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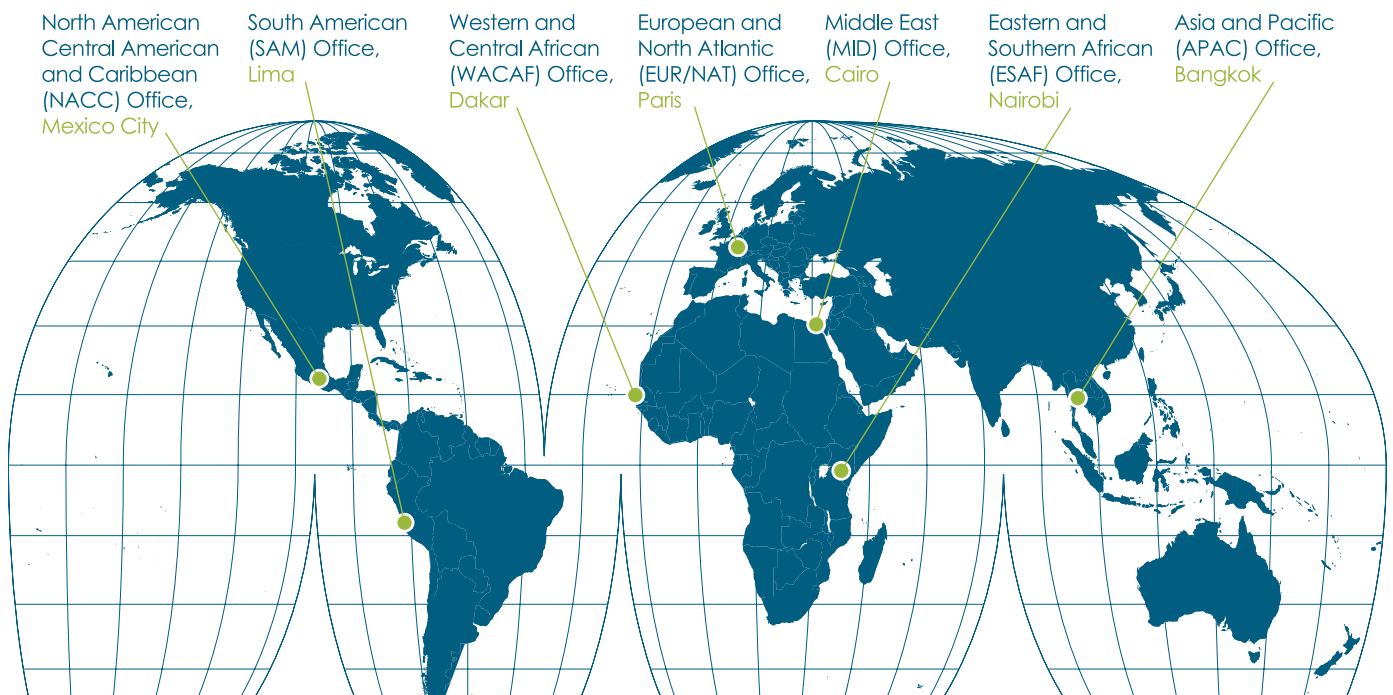
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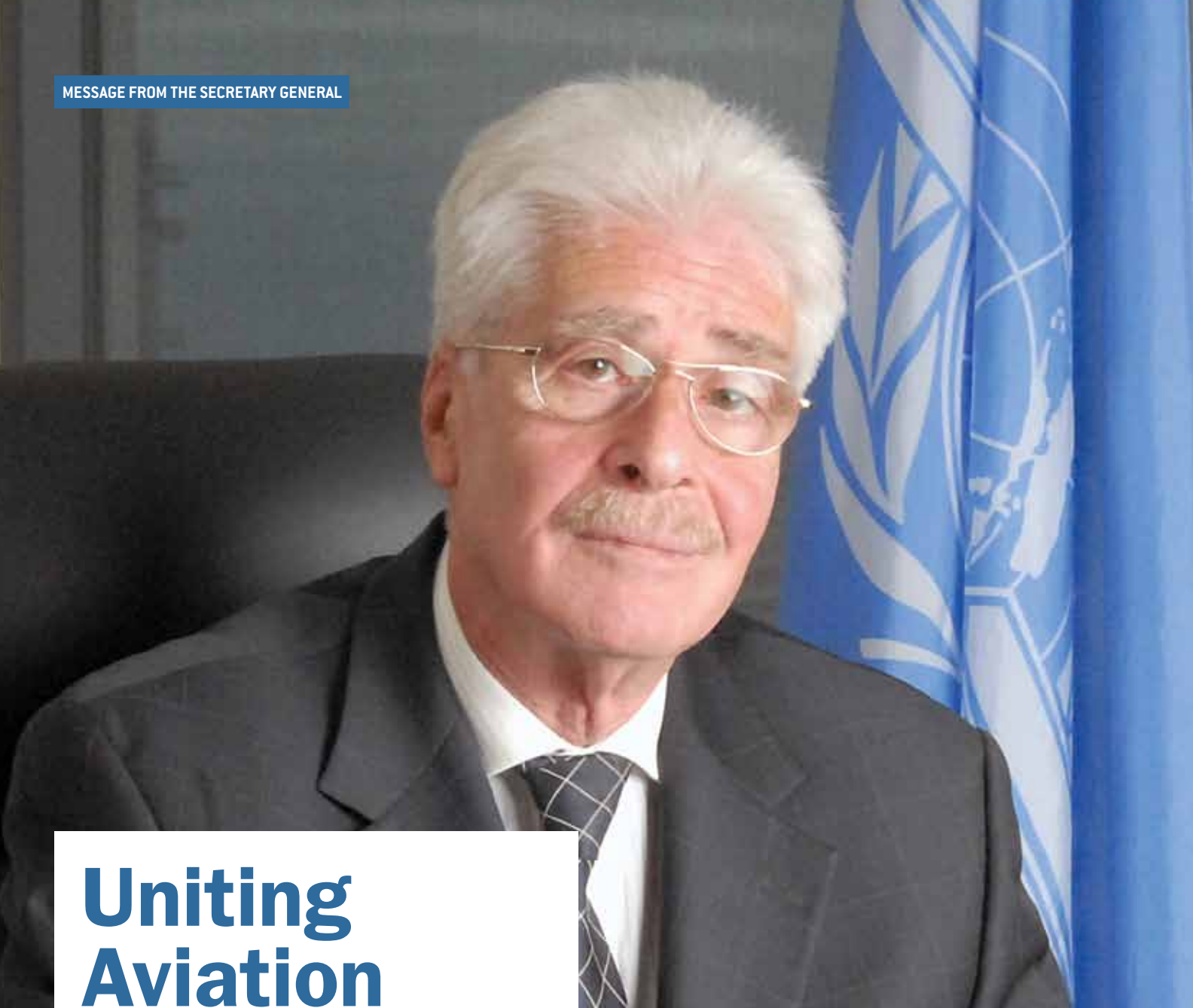
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ICAO's Global Presence





Uniting Aviation

In this issue of the Journal, we consider how ICAO and its Member States, in close cooperation with industry, have demonstrated since the beginning of 2010 how leadership is as much the ability to react quickly and efficiently to a crisis situation as it is the capacity to proactively anticipate challenges and develop effective strategies.

The devastating earthquake of 12 January in Haiti was a dramatic case in point. ICAO's response was quick, with contact rapidly re-established with Haiti's Civil Aviation Authority (OFNAC) and neighbouring States for the coordination of traffic flying through the Haitian airspace. At the same time, early assistance was provided by the Federal Aviation Administration of the United States, in conjunction with the U.S. military, whose emergency control tower provided essential air traffic control capabilities and greatly facilitated the work of disaster response teams.

