple.com/au/app/iaip-mongolia/id599903822>

Link for the iNOTAM:

<https://itunes.apple.com/us/app/inotam-of-mongolia/id510893811>

THE WORLD BIGGEST AIR BRIDGE LINKING ASIA AND EUROPE

The geographical location advantage has allowed Mongolia to establish the shortest air linkage for all international flights, connecting Europe with Asia, North America with East and South East Asia, through Mongolian airspace.

Flight operations through these shortest routes, destined to Beijing, Shanghai, Tianjin, Seoul, Pusan, Hong Kong, Europe's biggest metropolitan cities of Paris, Berlin, London, Amsterdam Brussels, offer air carriers shorter flight duration, fuel consumption savings and many other benefits. Advantages of the shortest air routes attract airlines to fly through and the quantity of the flights over Mongolian territory and numbers of air carriers have been increasing dramatically year by year.

In order to comply with safety requirements to upgrade the significant role of these routes, the Civil Aviation Authority of Mongolia has implemented several international projects dedicated to the increase of radar coverage, sophistication of the ATC and surveillance services.

AIRPORT SERVICES

ChinggisKhaan International Airport

Chinggis Khaan International Airport, named after the great Khaan, who established the largest empire in human history, is the main gateway to Mongolia. The airport has great socio-economical significance being the largest international air facility of this vast and landlocked country.

Airport Management

The airport is 100% state owned and managed by the Mongolian Civil Aviation Authority. CAAM has established within its organization, the Chinggis Khaan International Airport Management Team.

Chinggis Khaan International Airport: Key Facts

- Aerodrome ICAO Reference code: 4D
- Aerodrome Rescue and Fire Fighting Category: 8
- Passenger Terminal Capacity: 1000 passengers per hour
- Cargo terminal storage space: 80-125 tonne inbound and outbound cargo
- Services: VIP lounges, free WIFI, passenger information modules, medical services, food court, shopping area, currency exchange, banks, public transportation and convenient parking.

- Operating airlines: 12
- Annual Passenger Volume: In December 2012, annual passenger volume reached 1 million for the first time in history, representing a little over one third of Mongolia's population (2.9 million)
- Excellent results in USOAP and USAP audits
- Airport Management received MNS ISO 9001:2010 certificate

NEW ULAANBAATAR INTERNATIONAL AIRPORT CONSTRUCTION PROJECT

The Government of Mongolia has approved a plan to construct a new international airport at Ulaanbaatar, located 45 km from downtown.

Planned completion date of the project is 2016. Once the new airport begins operations, Mongolian civil aviation will benefit from:

- elimination of operational constraints;
- improvement of aviation safety;
- modernization of air services;
- support of overall economic capability.

The New Ulaanbaatar International Airport will be capable of serving over 3 million people annually and will be a comprehensive complex built to international standards with, in total, over 30 buildings and structures including a passenger terminal building, 3.6 km runway for 2 direction landing and take-off capable of handling the largest current passenger aircraft on a 24 hour basis regardless of weather conditions and wind direction, a control tower with air navigation and radio communication systems fully equipped with the latest technical facilities, water treatment plant, sewage treatment plant, and other buildings and facilities.

The New Ulaanbaatar International Airport will have a fuel hydrant system, runway center line lights, 4E category aerodrome, category 9 equipment for fire rescue system and air navigation equipment with approach category 1.

Project Financing

The Government of Mongolia and the Japan Bank For International Cooperation (JICA) signed the Loan Agreement MON-P8 under Japanese ODA on 1 May 2008, and the Loan Agreement was ratified by the Parliament of Mongolia on 29 May 2008. The Loan Agreement became effective after JICA approved the Loan Agreement on 22 August 2008.

The New Ulaanbaatar International Airport Construction Project will be financed by this loan and investment from the Mongolian Government. The total cost of construction work is 49.5 billion Japanese Yen consisting of 4.9 billion Japanese Yen from the Government of Mongolia and 44.6 billion Japanese Yen financed by the Japanese ODA loan.

Additional facilities will be constructed by the Mongolian Government at an additional cost of 3.2 billion Japanese Yen.

Project Status

The project construction design and implementation consultant is Azusa Sekkei/Oriental Consultants Joint Venture of Japan. The Project's Main Contractor is Mitsubishi-Chiyoda Joint Venture of Japan. The Opening Ceremony for the Construction of the New Ulaanbaatar International Airport was held on 12 June 2013.



The airport is planned to allow for future expansion including a second, parallel runway and a further 14 terminal gates making it capable of handling 2,000 aircraft and serving over 12 million passengers. Future development is assured after the completion of the airport construction work and operation of the New Airport in 2017, as an airport satellite town for approximately 100 thousand people will be constructed, and a new "Bogd-Khan" railway will be connected. This expansion to the South of Ulaanbaatar will ease the pressure on resources of the Capital and will provide the new airport with a planned business and population support structure to enable a self-sustainable and bright future for the region. ■



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THE EVOLUTION OF SAFETY REPORTING TAKING A LOOK AT THE STATE OF GLOBAL AVIATION SAFETY PUBLICATIONS

This Journal report outlines ICAO safety publications, highlighting their objectives and priorities.

 In 2011, ICAO published its first State of Global Aviation Safety Report. Until that time, the Organization generated internal reports to the ICAO Council and Air Navigation Commission, which primarily consisted of a compilation of historical aviation accident statistics.