The Organization's first post-quake mission, overseen by the ICAO Regional Office in Mexico City, took place mere weeks after the Caribbean State's civil aviation infrastructure was all but decimated. ICAO assisted OFNAC in developing an action plan to begin restoring critical air transport systems and facilities, and just recently signed important new agreements for managing Haiti's aviation-related reconstruction efforts.

In the aftermath of the Buffalo (New York) accident in 2009, serious questions about pilot fatigue and aviation safety were raised. ICAO's new Fatigue Risk Management System (FRMS) approach effectively addresses this and related issues. As a true performance-based measure, FRMS is flexible enough to meet the needs of all operational environments, while retaining the protections provided by regulation and oversight by a competent authority.

ICAO led the aviation sector to some of its most solid achievements in years and paved the way for even more substantive progress in terms of sustainable alternative fuels and greater operational efficiencies...

Avoiding or at least minimizing the impact of a dramatic anticipated shortfall of skilled aviation personnel in the near-term is anticipated thanks to advances made in recent months under the aegis of ICAO's Next Generation of Aviation Professionals (NGAP) initiative. A joint task force comprised of all major air transport stakeholders was quick to raise concerns and formulate solutions at the first NGAP Symposium held earlier this year. Airline executives worldwide have congratulated ICAO and IATA for the effectiveness of their action with the NGAP undertaking.

And finally, our commitment to transparency and greater access to safety-related information for all international civil aviation stakeholders is underscored in our discussion

concerning the Continuous Monitoring Approach (CMA), the next phase in the evolution of the ICAO Universal Safety Oversight Audit Programme (USOAP). Accordingly, ICAO is updating existing agreements with Member States to place a renewed emphasis on the sharing of safety information, while similar agreements are being negotiated with recognized organizations in order to avoid the duplication of monitoring activities.

In recent Journal issues, we have reported on similar reactive and proactive actions which have thrust ICAO to the forefront of aviation news.

Following the attempted bombing of a commercial flight on 25 December 2009, four regional ministerial

conferences around the world produced a Declaration on aviation security for debate at the 37th Session of the Assembly, along with a proposed new strategy for dealing with new and emerging threats to aircraft and facilities.

In the wake of the eruption of Iceland's Eyjafjallajökull volcano in April, ICAO's Council and Air Navigation Commission evaluated the situation and stressed the need to review existing volcanic ash guidance, contingency planning and operational responses to help alleviate the European situation. For its part, the ICAO European and North Atlantic Volcanic Ash Task Force (EUR/NAT VATF) prepared amendments to the appropriate EUR/NAT Air Traffic Management (ATM) Contingency Plans. Concurrently, ICAO established a new International Volcanic Ash Task Force (IVATF) that is hard at work on a global safety risk management framework associated with volcanic ash events, with the objective of being better prepared for a similar event should it occur.

On the proactive side, ICAO led the aviation sector to some of its most solid achievements in years and paved the way for even more substantive progress in terms of sustainable alternative fuels and greater operational efficiencies to further reduce the effect of air transport on the environment, particularly climate change.

All of these examples reflect what, in effect, was the theme of the 2010 Assembly: ICAO Uniting Aviation... for Safety, Security and the Environment. ■



2010 NGAP Symposium

The goal of the Next Generation Aviation Professionals (NGAP) Symposium in March 2010 was to propose specific actions in two areas: the updating and modification of the regulatory environment in order to improve the effectiveness of training and education; and to mobilize the air transport community towards a common effort that would help revitalize the image of aviation professions.

These challenges were addressed by ten separate Panels made up of experts and specialists representing the full range of air transport stakeholders, including civil aviation authorities, airlines, ANSPs, training and education providers and international organizations.

The following is the first in a three-part series reviewing the information, suggestions and conclusions drawn from the 2010 NGAP Symposium presentations. This segment focuses on the *Executive View* and *Figures and Trends* Panels, to be followed in future issues by articles devoted to the specific challenges being uncovered regarding flight crew and maintenance worker challenges.



The ICAO Next Generation Aviation Professionals (NGAP) initiative seeks to address the dramatic and industry-wide shortages of skilled air transport personnel that are expected to arise between now and 2025. These imminent shortfalls for maintenance- and crew-related professions were first revealed to the broader aviation community via an IATA Training and Qualification Initiative (ITQI) study (see sidebar page 10).

2010 NGAP Symposium: Workshops (Day 1) and Introductory Remarks (Day 2)

The March 2010 NGAP Symposium began with a full-day devoted to three workshops focusing on the priorities and progress being achieved via current competency- and evidence-based training methods in both the crew and maintenance environments. Operators, regulators, manufacturers and States all contributed to these important

NGAP BACKGROUNDER

Causes for the NGAP personnel shortage trends being revealed today range across demographic, social, sectoral and political factors. They include the increase in the median age of practitioners, the fact that many aviation skill sets are very desirable for, and transferable to, other industries, that sector needs can vary considerably depending on the States or Regions under consideration, and the underlying reality that the 'wild blue yonder' is no longer as glamorous or exciting as it was once perceived by younger demographics.

It has also been highlighted that the particularly cyclical nature of air transport economics, with the commensurate hiring and layoff periods these produce, makes personnel attraction and retention more difficult. Furthermore, non-harmonized government programmes can have a tendency to exacerbate wider industry recruitment issues and concerns.

First responses to the significant challenge these projections and concerns pose to global aviation and many of its stakeholders came in the form of a special Next Generation Aviation Professionals (NGAP) Roundtable in May 2009, organized jointly by ICAO and IATA. The event was held primarily to solicit input and opinion from 43 expert participants representing industry, regulatory bodies, universities, training providers and international associations to assess early objectives.

Participants to the ICAO Roundtable reached early consensus that staff shortage issues within the aviation industry will cause serious problems in the foreseeable future. They agreed that a special NGAP Task Force (NGAPTF) would need to be formalized and volunteers emerged to assume responsibility for both the main Task Force itself as well as the action areas it would be concerning itself with.

NGAPTF/1 met for the first time in October 2009 at ICAO to review the status of its research. The goals of the October gathering were to establish the work programme for the NGAP Task Force Teams, including scope-definitions and timelines, as well as to develop a clearer picture of the magnitude of the worldwide personnel shortages in the near- and long-term. Participants reviewed the extent of the problem both by geographic Region and by career path (pilot, controller, mechanic, ATSEP, etc.), and finalized the programme and objectives for the 2010 NGAP Symposium held last March.

and formative discussions that helped to frame the remainder of the four-day NGAP event.

The Symposium was officially opened on the following day and featured a keynote address from aerospace Engineer, fighter pilot, airline pilot, flight instructor, and Concorde/Airbus experimental test pilot, Jean Pinet. Speaking on the 41st anniversary of the Concorde's maiden flight, Pinet helped to place the NGAP challenge in a broader historical context and to highlight complementary issues to NGAP's training and education challenges, including emerging technological developments relating to aircraft design and physiological factors concerning how humans could more effectively assimilate the increasingly rapid developments pertaining to aircraft and air navigation improvements.

Roberto Kobeh González, President of the ICAO Council, provided important

introductory remarks to the NGAP participants concerning the need for the international aviation community to collectively address the complex and inter-related NGAP issues in a holistic and harmonized manner. González stressed to the assembled experts that the quality of education being provided to new workforce entrants needs to remain vigilantly re-assessed and improved:

"We are entering a bold new world without sufficient training capacity worldwide. Policies and regulatory frameworks are not well enough aligned with the aggressive, proactive policies we now need to recruit, educate, train and retain the next generation of aviation professionals. If we do not address the quality of education issue, employment decisions will be based mainly on business forces, jobs will be filled by individuals with inadequate training and safety will be at risk."