PUBLISHING TARGETS

ICAO now publishes annual Safety Reports in March of each year — in electronic format— as a review, based on preliminary statistics, of the previous year's accidents, traffic and other safety indicators. "Even though in March it's still preliminary data, it's more important to have an initial look at the data as soon as it's available, following up once the official data comes in," noted Michael Goodfellow, Technical Officer responsible for the analytic inputs to the Annual Safety Reports.

“Part of this initiative was to keep us accountable. We make public statements about what our priorities are and what we’re going to achieve, and we need to be as transparent as possible about the current state of aviation safety at any given time.”

- Nancy Graham, Director,
Air Navigation Bureau

Complementing the Annual Reports, and providing a comprehensive review on aviation safety, the State of Global Aviation Safety Report is tied to ICAO Assembly years. This year's edition became available in print and online in early September just prior to the Assembly, in all of ICAO's official languages.

The State of Global Aviation Safety Report represents an opportunity for ICAO to convey what has been accomplished over the three-year period since the previous Assembly and to provide updates on broad aviation safety issues. "We look at a number of indicators including accidents, use of audit program results, success stories and air traffic," explained Andreas Meyer, Technical Officer coordinating publication of these ICAO safety reports. "Historical accident records or trends are the litmus test of how we're doing and those results have been positive as the number of accidents and related fatalities have decreased over recent years." Nonetheless, ICAO and the aviation community are relentlessly pursuing ways to further reduce the global accident rate.


The overall objective of ICAO safety reporting is to become increasingly proactive, addressing risks before they result in accidents or serious incidents. The Integrated Safety Management Section looks particularly at areas where air traffic is extremely dense and growing to ensure that those Member States are very effective in their safety oversight activities and that the appropriate infrastructure is in place to support the current and anticipated future traffic levels.

The initial State of Global Aviation Safety Report in 2011 was welcomed with extremely positive feedback about ICAO producing a report that provided the industry-wide perspective.

It was Nancy Graham, Director of the ICAO Air Navigation Bureau, who insisted that as a safety organization, a public report be published summarizing the previous year's safety achievements and milestones, as well as an overview of ICAO's priorities and what was being done to achieve them. "Part of this initiative was to keep us accountable, as well. We make public statements about what our priorities are and what we're going to achieve, and we need to be as transparent as possible about the current state of aviation safety at any given time," stated Graham. For this reason, all of the safety reports generated by ICAO are readily available to the public on the Organization's website. ■

THE REGULATION OF EMERGING MODES OF AEROSPACE TRANSPORTATION: CHALLENGES AND OPPORTUNITIES

Ashleigh L. Tomlinson's expertise in space law stems from her candidacy as a Master of Laws at the McGill Institute of Air and Space law where her thesis work focuses on regulations to support the development of the commercial space industry. Ashleigh is an intern at the International Civil Aviation Organization and was selected by the Director of the Air Navigation Bureau to help co-organize the Conference on the Regulation of Emerging Modes of Aerospace Transportation. She can be contacted at ashleigh.tomlinson@mail.mcgill.ca.

 **New modes of aerospace transportation bring about challenges and opportunities with respect to commercial viability, safety, security and environmental protection.**

The Manfred Lachs Conference on the Regulation of Emerging Modes of Aerospace Transportation, a collaborative project organized by ICAO, the Institute of Air and Space Law at McGill University and the International Association for Advancement of Space Safety, brought together experts, government delegates, industry representatives and students from around the world to discuss these challenges and opportunities. The Erin J.C. Arsenault Fund at McGill University financially supported the Conference, which was held at the Centre Mont-Royal in Montréal on 24 and 25 May 2013.

The Conference aimed to assess the current situation and future plans for aerospace transportation, critically examine and identify the regulatory challenges to the operation of aerospace vehicles and suggest viable policy and regulatory steps or mechanisms that may be considered by States and other stakeholders to facilitate aerospace transportation, while ensuring the safety of global aviation.

Aerospace transportation itself is not a new concept as States have been sending astronauts to space for years. However, commercial aerospace transportation is an industry that is quickly emerging. This will allow a wider range of people to travel to space in the near-term, and through space in the long term. At present, aerospace vehicles are being designed to transport space flight participants from a dedicated spaceport and return them to the same point of departure. However, the future of the industry is to develop a point-to-point transportation system, similar to international civil aviation, which will allow participants to use outer space to traverse continents in very little time.

REGULATION OF COMMERCIAL AEROSPACE TRANSPORTATION

Currently, regulation of aerospace activity is carried out by individual States, which are responsible for the space activities of their nationals under the international space law regime. Comprehensive regulation will allow the State to oversee the space activities of their nationals and allow them to implement protections and cross-waivers of liability. Domestic regulation will allow the industry to develop but will need to be revised to consider the international scope that is projected for the industry.

There is no consensus as to which body should regulate commercial aerospace transportation; however, there appears to be agreement by those at the Conference that international regulations will eventually be required.

In the mid 1900's, the international community was faced with the challenge of developing regulations to govern the international aviation industry. The solution to this challenge was the Chicago Convention, which is regarded by some as the Constitution of civil aviation. The international community is facing a similar challenge with the advent of commercial aerospace transportation. Going forward, aerospace vehicles, aerospace traffic control and spaceports will need a similar comprehensive legal regime.

There is no consensus as to which body should regulate commercial aerospace transportation; however, there appears to be agreement by those at the Conference that international regulations will eventually be required. One point of contention is when international regulation should commence. One view is that the national and domestic regulations that are in place are sufficient to meet the current demands of the market. Another view considers that the industry demands international regulation in order to show compliance with safety standards, and encourage participation and investment from commercial companies.