González also spoke in his opening remarks of today's generational divide and the need for air transport stakeholders to reassess the effectiveness of their education and training systems with respect to the needs of a more technologically advanced and digitally-devoted young workforce. For more on this issue readers may wish to refer to the article on page 26 of *ICAO Journal* Vol.65 No.4, 2010, by Carlos Sanchez-Lozano.

Günther Matschnigg, IATA Senior Vice President, Safety, Operations and Infrastructure (SO&I), emphasized in his introductory remarks IATA's goals to modernize training, make the industry more attractive to new recruits, and to increase market permeability and harmonization.

With respect to training, Matschnigg echoed Jean Pinet's point that new courses and programmes must reflect both current and projected requirements associated with the latest technological developments. He stressed that overall industry skill levels would benefit from the competency- and evidence-based approaches that are being phased-in industry-wide over the next several years.

Matschnigg also noted that IATA would be collaborating closely with the NGAP Outreach Task Force (see *sidebar page 10*) as it works towards reinforcing the attractiveness of aviation career paths to students in both secondary and post-secondary programmes. He remarked that the industry would benefit tremendously from a more globally-harmonized set of training and competency/skill standards for new industry entrants.

Symposium Day 2 – Panel Presentations: Panel 1 – The Executive View

In the Symposium's first Panel presentation, Nancy LoBue, Acting Assistant Administrator for Aviation Policy, Planning and Environment in the U.S. Federal Aviation Administration (FAA),



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2010 NGAP SYMPOSIUM – PANELS

The March 2010 NGAP Symposium was a four-day ICAO event. It began with a series of Workshops that were then followed by three days of Panel presentations on the following areas of prioritized focus:

Day 2:

Panel 1 – The Executive View

Panel 2 – Figures and Trends

Panel 3 – Pilots and Operations

Day 3:

Panel 4 – Air Traffic Management and Maintenance

Panel 5 – Training Centres (1)

Panel 6 – Training Centres (2)

Panel 7 – Simulation

Day 4:

Panel 8 – Original Equipment Manufacturers and Training

Panel 9 – Updating and Harmonizing Regulations (1)

Panel 10 – Updating and Harmonizing Regulations (2)

reviewed the status of her country's aviation infrastructure and related employment data. LoBue reinforced that the U.S. situation reflects global trends in that its industry is growing and its technologies are being modernized at a pace that is outstripping related workforce advances.

LoBue then detailed the steps her organization is taking to address the shortages of skilled workers and the industry advances in satellite-based, seamless sky-oriented technologies that are helping to define the needs and roles that today's aviation trainees will need to master and assume. She noted that the FAA was a lead member in the ongoing U.S. Interagency Aerospace Revitalization Task Force and that her country has, for several years now, been addressing the need for more scientifically-advanced graduates through initiatives such as the multi-disciplinary STEM (Science, Technology, Engineering and Mathematics) Challenge.

Capt. Ian Brunton, Chief Executive Officer for Caribbean Airlines (CA), reviewed his carrier's operational achievements and goals during his Executive View Panel Presentation and focused many of his remarks on the importance of training to CA's bottom line—today and into the future.

Brunton noted that, in a highly competitive operational climate featuring constant efforts to lower costs without detrimentally affecting related quality metrics, technological advances and employee development become key components of any effective solution. He outlined the innovative approaches that CA now employs to maximize its training and employee resources, and highlighted the acute challenges for the

2010 NGAP SYMPOSIUM – TASK FORCE SUB-GROUP STATUS REPORTS

The following are brief interviews with the Chairs of the various NGAP Task Force Sub-groups that have been put in place to help understand and address the industry's future skilled personnel shortages. Six separate Sub-groups are featured over the coming pages.

Accreditation Sub-group



Peter Morton

Accreditation stands to play an important role in helping aviation to ensure that, as the next generation of aviation professionals begin to take up their new positions, the training and competencies they have under their belts will be up to the tasks presented to them.

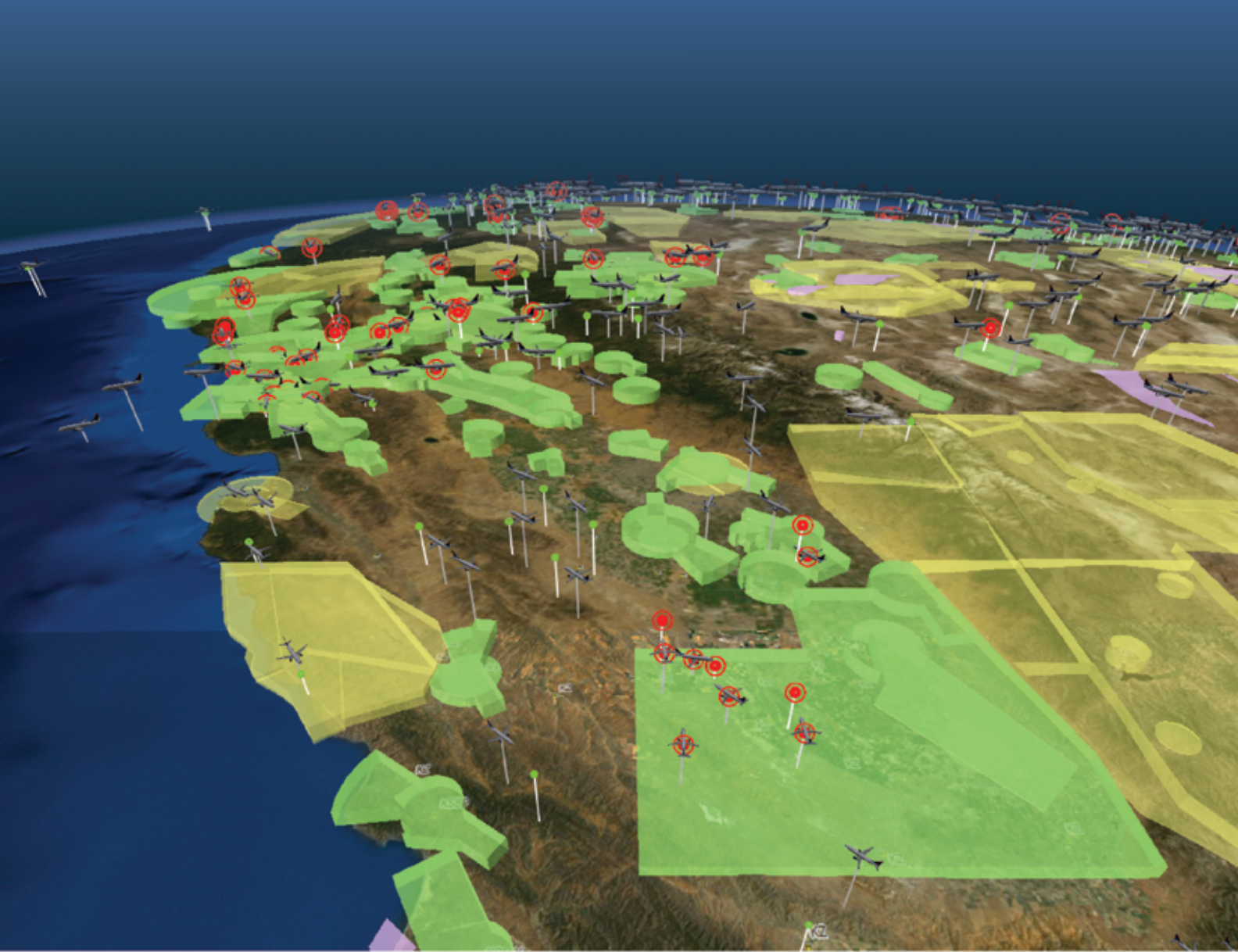
"It's important to distinguish that accreditation work is focused directly on specific baccalaureate and associate degree or equivalent programmes that these new young pilots, controllers and maintenance workers will be going through on their paths to their new careers," commented Peter Morton, past President of the Aviation Accreditation Board International (AABI). "Our role as accreditors is to provide a process to assure that the information and skill sets developed through specific educational and training programmes meet the needs of students and the industry these programmes are designed for. It should be emphasized that our peer-based programme accreditation is separate from the role States and other quasi public/private bodies play in accrediting training/education institutions themselves, as well as licensing graduates once they're ready to move into the industry."