Given that ICAO is the regulatory body for international commercial air travel, some experts have suggested that ICAO should be the regulatory body for emerging modes of aerospace transportation. It is unclear whether the current provisions of the Chicago Convention and its Annexes could apply to aerospace vehicles as they complete the airspace portion of their journey. Similarly, the United Nations Committee on the Peaceful Uses of Outer Space (UN COPUOS) established the current international space legal regime, which consists of five international treaties. Some experts suggest that UN COPUOS should expand the scope of the current legal regime to include commercial aerospace transportation. At this point in time, it is unclear which legal regime will apply to aerospace vehicles.

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Virgin Galactic, the world's first commercial spaceline, takes flight

Nancy Graham, Director, ICAO Air Navigation Bureau, recognizes the global scope of future modes of aerospace transportation and noted that, "at this point in time, collaboration and continued discussion should be the focus of near-term work at ICAO". She confirmed that the Secretary General agreed that it is time for this opportunity to be revisited at ICAO. Graham suggests that "the existing ICAO framework should be examined to determine how the rules of aviation were created, and how they might be amended to include new forms of aerospace transportation".

In the foreseeable future, aerospace vehicles may depart from purpose-built spaceports or existing airports in a similar manner as aircraft on runways. They will use a jet-powered climb to rocket ignition before entering outer space and returning to either the same point or another destination. The duality of these vehicles means that they could be defined as aircraft, space objects or a hybrid. The applicable law will change significantly based on how these vehicles are defined. For example, if the vehicle were defined as an aircraft, the *Warsaw Convention* and the *Montreal Convention* would apply and liability would be limited for the carrier in the event of an accident. Conversely, if the vehicle were to be defined as a space object the provisions of the *Outer Space Treaty* and the *Liability Convention* would apply, and the launching State would be internationally responsible for any damage caused. Whether the liability falls on the service provider or the State is a legal issue that definitions could assist in clarifying.

Safety is a critical issue that must be addressed when regulating emerging modes of aerospace transportation. As participants will be civilians and the flights will be commercially scheduled, it follows that they have a right to expect that their flight will be as safe as possible. But with a lack of regulation and mechanisms to ensure safety in space, commercial aerospace transportation providers are unable to certify that their operations are compliant with stringent safety standards such as those developed by ICAO's Standards and Recommended Practices (SARPs).

Another challenge is air traffic management. Aerospace vehicles will inevitably travel through airspace on their way to outer space. Without clearly defined operating procedures, these aerospace vehicles could present hazards to international civil aviation.


The Conference resulted in confirmation and reiteration that much work is required in order to determine the application of current or future international regulations to the emerging modes of aerospace transportation. A careful balance must be struck in order to help propel the industry forward without strangling it with over-regulation. Collaboration and cooperation is required between States, regulatory bodies for airspace and outer space, industry players and experts.

Under the direction of Graham and the Air Navigation Bureau, ICAO has seized the opportunity to collaborate and has already begun coordinating with the United Nations Office of Outer Space Affairs (UN OOSA) and the International Association for the Advancement of Space Safety. A briefing to the Council and the Commission will take place this autumn following the 38th Assembly. Pending Council endorsement, ICAO and UN OOSA will identify focal points for continued collaboration and new working methods will be developed within ICAO to continue development of international regulations. Planning is already underway for the Manfred Lachs International Conference on Global Space Governance which will be held at McGill University in Montréal on 29 and 30 May 2014. This Conference will bring together experts for comprehensive deliberations on all aspects of the space regime. Furthermore, it is proposed that ICAO and UN OOSA hold a joint symposium in early 2015.

It is clear from the Conference that commercial space transportation is developing at a rapid pace. The international community has the opportunity to move forward along with it. Continued research, discussion and collaboration are required in order to encourage investment in the industry and to help discover ways to utilize space for the benefit of all mankind. While international regulations may not be necessary within the next few years, it is important that all States and international organizations begin to think about the uses of outer space for their nationals and consider the potential implications of falling behind the curve as this industry blasts off. ■

TAKING PRACTICAL STEPS TO EXPLORE AEROSPACE TRAVEL RISKS FOR AVIATION

Martin Griffin is Seconded European Expert to ICAO and was the co-organizer of the recent Manfred Lachs Conference on the Regulation of Emerging Modes of Aerospace Transportation.

 ICAO is in the process of considering forming a Working Group to study growing concerns relating to space debris, air travel threats and related issues in light of the increasing amount of commercial aerospace vehicle traffic travelling through airspace.

In May 2013, ICAO, together with McGill University and the International Association for Advancement of Space Safety (IAASS), hosted the Manfred Lachs Conference on the Regulation of Emerging Modes of Aerospace Transportation to identify safety issues regarding commercial space operations. This is not the first time ICAO has raised this issue. A Working Paper on the subject was presented at the 175th Session of the ICAO Council, but that at that time, commercial travel in outer space was considered to be some time away. In addition, the United Nations Committee on the Peaceful Uses of Outer Space (UN COPUOS) was already studying the matter. It was therefore considered that a “wait and see” strategy was best.

Commercial aerospace operations are now a reality, making it necessary to address the myriad challenges that outer space represents, including danger to aircraft from space debris.

The ICAO Council will be fully briefed on the issue by the members of the IAASS and national regulators in October 2013. This briefing will highlight the main issues that are emerging and

will propose that ICAO and the United Nations Office for Outer Space Affairs (OOSA) cooperate together to find a pragmatic solution. Within ICAO, it is proposed to recommend to the Council that a Study Group be established to progress the work. This group would include various industry partners.