Morton stressed that, in his view, the NGAP initiative addresses an emergent long-term issue rather than a quick solution to the near-term localized scarcity of future aviation professionals. He believes that a gradual penetration of accreditation and other ICAO solutions to assure education quality will come about over the next couple of decades.

"We tend to approach these issues from worst-case scenarios so that the industry doesn't find itself in a sudden crisis situation," Morton added, "but from the AABI's standpoint this issue has been well-anticipated by IATA and ICAO and this gives us time to consider the best possible solutions to address the eventual NGAP challenges."

Morton also noted that a broader role for programme accreditation in ICAO's Regions will serve to improve the quality of new aviation personnel who will be coming into service over the next few decades, and that ICAO would have an important role to fill in increasing Member State motivation to have more local programmes peer-reviewed by AABI professionals.

"The NGAP initiative will most likely produce an increased role for accreditation as more and more young aviation professionals enter the workforce," Morton concluded. "By leading the NGAP initiative, ICAO has provided an instrument to global aviation by which the broader process of effectively addressing future skills shortages can be properly analyzed and promoted, and appropriate solutions developed."



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Caribbean Region in terms of skilled aviation worker availability and retention.

With respect to maintenance employees and skills specifically, Brunton remarked that the continued separation of avionics and A&C trades for licensing purposes is no longer reflected in the latest trends in aircraft technology where systems and equipment are becoming more and more integrated. He outlined the CA view that a move towards a training regime and qualification process which would produce a technician/engineer who is more able to effectively combine both

Results from the IATA ITQI Report, 2009

Pilot and Training demand	2018	2026
Total pilots needed to fly new aircraft	193,100	350,200
New pilots for additional aircraft	135,000	227,500
New pilots needed to fill the fluctuation and retirement gap	72,600	125,400
Total new pilots (additional aircraft and fluctuation) needing <i>ab-initio</i> training	207,600	352,900
Total new pilots needing transition training on replacement aircraft	57,930	122,700
Maintenance demand	2018	2026
Total mechanics needed for additional aircraft	247,100	420,000
Total mechanics including fluctuation and retirement	405,500	739,000

IATA ITQI Report, 2009, Section 4.1, pp. 9-10

2010 NGAP SYMPOSIUM – TASK FORCE SUB-GROUP STATUS REPORTS (CONT'D)

Outreach Sub-group

Outreach activities will play a key role in the ICAO NGAP process, given that reaching out to students and convincing them of the merits of an aviation-related career represents one of the most important first steps in addressing the related issues.

“We’re currently developing a Web site as our first priority and will later be holding several national/Regional conferences in the lead-up to the next NGAP Symposium,” commented Outreach Sub-group Chairman, Professor Paul Bates.

Invitations to the conferences will be sent out all ICAO Member States. Bates will be counting on these nations to identify and pass along the invitation information to pertinent educational institutions in their territories. The respective high schools, colleges and universities will be asked to volunteer and partner on the seminars and information sessions that Bates hopes to have completed prior to the next Symposium.

“The main objective with these seminars will be to pass along the most up-to-date information available from our end, as well as to get a clearer picture of the Regional and State circumstances based on attendee feedback,” Bates noted. “The Web site will serve as a back-up to this process in the event that some institutions or students can’t get events organized in time.”

Sub-group Vice-Chair Mitchell Cockburn, meanwhile, stressed the importance of having actual students involved in the NGAP process. He and a few others proactively contacted ICAO after having seen information about the 2010 NGAP Symposium on the Organization’s Web site.

“On the final day of the Symposium, after we had participated in discussions and asked a lot of questions during the numerous presentations, we were approached by ICAO ANB Director Nancy Graham and AABI President Tom Carney to join the NGAP Joint Task Force,” noted Cockburn. He and his close colleague, Stephan Korobaylo, jumped at the opportunity and have been dedicating their time to the Task Force’s Outreach Sub-group effort ever since.

Cockburn stressed the need for there to be more effective lines of communication opened up between students and industry. In addition to the Web site and conferences now planned, he and Bates are also overseeing the development of tailored kits, one aimed at Member State high school students and the other at the college/university demographic.

“It’s vital that these communication lines be established so that students can be made aware of industry expectations and qualifications for their future employment,” Cockburn concluded. “Our goal now is to leverage the coming conference/kit process and see if we can arrange to have certain students sponsored and sent to the next Symposium to share their local perspectives.

The idea is to jump-start the industry-student interaction being sought and create a self-supporting cycle to support the broader NGAP objectives.”



Student delegate Stephan Korobaylo addresses the NGAP Symposium participants. ICAO has since included student-level involvement in its NGAP Outreach initiatives.



The student delegates who attended the ICAO NGAP Symposium last March, accompanied by ICAO Secretary General Raymond Benjamin and ICAO’s Technical Officer for Training, Nicole Barrette-Sabourin.

skill sets would better serve the industry and would be better able to relate to today's rapidly evolving technologies.

Brunton emphasized that the quality of the *ab-initio* student available in today's educational environment and Internet age can more easily adapt to the modern aircraft maintenance challenge. In concluding, he commented on the importance of the timing of the ICAO NGAP initiative as the industry looks out across the coming decades and stressed that, more locally to the CA Region, the Organization had a stronger leadership role to play with respect to accelerating important near-term improvements to regulatory cooperation and harmonization.

Two additional presentations rounded out the Executive View Panel. Jacques Saada, Chief Executive Officer of the Quebec Aerospace Association, described how vital the sector is to the economy of Quebec, Canada. His main NGAP-related points centered on the new employment opportunities and challenges that would arise from the ongoing 'greening' of air transport technologies and operations, and on the need for more intensive cooperation between aerospace economic stakeholders in the manufacturing, training and regulatory areas.

The last presentation in the Executive View Panel was given by Claude Lauzon, Vice-President of Civil Aviation Services for CAE Canada. Lauzon stressed that his company had been using a

rigorous instructional systems design methodology for many years, and that this type of approach would have to become the norm if the NGAP challenge is to be effectively addressed. He commended the revisions found in the recently published 3rd Edition of ICAO Doc 9625—*Manual of Criteria for the Qualification of Flight Simulators*, and urged all national aviation authorities to harmonize their regulations to the new ICAO 9625 Standards as soon as possible.

Symposium Day 2 – Panel Presentations: Panel 2 – Figures and Trends

The Figures and Trends Panel was opened by a presentation from Narjess Teyssier, Chief of ICAO's Economic Analysis and Policy (EAP) Section. Teyssier highlighted to the assembled participants the need to more closely monitor any changes to airline fuel costs, the lingering impacts of the 2008 financial crisis, and lastly the general world economic outlook in order to better predict the scope and urgency of any potential changes in future licensed personnel requirements.