At this stage, ICAO may not be in a position to develop Standards and Recommended Practices (SARPs) as there are a multitude of different types of vehicles, designs and principles which are diverse in operating characteristics. Some of these vehicles are similar to aircraft while others have more traditional rocket characteristics. Development of SARPs at a too early stage may suppress the development of the industry.

A prospective Study Group would look at the urgent issues at hand with which ICAO can progress at this time. As an initial step, the development of a circular designed to educate States about the subject may be considered. Not all States realize how many different types of vehicles are travelling through space, and what they ought to start doing about it. Even if a State doesn't have any active operations, it may be impacted by the operations of other States. A prospective Study Group would introduce guidance material on critical issues, for example, vehicle certification, the licensing of pilots and the protection of other aviation operations while aerospace operations are taking place.

Any initiative is contingent on approval by the ICAO Council. It is hoped that this will be forthcoming following the October briefing.

The Study Group would comprise relevant State and industry bodies. One major consideration is that the Study Group would need to work very closely with the United Nations Office for Outer Space Affairs as the new generation of aerospace vehicles will be operating within the realm of Outer Space law, as well as in areas to which Air Law applies.

It is also suggested that a joint symposium with the two United Nations bodies (ICAO and OOSA) be convened in spring of 2015. Potentially, this would be held at ICAO. The two organization Directors have agreed to the idea in principle.


The Study Group, if approved by the Council, would be established in early 2014.

ICAO recognizes that it must take rapid action as aerospace transportation is a fast-growing industry with more than 50 companies working on various types of vehicles. Over the next five to ten years, travel in outer space is going to represent a very large sector. ■



In September 2008, an international multi-instrument airborne campaign monitored the safe re-entry of the European Space Agency's (ESA's) Automated Transfer Vehicle (ATV-1) into the Earth's atmosphere over the South Pacific. Photo courtesy atv.seti.org.

ANNEX 19: A KEY AMENDMENT TO THE CONVENTION

 In this report, the Journal outlines the new Annex to the *Convention on International Civil Aviation* (Chicago Convention) and the related materials supporting its rollout, including revisions to the *Safety Management Manual* and website.

Modern safety management approaches lead to safety risks being addressed more proactively by regulators and aviation service providers. With the development of its new Safety Management Annex, updated guidance material and dedicated website, ICAO aims to enhance its strategic regulatory and infrastructure developments, and stress the importance of overall safety performance in all aspects of air transport operations.

Working in close collaboration with States and international organizations, the Air Navigation Bureau has coordinated the development of Annex 19, which was adopted by the ICAO Council in March 2013. The Safety Management Annex, representing the first new ICAO Annex to be adopted in over

30 years, becomes applicable on 14 November 2013. Annex 19 consolidates safety management provisions previously contained in six other ICAO Annexes and will now serve as a resource for overarching State safety management responsibilities.

Elizabeth Gnehm, Technical Officer and Secretary to the Safety Management Panel, explained the rationale behind the development of the new Annex at this time. "Safety management has historically been considered an add-on, something that regulatory authorities, airlines, air navigation service providers or airports would undertake as an additional activity. At this point, the community recognizes safety management as a system that is integrated into their everyday work." As the Annexes are sector-specific, safety management Standards and Recommended Practices were originally contained in the relevant Annex for each sector – for example, Annex 6 and Annex 14 had separate safety management requirements for air operators and aerodromes, respectively. "To harmonize these requirements and ultimately facilitate

The Safety Management Annex, representing the first new ICAO Annex to be adopted in over 30 years, becomes applicable on 14 November 2013. Annex 19 consolidates safety management provisions previously contained in six other ICAO Annexes and will now serve as a resource for overarching State safety management responsibilities.

implementation of State safety programmes and safety management systems, the aviation safety community felt that it was necessary to develop a new Annex dedicated to safety management," explained Gnehm.

Annex 19 was developed as a complement to the Global Aviation Safety Plan (GASP) and is supported by a revised version of the Safety Management Manual (SMM). "The third Edition of the SMM, published in May 2013, provides updated guidance material to facilitate implementation of State safety programmes and safety management systems," commented Teo Gim Thong, Safety Management expert from the Civil Aviation Authority of Singapore, coordinating the evolution of safety management guidance and training materials while on an extended secondment to ICAO.

SAFETY MANAGEMENT WEBSITE

In anticipation of the significant growth of global air transport over the coming decades, ICAO has announced the launch of a

new Safety Management website supporting improved aviation safety worldwide. The site can be found at: www.icao.int/safetymangement.

Until now, some of the ICAO documentation has been available only to States. "With this Safety Management website we tried to create an information portal for interested stakeholders that would include all available safety material that we could release at no charge in an effort to promote safety throughout the world and allow ease of access to related information," stated Jean-Pierre Arnaud, European Aviation Safety Agency expert seconded to ICAO to support the development of Annex 19. "Our objective was to develop a media venue that was more transparent and accessible to the world."

The website reflects ICAO's interest in using up-to-date media vehicles to disseminate information, and it used Twitter to promote awareness of the portal. ■

Phase 1: Annex 19 First Edition

[Applicability date: 14 November 2013]

The first phase consolidated the existing and overarching SARPS, previously contained in six different Annexes¹, into a single Annex:



Minor modifications were made as necessary for the purpose of clarity and consistency. In addition, the following were made for harmonization purposes:

- The four components of the SSP framework were elevated to a Standard in Chapter 3.
- State safety oversight provisions (Appendix 1) were derived from Annex 6 and their applicability broadened to all service providers identified in Chapters 3 and 4.
- Safety data collection analysis and exchange (Chapter 5) provisions were transferred from Annex 13. Legal guidance regarding the protection of safety information has been reproduced as Attachment B to Annex 19.
- The SMS framework (Appendix 2) now applies to type design and manufacture of aircraft.

¹ A map outlining the specific safety management provisions that were migrated from the existing ICAO Annexes to the First Edition of Annex 19 is available at www.icao.int/safety/safetymangement/documents/attds13013.pdf

Phase 2: Future of Annex 19

The second phase for Annex 19 will focus on the enhancement of its safety management provisions:



Annex 19 is expected to follow a three-year amendment cycle. An impact assessment will be required for any proposed changes to Annex 19 provisions to ensure stability and continuity in the implementation of SSP and SMS for all States.

In the future, while overarching safety management SARPs will be included in Annex 19, new sector-specific safety management provisions are expected to be included in the appropriate Annexes.

The implementation of safety management provisions are additionally highlighted in ICAO's newly-amended Global Aviation Safety Plan (GASP). The GASP prioritizes the implementation of a State safety oversight system as a prerequisite to the establishment of a State Safety Programme.

Other Safety Management Resources from ICAO

Safety Management Manual (Doc 9859)

The Third Edition of Doc 9859 has been restructured according to the SSP and SMS frameworks. Its objective is to provide States and product/service providers with:

- An overview of accepted safety management fundamentals.
- A summary of ICAO Standards and Recommended Practices (SARPs).
- Guidance on the ICAO harmonized State Safety Programme (SSP) framework and its implementation and operation.
- Guidance for product and service providers on Safety Management System (SMS) framework and its implementation and operation.
- Guidance for product and service providers on SMS development, implementation and maintenance.

Safety Management Website:


www.icao.int/safetymangement

Regional Aviation Safety Groups (RASGs)

States and industry alike are encouraged to actively participate in their respective ICAO RASG to promote the continuing implementation of SMS and SSP provisions and to report on progress made at the regional level, which is essential to guide the future development of safety management provisions (Annex 19 Phase 2).

AIRWORTHINESS MANUAL DOC 9760 SUPPORTING STATES IN ACHIEVING AIRWORTHINESS OVERSIGHT

This Journal Report describes the recent changes made to the Airworthiness Manual (Doc 9760) and the rationale behind them.

 **The objective of the Airworthiness Programme is to support States in the continuing improvement of their airworthiness capabilities and oversight responsibilities through enhanced guidance material provided by ICAO.**

The Airworthiness Manual was first published in 2001 in two Volumes and contains a consolidation of airworthiness-related information previously found in other ICAO documents. As a result, the first edition of the Airworthiness Manual replaced the following ICAO documents: the Airworthiness Technical Manual (Doc 9051), the Manual of Procedures for an Airworthiness Organization (Doc 9389) and the Continuing Airworthiness Manual (Doc 9642).

The Manual was last updated in 2007 as the second edition. It incorporated changes to Annex 8 to the Chicago Convention — *Airworthiness of Aircraft*, and to Annex 6 — *Operation of Aircraft*. The content also responded to the request from the ICAO Universal Safety Oversight Audit Programme (USOAP) for additional guidance to States on how to meet their airworthiness responsibilities under the Convention on International Civil Aviation. In addition, a new Chapter on production activities was added.

“The third edition of this document provides more emphasis on continuing airworthiness, as well as a user-friendly format to benefit States with limited continuing airworthiness capabilities.”



This third edition of the Manual has been revised and structured according to State responsibility rather than by subject in an effort to assist States in better understanding their roles and responsibilities, namely, as State of Registry, State of the Operator, State of Design and State of Manufacture. It also describes the interface between various States and their related responsibilities.

“The third edition of this document provides more emphasis on continuing airworthiness, as well as a user-friendly format to benefit States with limited continuing airworthiness capabilities,” stated Alain Coutu, Technical Airworthiness Officer. “We are constantly striving to improve our guidance material and the Airworthiness Manual will support States in augmenting their capabilities and in meeting their obligations in Airworthiness Safety oversight areas,” Coutu explained.


A series of seminars has been developed to help States become familiar with the content of the revised Manual and its applicability to their projects. The target audience for the seminars is advisors and individuals who develop policies, procedures and guidance material for State airworthiness personnel. The seminars have been held in South Korea, Thailand, India, China, and the United Arab Emirates to date. ■