Teyssier commented that the 2008 financial crisis had created a challenging operational environment for airlines, leading to depressed demand, capacity reductions and a high number of bankruptcies both in legacy and Low-cost Carriers (LCCs). A direct impact of this, she stressed, was the substantial

2010 NGAP SYMPOSIUM – TASK FORCE SUB-GROUP STATUS REPORTS (CONT'D)

Maintenance Sub-group



Tom Fodor

The NGAP Task Force Maintenance Sub-group, led by IATA, has developed competency-based training material which will be included in the ICAO PANS Training Manual.

"Our work really built on what has already been accomplished between IATA and ICAO on the Multi-crew Pilot License (MPL) dossier," began IATA's Tom Fodor, Project Leader for IATA's Training and Qualification Initiative (ITQI) for Maintenance. "We have prepared the competency-based training chapter for Maintenance and the revised PANS-TRG document is presently being reviewed under the auspices of an ICAO State Letter."

Fodor has been working closely with ICAO as IATA's ITQI initiative and the Organization's NGAP Task Force processes proceed in parallel. Fodor stressed that these are very much complementary efforts and that ICAO and IATA are collaborating significantly at every level as the process proceeds.

"Competency-based training represents a baseline for our Sub-group's work programme," Fodor noted. "For all positions that are presently undergoing this evolution we also need to address issues relating to personnel selection and quality management metrics that will support and enhance the effectiveness of the overall training methodology we're now moving toward."

IATA and ICAO are both seeking to aggregate the new training guidance emerging from the ITQI/NGAP process. On the ICAO side many of the related SARPs had previously been found in varying Annexes and Manuals. IATA's goal is to develop guidance material for competency-based training to make it easier for training organizations to find everything they need under one roof.

The Sub-group is also developing a new ICAO Document relating to approving institutions that have met the criteria required to qualify as competency-based training providers in the maintenance field. A similar document for the MPL was already developed and the hope is presently to have this completed in the next couple of months.

"The degree of collaboration now being realized between IATA and ICAO is noteworthy as the ITQI and NGAP process moves forward," Fodor concluded. "At the highest Operational levels, IATA's Members have been very cognizant of the effectiveness and professionalism reflected in the final products that our organizations are now jointly producing and are very appreciative of the cooperative frameworks that are allowing this progress to be made."



Standing up for Russian Aircraft Integrity

From a Vision to a World Leader

When an executive officer in the Soviet air force first had the vision to develop a commercial market for the giant Antonov AN-124 military freighter aircraft, few people in the western air cargo industry gave the venture any hope of success.

Two decades later Alexey Isaikin now leads one of the most dynamic and successful airline cargo groups in the world having developed a whole new international market for the transportation of heavyweight and oversized air cargo, namely Volga-Dnepr Group.

What began with a single AN-124 freighter in 1990 is today one of the most successful Russian businesses in the global market contributing to total annual sales of US\$1.2 billion. Volga-Dnepr Group employs nearly 3,000 staff, operates the world's largest commercial fleet of AN-124-100 'Ruslan' freighters (10) plus three brand new and modernized IL-76TD-90VD cargo aircraft approved by ICAO for global operations and—in 2004—launched a fast-growing scheduled cargo airline, AirBridgeCargo with a fleet of 10 Boeing 747Fs.

One of the early questions raised about the group's ambitious plans back in 1990 was how to ensure the operational reliability of an aircraft many in the west hadn't even heard of before. Was the aircraft safe to operate and how would Volga-Dnepr maintain its fleet?

These questions soon disappeared as Volga-Dnepr and the AN-124 quickly demonstrated a unique and reliable operating capability that quickly had customers clamouring for this unique logistics solution. Large and heavy cargoes that once took weeks to deliver by sea and road transport could now be at their intended destination literally within hours thanks to the AN-124 and the planning and loading expertise of the airline's operations team. When such cargoes include critical drilling equipment for the oil and gas industry, for example, and prevent losses of millions of dollars a day in lost production, it is easy to understand why the AN-124 has become such a vital part of the global supply chain in the niche market it has helped to create.

Today, the Group's customers include international governments, leading charities and relief agencies and top brand corporations from the aerospace, defense, heavy construction, oil and gas, engineering and aviation sectors.

Setting up Volga-Dnepr Technics (VDT)

With its aircraft fleet in such high demand across the globe, providing timely and professional maintenance needed to sit at the heart of Volga-Dnepr's business. Recognizing the uniqueness of its fleet, the Group took the strategic decision

to create its own maintenance organization with facilities at key points across the globe and in 1996 two bases were opened in Shannon in Ireland and Sharjah in the UAE.

Today, Victor Sherin, CEO of Volga-Dnepr Technics (VDT), a division of Volga-Dnepr Group, presides over maintenance locations in Moscow and Ulyanovsk in Russia, Leipzig in Germany—to support a strategic airlift contract with the United Nations and countries in the European Union—and Sharjah in the UAE.

Sharjah is now the largest and most advanced of the VDT facilities and employs over 300 staff. VDT Gulf now provides maintenance services for over 50 airlines, including a large customer base of UAE and African airlines, which has ensured the business has always been profitable.

VDT: Working to Global Standards

In March 1996, VDT's line maintenance base was certified by the Civil Aviation Authorities of Russia to provide maintenance for An-12, An-24 and An-26 aircraft and, in 2000, this was upgraded further to cover all types of maintenance and repair for Russian aircraft.

The Sharjah operation is based in two industrial areas covering 5,000 square metres. The planned development of a new hangar with a total area of 18,000 square metres will enable VDT's maintenance engineers to work on two Boeing 747s or up to five IL-76 aircraft at the same time, significantly boosting productivity and enabling VDT to keep pace with demand for its services.

VDT Gulf's strategic objective is to provide the size of facilities that attract more operators of western-built aircraft such as Boeing 747s. This will require the business to



become certified to Civil Aviation Requirements (CAR) 145 in the United Arab Emirates—the required industry approval level for all organizations engaged in maintenance of aircraft and aircraft components. It must also comply with European Aviation Safety Agency (EASA) part 145, the implementing regulation for the aircraft maintenance sector.

Victor Sherin commented: “VDT Gulf has prospective foreign airline clients for maintenance once the required facilities are in place to perform C-checks. That is why we are making this commitment to build a new hangar in Sharjah to gain the necessary certification that will enable us to fully utilize the technical expertise of our maintenance and engineering personnel. We intend to enhance our capability in the region in accordance with the worldwide standards for aircraft maintenance.”

In Sharjah, VDT Gulf provides aircraft and engine diagnostics by means of NDT (Non Destructive Testing) methods such as eddy current, magnetic particle, ultrasonic, visual boroscope and liquid penetrate in accordance with EASA STANDARD EN4179.

In co-operation with major aircraft and engine design bureaus and engine manufacturers such as Antonov, Ilyushin, Saturn, Progress and Motor Sich, VDT Gulf provides operational time extensions and module repair of aircraft engines as well as operational time extensions of airframes for An-24, An-26 and An-12 aircraft types. It also equips aircraft with Traffic Alert and Collision Avoidance Systems (TCAS), Terrain Awareness and Warning Systems (TAWS) and Reduced Vertical Separation Minimum (RVSM) systems.

The Gulf operation has certification to carry out maintenance of An-124-100, An-12, IL-76, An-26, An-32, An-24, Yak 40 and An-74 aircraft. It has also been awarded certificates for maintenance by other countries, which include Ukraine, Belarus, Moldova, Armenia and Ethiopia.

Sherin added: “One of our earliest challenges was to make the various civil aviation regulatory authorities better informed about Russian aircraft. There were so many misconceptions to overcome but we were able to explain that Russian aviation rules are equally professional and strictly regulated as those in other major markets around the globe and we were able to demonstrate this through our IACA certification approval.

“We have also needed to address the views of some people that the production process for Russian-made aircraft has been the cause of recorded incidents. Like all professional companies in the world of aviation, safety and security are our highest priority so when we see a report of incidents involving other operators of Russian-built aircraft, we closely analyze the likely cause. The reality is that such aircraft



sometimes operate without the regular maintenance and operational conditions required to meet international standards, primarily to save money. This is totally wrong and goes against everything we believe in as a business committed to meeting the highest worldwide safety standards. Nonetheless, some airlines do operate in this way and, as a result, their actions have damaged the reputation of certain aircraft types, including Russian aircraft.

“However, through the maintenance facilities we provide, we have been able to support those professional operators of Russian aircraft that understand their corporate responsibility as well as the economic benefits that are derived from operating aircraft that are well maintained. I see part of our role as to improve the strong reputation of all aircraft operated by responsible airlines.”

Promoting Quality

Volga-Dnepr is not alone in wanting to promote the integrity and quality of Russian-built aircraft. It is leading groups of Russian and CIS businesses that are working in collaboration to protect and re-launch Russian-Ukrainian aircraft production. This has already produced the highly successful IL-76TD-90VD freighter, a commercially and environmentally-enhanced version of the old IL-76.

Old versions of the IL-76 were banned from major markets in Europe, the US, Japan and Australia in 2000 for failing to comply with ICAO noise and emissions standards. Recognizing that this unique aircraft had no compatible replacement, Volga-Dnepr led the project to build a new version and in 2006 took delivery of the first IL-76TD-90VD compliant with ICAO regulations. It now has a fleet of three and more are due for delivery.

Over the past few years, the Group has also been progressing its most ambitious project to relaunch serial production of a new, modernized AN-124 freighter. This continues to gather pace and is considered vital if the aircraft type is to continue to meet the growing demand forecast for its service capability over the next 20-30 years.



lay-offs in all airline employees categories for the past couple of years.

Looking at the trends today towards industry growth rates of around five percent based on current aircraft orders and inventories, Teyssier extrapolated some very useful data concerning 2010–2030 pilot demand and training capacity on a continent-by-continent basis. For more details please refer to Figure 1 (page 15, top).

As Teyssier revealed, Africa's challenge is particularly acute in this regard, with pilot demand outstripping training capacity by almost 10-to-1. Another speaker during this Panel, Mohamed Moussa, Director of Human Resources for the *Agence pour la sécurité de la Navigation Aérienne en Afrique et à Madagascar* (ASECNA), spoke to this urgent need and highlighted some of the solutions that his organization is putting in place to address it. Moussa reviewed near-term African personnel requirements on a post-by-post

2010 NGAP SYMPOSIUM – TASK FORCE SUB-GROUP STATUS REPORTS (CONT'D)

Flight Crews Licensing Sub-group



Jim Dow

The NGAP Flight Crew Licensing Sub-group is essentially adapting, where necessary, the excellent and comprehensive work already completed elsewhere, most importantly by the IATA Training and Qualification Initiative (ITQI).

“The work plan we’ve been developing for the NGAP FCL Sub-group will be done sequentially,” began Sub-group Chairman Jim Dow. “Thanks to what IATA ITQI has already accomplished, we’re going to tackle instructor/evaluator competencies first and have those done before end-2010. Once that’s completed we’re going to set our sights on the ‘command’ competencies. Inspector competencies will also be addressed.”

Dow clarified that flight crew member competencies are based on ‘excellent’ levels of performance for a given position and responsibility. These are not, therefore, minimum but rather highest levels of competency that are being established as performance benchmarks. He also noted that this approach is also being applied by the other NGAP Sub-groups as they develop performance criteria for other aviation positions, be it airport managers or air traffic controllers, citing two obvious examples.

“You really want to describe the behaviors of an excellent performer, not a minimal performer,” he stressed. “This allows the industry to focus on learning outcomes that result in the required competencies.”

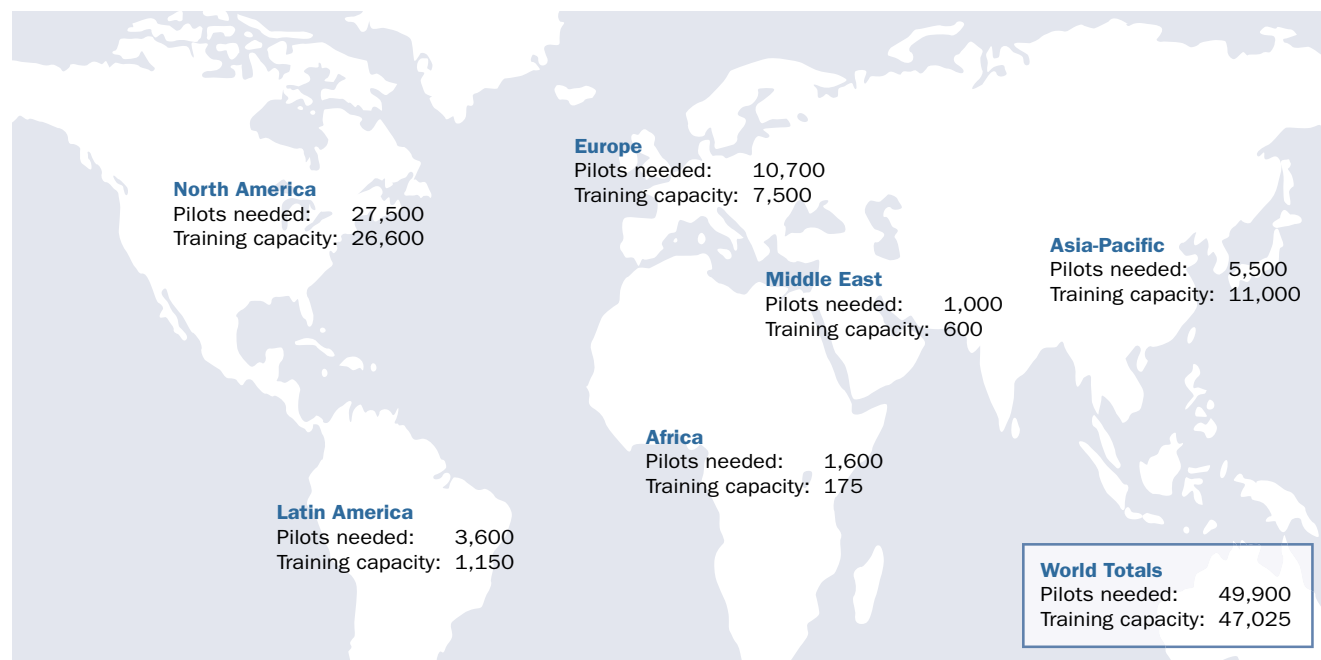
The training needed to address these new competencies requires a specific systems approach. This is a more detailed training approach where everything is mapped-out in advance, defined and sequenced for efficient achievement of learning objectives. This varies dramatically from previous flight time-based approaches to crew training that focused on building up total logged hours to satisfy prescribed licensing requirements.

“From the regulatory point of view under this regime, one of the big shifts has been that you no longer tell organizations or institutions how to train—instead you focus on the outcomes,” Dow highlighted. “This allows schools to develop very creative programmes that take advantage of simulation, situation-based learning and other tools. For training organizations, one of the benefits of the quality-systems environment that this type of training requires is that it’s very dynamic. It adapts easily to new technologies and evolving training needs.”

For more on the NGAP flight crew topic please watch for a more detailed review of the 2010 NGAP presentations in this area in a future issue of the *ICAO Journal*.