DOCUMENTS 2013

- Safety Management Manual (Doc 9859)
- Manual for the ATN using IPS Standards and Protocols (Doc 9896)
- Flight Planning and Fuel Management Manual (Doc 9976)
- ICAO Handbook on Radio Frequency (Doc 9718), Volume II
- Performance-Based Navigation (PBN) Operational Approval Manual (Doc 9997)
- Manual on the Use of Performance-Based Navigation (PBN) in Airspace (Doc 9992)
- Continuous Climb Operations (CCO) (Doc 9993)
- Manual of Evidence-based Training (Doc 9995)
- Air Traffic Management Security Manual (Doc 9985)
- Handbook on Radio Frequency Spectrum Requirements for Civil Aviation (Doc 9718), Vol. I
- Third Edition of The Establishment and Management of a Regional Safety Oversight Organization (Doc 9734, Part B)
- Helicopter Medical Transport Safety Manual (Doc 10002)
- Manual of Procedures for Establishment and Management of a State's Personnel Licensing System (Doc 9379)
- Manual of All-Weather Operations - Aeroplanes (Doc 9365)
- Quality Assurance Manual for Flight Procedure Design (Doc 9906), Volume I
- Quality Assurance Manual for Flight Procedure Design (Doc 9906), Volume II
- Quality Assurance Manual for Flight Procedure Design (Doc 9906), Volume III
- Procedures for Air Navigation Services — Aerodromes (Doc 9981)
- Manual of Aeronautical Meteorological Practice (Doc 8896)
- Handbook on the International Airways Volcano Watch (Doc 9766)
- Manual on the Digital Exchange of Aeronautical Meteorological Information (Doc 10003)
- Manual on VDL Mode-2 (Doc 9776)
- Manual on Aeronautical Mobile (Route) Service (Doc 9925)
- 2013-2014 Edition of the Technical Instructions (Doc 9284)
- 2013-2014 Edition of the Supplement to the Technical Instructions (Doc 9284 SU)
- 2013-2014 Edition of Emergency Response Guidance (Doc 9481)

LANGUAGE PROFICIENCY REQUIREMENTS: CRITICAL TO AVIATION SAFETY

The Journal reviews ICAO's Language Proficiency Requirements (LPRs) and other recent initiatives developed to support language proficiency among Member States.

 In March 2013, ICAO held a Language Proficiency Requirements (LPRs) Technical Seminar designed to assist States and the industry with the implementation of the safety-critical language provisions.

In the last five years, licensing authorities, airlines and air navigation service providers, and language testing and training providers have done extensive work to pursue the implementation of the safety-critical language provisions as mandated by Assembly Resolution A32-16 in 1998 and embodied in Annexes 1, 6, 10 and 11, as well as Doc 4444 — PANS-ATM. The implementation of language provisions will once again be discussed at the upcoming 38th Session of the ICAO Assembly.

The Seminar brought together all stakeholders from the aviation industry, including civil aviation administrations, international organizations, aviation language training centers, aviation language test providers, airlines, and air navigation service providers.

Nicole Barrette, Technical Specialist (Training and Licensing standards) and Dawn Flanagan, AELTS Manager, outlined the occurrences that led up to the Seminar initiative: "In 1996, what was probably the worst mid-air collision in recent air accident industry occurred over the New Delhi area. Investigators in India concluded that one of the factors at play was the lack of English language proficiency between the two crews of the aircraft involved as they didn't share a common language." In 1998, Indian officials presented a working paper to the ICAO Assembly, leading to the establishment of the Organization's PRICE (Proficiency Requirements in Common English) Study Group. The Study Group began to analyze incidents and accidents, and considered the role of language proficiency in these. The results of their work were Standards and Recommended Practices (SARPs) that were introduced in four ICAO Annexes.

Annex 1, which addresses personnel licensing and Annex 10 Volume 2, which relates to English proficiency, are particularly important. Annex 1 stipulates that pilots and air traffic controllers speak and understand the language used on radiotelephony communications to the level specified, which is Level 4 — the operational level considered the safety threshold; level 6 is considered the expert speaker level. Annex 10, Volume 2, states that if a pilot and an air traffic controller don't speak a common language, the default language is English; additionally, the flight crew establishes the

language to be used. "The implication of this is that all pilots and controllers involved in international operations and that do not share a common language have to have stated on their license their level of English language proficiency," explained Barrette.

"Language is a component of communication and the ability to speak at a certain level of proficiency in order to communicate with each other if something unexpected occurs is essential," stated Flanagan.

ICAO adopted the SARPs which were developed by the PRICESG in 2003 and became applicable in March 2008. For many States, however, they have been difficult to implement due to a lack of personnel adequately skilled in developing appropriate tests, in addition to the fact that the training and testing industry in aviation English is unregulated. States are being encouraged to address and implement language proficiency measures with a degree of urgency due to the critical safety nature of the issue. These challenges notwithstanding, since the adoption of the SARPs in 2003, States and industry have made extensive progress towards implementation.

The LPR Technical Seminar in March of this year presented some of the tools available to continue to support the implementation of the LPRs, including a speech sample training aid by the International Civil Aviation English Association for ICAO. This tool provides examples of language proficiency at levels 3, 4 and 5. The Seminar was an opportunity for some of the test providers to discuss their experiences and challenges, and for participants to raise key issues relating to language, for example, the assessment of the language skills of Level 6 speakers.


"We learned in the Seminar that EUROCONTROL is developing a Level 6 test and that EASA is considering establishing a validity period of nine years for Level 6. We will be observing how this develops very closely. There is also a proposal to develop LPRs for maintenance personnel which will be considered carefully and in the light of whether or not the necessary resources are available," said Barrette.

Other initiatives include the revamping of the ICAO Language Proficiency Requirements website as a one-stop resource for everything related to language proficiency, accessible at www.icao.int/safety/lpr.

On the last day of the Seminar, an interactive workshop was held in which every participant listened and rated a speech sample from the rated speech sample tool. "The workshop was a lot of fun because participants were given the opportunity to compare and contrast their rating with that of the other participants, as well as against the rating of the speech sample tool. It opened the eyes of many people as to what is involved in rating and its potential consequence on licensing," commented Flanagan. ■

FEATURES AND BENEFITS OF ICAO'S AVIATION ENGLISH LANGUAGE TEST SERVICE (AELTS)

This Journal Report describes the evolution of the ICAO English Language Test Service (AELTS) and explains its role in supporting States in their implementation of Language Proficiency Requirements (LPRs).