Figure 1: Future Pilot Need vs. Training Capacity

The following graphic shows the ICAO-estimated average annual pilots needed for the period from 2010 to 2030, based on various world fleet categories. The training capacities shown are based on current figures and do not reflect any measures that may now be planned to address them.



2010 NGAP SYMPOSIUM – TASK FORCE SUB-GROUP STATUS REPORTS (CONT'D)

ATM Sub-group

The need for an ATM Professionals Sub-group highlights the fact that competent professionals are required in many areas of Air Traffic Management (ATM) to ensure the safe, efficient and sustainable provision of air traffic services. Current work in this area is focussing on defining globally implementable, harmonized competencies for Air Traffic Controllers (ATCOs) and Air Traffic Safety Electronics Personnel (ATSEPs) by the end of 2011. The deliverables will be proposed amendments (new chapters) to PANS-Training (ICAO Doc 9868) and the consequent proposed amendments to Personnel Licensing (Annex 1).

“Currently, ATCOs and ATSEPs are trained and accepted as competent essentially from a State perspective based on internal State procedures,” noted ATM Sub-group Chairman Andrew Beadle. “Some regional standardization of training has been done in Europe, but some State-specific features still remain there as well. The first phase of the ATMSG’s work will therefore concentrate on aggregating material from global sources and sharing it within the SG on a dedicated Web site. The next stage will be a rationalization phase using a database of the collected material. This will identify competencies that can be expressed in a globally harmonized manner and to ensure that all related competencies have been captured.”

SESAR and NextGen changes may well require new competencies for ATCOs and ATSEPs; also some existing competency requirements may no longer be necessary. Since this work is being carried out within the Next Generation of Aviation Professionals Task Force (NGAP TF), it is considered appropriate to assess each competency based on its sensitivity to changes in ATM and also whether or not increasing or decreasing requirements may be expected.

The NGAP TF has identified the need for mobility of professionals and the Civil Air Navigation Services Organisation (CANSO) has identified the need for definition of competencies for a range of ATM professionals.

“One way of supporting this in the SG work, while still concentrating on ATCO and ATSEP competencies, is to identify core-competencies that apply to a wider range of aviation professionals,” Beadle remarked. “For example a competency in regard to participation in aviation Safety Management Systems would seem appropriate for all aviation professionals. This helps us to identify competencies that will be transferred between professions as well as assisting in the development of competencies for ATM professionals other than ATCOs and ATSEPs.”

Beadle stressed that the different NGAP SGs will be coordinating their work with each other in this regard. For example the current definition of competency in PANS-Training is: “a combination of skills, knowledge and attitudes required to perform a task to the prescribed standard.” Whether this continues to be a suitable definition is under discussion.

and trade-by-trade basis to provide participants with a clearer perspective on AFI shortages. Moussa reviewed ASECNA's educational facilities and focuses, as well as the steps his organization is taking to address recruitment and competency challenges. He noted that finding recruits with adequate levels of English-language competency is a particularly important consideration across the African continent.

The remaining presentations that rounded out the Figures and Trends Panel included those by Steve Brown, Senior Vice President of Operations and Administration for the National Business Aviation Association (NBAA); Steve Vail, Senior Advisor for Global Air Traffic Operations at FedEx; and Fassi Kafyeke, Director of Strategic Technology and Senior Engineering Advisor for Bombardier Aerospace.

All three of these presenters reviewed the specific recruitment needs of their organizations and noted that new partnerships would play an important role in addressing them. Cooperative approaches leveraging public- and educational-sector resources, in conjunction with industry, were also stressed by each of these presenters.

Fassi Kafyeke additionally pointed to Bombardier's projections regarding the very different sort of engineering professional that will be required in the 21st century air transport manufacturing sector. The values and skills he isolated included the need for new engineers to place a greater emphasis on the integration of systems and structures and their ability to thrive in diversified multi-disciplinary, multi-site and multi-cultural environments. He stressed that whereas engineers are assumed to have strong 'hard' or technical



skills, additional 'soft' skills would increasingly play a role in an engineer's career success as leadership, team spirit, and customer and shareholder commitment become increasingly important to project managers.

The next NGAP Symposium is currently planned for fall 2012. Two more reviews of NGAP 2010, focusing more specifically on the pilot and maintenance worker Panel presentations, will be featured in coming issues of the *ICAO Journal*. ■

2010 NGAP SYMPOSIUM – TASK FORCE SUB-GROUP STATUS REPORTS (CONT'D)

ICAO Training Endorsement Activities

ICAO has an important role to play in ensuring that the civil aviation community has access to the pool of qualified professionals it needs to support its safe, secure and sustainable development.

ICAO is pursuing development of a new Training Policy featuring an endorsement process of training organizations and training courses. The training policy addresses all areas of aviation safety and security, and will complement the work of the NGAP Task Force without overlapping the scope of the task force. The ICAO training policy consistently addresses all civil aviation activities and enables the implementation of a comprehensive framework to ensure that all training provided by ICAO Bureaux or third parties will be assessed and meet robust training standards for the design and development of training courses.

An ICAO endorsement is a systematic process to ensure that applicable training programmes, facilities and instructors meet criteria that will ensure that the skills and knowledge necessary to implement ICAO SARPs are fully provided. The training policy will be supplemented by an endorsement package including specific endorsement criteria designed to more effectively assist and extend the Organization's ability to implement key activities derived from its strategic objectives relating to training and testing.

"The new Policy and the endorsement provisions will be applicable to all training provided by all ICAO Bureaux and Regional Offices, in addition to any external training organizations issuing a certificate of completion or a certificate of achievement with an ICAO logo featured on them," stressed Capt. Mostafa Hoummady, ICAO Chief Aviation Safety Training.

Institutions seeking endorsement for a training activity are responsible for developing and/or offering courses that fully meet ICAO standards and methodological requirements, including its current objective of evolving towards more competency- and performance-based training approaches (where applicable).

ICAO Dangerous Goods Training Programme

ICAO has launched an exclusive new Dangerous Goods (DG) Training Programme based on the recently revised *Dangerous Goods Training Manual* (Doc 9375). The Programme consists of this new manual and several courses which will assist States in complying with the broad principles governing the international transport of dangerous goods by air as outlined in Annex 18—*The Safe Transport of Dangerous Goods by Air* and detailed in the *Technical Instructions for the Safe Transport of Dangerous Goods by Air* (Doc 9284).

Main benefits of the ICAO DG Training Programme include:

- Courses and materials are delivered by ICAO directly—no third parties.
- Programme is developed specifically for State Inspectors, but will benefit all personnel dealing with DGs.
- Participants receive an official ICAO certificate upon successful completion of a test.
- Courses are based on the ICAO *Technical Instructions*—the only legal source of regulations for the safe transport of dangerous goods by air.
- Courses are delivered by senior level DG personnel with extensive experience.
- On-site training is offered to maximize availability and minimize costs.

The first course—*Using the Technical Instructions*—is a prerequisite/refresher course that reviews the *Technical Instructions* section by section employing real-life examples and scenarios. Potential students should be well-versed in aviation terminology. Familiarization with the transportation of dangerous goods by air is useful, but not mandatory. Montréal course dates for *Using the Technical Instructions* are now established but spaces are limited.

Applicable dates are: 22-26 November 2010

A series of additional specialized courses will be offered by ICAO in 2011.

Register today!

For more information contact:

Rick Lee
rlee@icao.int
+1-514-954-8219 ext. 7001

For additional details visit:

www.icao.int/anb/fls/dangerousgoods/training/





Challenges and Opportunities in Haiti

ICAO's first post-quake mission to Haiti last March found a State aviation infrastructure in dire need of rebuilding. The Organization worked quickly to develop a plan to help prioritize and guide Haiti's air transport related reconstruction, coordinating further with Haitian officials this summer and making important advances in formalizing agreements and addressing donor concerns.