 **The decision to address language proficiency for pilots and air traffic controllers was first made by the 32nd Session of the ICAO Assembly in September 1998 as a direct response to fatal accidents in which the lack of proficiency in English was identified as a contributing factor.**

In March 2003, the ICAO Council adopted a comprehensive set of Standards and Recommended Practices (SARPs) that strengthened language proficiency requirements for pilots and air traffic controllers involved in international operations. It was further determined that pilots, air traffic controllers and aeronautical station operators involved in international operations should speak and understand English to a level 4 proficiency of ICAO's language proficiency rating scale when involved in international operations. The SARPs became applicable on 5 March 2008.

States have found that the implementation of these language proficiency requirements have been challenging. In particular, States and industry identified the scarcity of dependable language testing expertise as an important obstacle to the implementation of language proficiencies. While some regional and national language endorsement programmes exist and certain testing programmes are self-regulated, no universal system of aviation language test endorsement currently exists.

In an effort to support the implementation of its Language Proficiency Requirements (LPRs), ICAO committed to establish a mechanism to provide States with impartial recommendations in the selection or development of aviation English language licensing tests that meet ICAO criteria. In October 2011, ICAO announced the introduction of the Aviation English Language Test Service (AELTS) to assess language tests in order to help its Member States more accurately assess the speaking and listening ability in English of pilots and air traffic controllers.

This Service benefits States by providing them:

- Trusted Test Service Providers (TSPs) who have developed a test with which the decision on the endorsement of licenses can be done confidently
- Improved regulation of the aviation language testing industry

This voluntary Service allows for Test Service Providers from around the world to apply for and receive recognition for tests that rate proficiency in English used in aviation according to ICAO LPRs. The Service is offered via a portal that brings together Test Service Providers, evaluators and anyone interested in the aviation language testing process. Tests are evaluated against the ICAO criteria by a team of experts. They determine if the tests are in partial or full conformance with the ICAO SARPs and ICAO Doc 9835 *Manual on the Implementation of ICAO Language Proficiency Requirements*. If it is determined that the test partially or fully conforms, the recognition periods are one year or three years, respectively.

ICAO has made significant changes to the Service in order to improve efficiency. "The Aviation English Language Test Service is unlike anything ICAO has done before. We are forging new ground with this Service and, as a result, we expected a few growing pains with the process. We have received feedback from the testing community regarding the Service, and we are using that feedback to improve it," commented Dawn Flanagan, AELTS Manager at ICAO. So far, this feedback has resulted in a new, more user-friendly website that:


- Provides information on the Service, including background, purpose, ICAO LPRs and guidance material, as well as fees for the Service
- Includes a pre-assessment questionnaire that provides feedback to Test Service Providers to help them self-assess if their tests meet ICAO SARPs for LPRs and ICAO Doc 9835 prior to submitting it to ICAO for assessment
- Provides detailed instructions and guidance on how Test Service Providers submit their tests to ICAO for assessment
- Maintains all test information, and generates direct, secure and confidential communication between ICAO and Test Service Providers regarding each stage of the assessment service.

ICAO developed the Service in partnership with recognized international professional associations: the International Federation of Air Line Pilots' Associations (IFALPA), the International Federation of Air Traffic Controllers' Associations (IFATCA), the International Language Testing Association (ILTA) and the International Civil Aviation English Association (ICAEA). These partners continue to support ICAO through representation on the Aviation English Language Test Service Steering Committee. These partners, as well as highly qualified experts from States, participate in the AELTS Steering Committee and advise ICAO on best practices to address any problems and to improve the Service.

For more information about the Service, please visit www.icao.int/aelts. ■

ICAO COMMEMORATES PARIS AIR SHOW ALTERNATIVE FUELS PAVILION

This Journal report describes ICAO's role in marking the one-year anniversary of its RIO+20 sustainable alternative fuels initiative.

 Biofuels development in aviation is progressing worldwide at a rapid pace, resulting in more than 1,500 commercial flights having now been operated by airlines using drop-in alternative fuels, with no requirement for any modification of the aircraft's engine.

At this year's Paris Air Show in Le Bourget, France, ICAO was invited to deliver the keynote address at the opening ceremonies for the Alternative Aviation Fuels (AAF) Pavilion.

The combination of rapidly advancing, non-conventional fuels technology and proven results, along with increasing attention on the environment, reliance on foreign oil and the cost of air travel, made the AAF Pavilion one of the show's major destinations.

Recognizing that the opening of the AAF Pavilion coincided closely with the one-year anniversary of ICAO's RIO+20 sustainable alternative fuels initiative in 2012, Jane Hupe, Chief, Environment Branch, ICAO, cut the ribbon at the facility's opening ceremonies to commemorate an event which assembled many of the RIO+20 flight partners for the special occasion.

"ICAO is very happy to participate in the opening of this important facility," commented Hupe. "The development of sustainable alternative fuels for aviation is truly a cooperative global

initiative, and we encourage all air show visitors and attending media to drop by and learn about the many important developments being highlighted here this week."

ICAO's 2012 RIO+20 initiative saw the UN aviation agency's Secretary General, Raymond Benjamin, fly from ICAO Headquarters in Montréal to the RIO+20 Sustainability Conference in Rio de Janeiro on a series of four scheduled international flights using sustainable alternative fuels.

The RIO+20 initiative brought together a wide range of airline, ANSP, fuel and aircraft manufacturers and other stakeholders, many of whom attended Le Bourget. ICAO continues to play a key role in helping to coordinate the global cooperation between private and public sector bodies that will help continue to drive momentum in the field of alternative fuels for aviation. ■



Pictured from left to right are: Jeffrey Brown, Porter Airlines; H l ne V. Gagnon, Bombardier; Brice Lalonde, UN Global Compact; Jane Hupe, ICAO; Teresa Ehman, Air Canada; Andrea Debbane, Airbus; Henk de Graauw, SkyNRG; Eduardo Rodrigues Calderon, GOL.

NEWS IN BRIEF



SIGNING BY ECUADOR

On 19 August 2013, during a brief ceremony at ICAO Headquarters, Ecuador deposited an instrument of accession to the *Convention on Compensation for Damage to Third Parties, Resulting from Acts of Unlawful Interference Involving Aircraft*, done at Montréal on 2 May 2009 (UICC).



Shown on the occasion, from left to right, are: Mr. John Augustin, Acting Director, Legal Affairs and External Relations Bureau, ICAO, Mr. Iván Arellano, Delegation of Ecuador to ICAO, and Mr. Raymond Benjamin, Secretary General of ICAO.

SPECIAL MEETING OF THE MONTREAL GROUP, YOGYAKARTA, INDONESIA, 20-21 JUNE 2013

A Special Meeting of the Montréal Group (Asia-Pacific States represented on the ICAO Council or with a representation at ICAO) took place in Yogyakarta, Indonesia, from 20-21 June 2013. The meeting was attended by delegations from Australia, China, India, Indonesia, Republic of Korea, Singapore, Philippines (Observer), and ECAC (Observer).



Front row (left to right): C. Ding (China), A. Mishra (India), A. Wilson (Australia), H. Bakti (Indonesia), Chairman, B. Susantono (Vice-Minister, Indonesia), D.E.S. Fajardo (Philippines), Lee Gun Y. (Republic of Korea), P.T. Soh (Singapore), R. Huijser (ECAC). Back row: P. Soekarno (Indonesia), R. Anwar (Indonesia), G. Richardson (Australia), A. Samad (Indonesia), D. Murjatmodjo (Indonesia), L. Weber (Indonesia), T.C. Ng (Singapore), E. Poo (Singapore), A. Soebagio (Indonesia).



SIGNING BY THE NETHERLANDS

On 8 August 2013, during a brief ceremony at ICAO Headquarters, the Netherlands signed the *Convention on the Suppression of Unlawful Acts Relating to International Civil Aviation* (Beijing 2010), and the *Protocol Supplementary to the Convention for the Suppression of Unlawful Seizure of Aircraft* (Beijing 2010).



Shown on the occasion, from left to right, are: Mr. John Augustin, Acting Director, Legal Affairs and External Relations Bureau, ICAO and Mr. Rochus J.P. Pronk, Deputy Head of Mission, Embassy of the Kingdom of the Netherlands in Ottawa.

ICAO PREDICTS CONTINUED TRAFFIC GROWTH THROUGH 2015

ICAO reports that world scheduled air passenger traffic grew by 4.9 per cent in 2012, reaching 5.4 trillion passenger-kilometres performed (PKPs) and is expected to increase by 4.8, 5.9 and 6.3 per cent in 2013, 2014 and 2015, respectively.

The 4.9 per cent growth in PKPs (international and domestic services combined) recorded by airlines of the 191 Member States of ICAO was significantly lower than the 6.6 per cent increase posted in 2011. The number of passengers grew by some 4.7 per cent to almost 3 billion, while departures were up 0.7 per cent to 31.2 million globally.

SHORT- AND MEDIUM-TERM FORECASTS POINT TO CONTINUED GROWTH

ICAO expects world scheduled air traffic, in terms of PKPs, to grow by 4.8 per cent in 2013, close to the growth rate recorded in 2012.

According to IHS/Global Insight, a major economic forecasting organization, world Gross Domestic Product (GDP) at Purchasing Power Parity (PPP) in real terms will grow at 3.1 per cent during 2013, up from 3.0 per cent last year.

In the first half of 2013, the European Union (EU) remained mired in recession, while most other key economies grew at lower-than-expected rates. Results for the second half of the year should improve, given the impressive resilience of the US economy, the economic recovery in Japan and the stabilization of Eurozone financial markets.

Despite regional turmoil and a pessimistic short-term economic outlook, the airlines of the Middle East should continue to register the fastest traffic growth in terms of PKPs, with a 10.2 per cent increase over 2012. This forecast is based on the strong performance of its largest air carriers in gaining market share on international routes outside of the Region.

2012 REVISITED

In terms of PKPs, the Asia/Pacific Region is the largest market with 30 per cent of world traffic. The airlines of this Region posted last year a 6.4 per cent increase over 2011.

International traffic in terms of PKPs increased by 5.4 per cent in 2012. The largest growth rate was registered by the airlines of the Middle East Region at 14.3 per cent, followed by those of the Latin America/Caribbean Region at 8.9 per cent, the Asia/Pacific Region at 4.6 per cent and Europe at 4.4 per cent.

In terms of domestic traffic, markets grew by 4.1 per cent overall. Growth rates of 0.1, 0.9 and 3.6 per cent in Europe, North America and the Middle East, respectively, were much lower than those achieved by the African, Latin America/Caribbean and Asia/Pacific Regions at 4.3, 8.4 and 8.6 per cent, respectively. North America is still the largest domestic market with 47 per cent of the world domestic scheduled traffic; however, deceleration of traffic growth is confirming the maturity of this market.



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