The *Journal* spoke recently with Loretta Martin, ICAO Regional Director, North American, Central American and Caribbean (NACC), about Regional airspace management and other implications for ICAO as it continues to assist the Caribbean State in addressing the challenges and opportunities of its devastated aviation system.

Following a recent meeting between ICAO and Haiti's civil aviation and political leadership, the Caribbean State has now officially agreed to have the Organization assume a leadership role in the management of its aviation-related reconstruction efforts.

The summer 2010 meeting was attended by Loretta Martin, Regional Director (RD) of the ICAO North American, Central American and Caribbean (NACC) Regional Office, Jean-Lemerque Pierre, Director General (DG) of Haiti's Office national de l'aviation civile (OFNAC), as well as Haitian Prime Minister (PM) Jean-Max Bellerive.

PM Bellerive voiced his agreement and support during the encounter to have ICAO serve as the central coordinating mechanism for all key aviation sector rebuilding efforts in Haiti. He later signed a specific Management Services Agreement (MSA) covering two projects that ICAO will lead and which were developed using information gathered during an emergency assessment performed by the NACC Regional office in March (*editor's note: please see the section on 'Early ICAO Responses' on page 19 for more on the March Assessment visit*).

The projects in question will provide direct and immediately-needed assistance to Haiti's CAA (OFNAC) and its airport authority (AAN).

“Both in terms of the global assistance that was sent and the sharing of these critical air transport systems by adjoining States, the international community demonstrated an unprecedented level of solidarity that was greatly facilitated by ICAO’s preparedness and action.”

– Jean-Lemerque Pierre, Haiti DGCA

Additionally, a new Memorandum of Understanding (MOU) governing the establishment of a Civil Aviation Steering Committee (CASC) for Haiti, made up of ICAO and Haitian representatives in addition to Interim Haiti Reconstruction Commission (IHRC) donor States, was also signed by Bellerive. The IHRC is currently chaired on a joint basis by PM Bellerive and former U.S. President W.J. Clinton.

“Haiti has a wide range of areas requiring urgent reconstruction,” stressed ICAO RD NACC, Loretta Martin. “The process we’ve undertaken is basically trying to close the loop of the funding structure that will eventually support the return of partial and then full international aviation capability to an important member and component of the Caribbean air transport system.”

It’s important to remember that Haiti administers overflights through the Caribbean Flight Information Region (FIR) it manages, and that its infrastructure therefore supports air navigation services not only for aircraft operating to/from Haiti, but also any aircraft needing to fly through Haiti’s airspace between North American and South American or Caribbean destinations.

Martin stressed that ICAO is working very closely with OFNAC and revising air transport-related strategies and priorities on a regular basis. ICAO is striving to keep related planning as streamlined as possible and to coordinate with other UN and outside

agencies to avoid duplicating any reconstruction planning or projects. She also noted that ICAO is helping to provide Haiti with more centralized management and oversight of the specific donations of products or reconstruction services that relate to getting its aviation infrastructure returned to full operational status.

“Virtually everything in place now in terms of aviation infrastructure is still temporary,” Martin noted. “The FAA mobile control tower, though currently staffed by a small contingent of Haitian controllers, is still the only option to provide airport ATC services. ATC services for Haiti’s FIR are located in a room located in the OFNAC administrative offices. The main terminal in Port-au-Prince has frankly been devastated and needs to be replaced from the ground-up, and even the runway at Port-au-Prince¹, which emerged post-quake in a condition that permitted the crucial early transport of emergency crews and supplies, has been left bruised and battered by the heavy aircraft involved in the relief efforts to the extent that the apron is now at risk of collapse.”

Roughly two percent of the \$5.3 billion committed thus far would go a long way at this stage to providing Haiti with a modernized and fully-functional air transport infrastructure. It’s worth noting on the funding front that presently only Brazil, Norway, Australia, Colombia and Estonia have provided any actual aid to Haiti—to the tune of some \$506 million.

Addressing the Toussaint L’Ouverture main passenger terminal, associated facilities and runway will take several years and represent, in Martin’s view, the bigger-ticket items on the list of priority areas that ICAO and OFNAC have established. Part of her challenge remains trying to convince donor states that aviation concerns need to be addressed even while many Haitians are still living without viable sources of shelter, food and water. Air transport’s historically-demonstrated ability to foster more effective development and redevelopment efforts, no matter where the location, could be a consideration which Martin stresses at her next donor briefing this autumn in Washington, D.C.

The Haiti Quake: Early ICAO Responses

As part of its first responses to the Haitian crisis, an ICAO multi-disciplinary team of air navigation, airport and technical cooperation experts, led by RD NACC Martin, visited Haiti from 9–11 March 2010.

The key objectives of this first mission by ICAO to Haiti were to:

- Develop an ICAO Technical Cooperation mechanism to coordinate and administer the delivery of assistance from multiple donors for the rebuilding and upgrading of the Haitian aviation system. This has recently been moved forward by the MSA and MOU referred to in the opening of this article.

¹Toussaint L’Ouverture International Airport (IATA: PAP, ICAO: MTPP)

Recommended Action Plan for Haitian Aviation

The following reflects the recommended investments to restore, strengthen and upgrade Haiti's civil aviation infrastructure based on priority and phasing. This plan is a living document and is being re-assessed and reprioritized on a regular basis as per related developments to Haiti's related reconstruction efforts and funding systems.

OFNAC Recommended Action Plan

Item Description	Priority (1, 2, 3)	Phasing for Completion		
		Immediate	Short-term 1–2 years	Medium-term 2–5 years
New temporary Air Traffic Control Tower (ATCT)	1	X		
New VHF air-ground radio communication equipment for ACC 'Tete Etang' remote station; includes remote control system, antennae, antennae tower, power supply, shelter and other devices	1	X		
Power Supply for existing ACC and NavAids until new facilities and systems become operational	1	X		
Vehicles for OFNAC to access its facilities and perform maintenance and inspections	1	X		
Recruitment and training of Air Navigation Professionals and the development of procedures and manuals for air navigation services	1	X	X	
New Air Traffic Control Tower (TWR) including power supply and equipment related to provision of air traffic control (ATC) services	1		X	
New Area Control Centre (ACC) building (collocated with new TWR) including power and equipment for provision of air navigation services (ANS), and transfer the existing MEVA VSAT SAT station to new ACC	1		X	
New Doppler VOR and DME / Port-au-Prince Intl. Airport for terminal and en-route services; includes shelter, power supply system and devices for receiving remote operational status information	1	X		
New Doppler VOR and DME / OBLEON Station for en-route service; includes shelter, power supply system and devices for remote information of operational status	1		X	
Provision of equipped Search and Rescue (SAR) Regional Coordination Centre (RCC)	2		X	
A New Instrument Landing System (ILS), Glide Path (GP) / DME station and Localizer (LLZ) station (Runway 10); includes shelter, power supply system and devices for receiving remote operational status information and other devices	2		X	
New WAFS VSAT station (two way)	2		X	
Implement an Automatic Weather Observation System (AWOS) at Port-au-Prince Airport	2		X	

AAN Recommended Action Plan

Item Description	Priority (1, 2, 3)	Phasing for Completion		
		Immediate	Short-term 1–2 years	Medium-term 2–5 years
Upgrade primary and provide secondary power supply systems with required switch-over times for critical systems and lights	1	X		
Acquisition of airport operations, maintenance and security vehicles, vehicle and equipment spare parts, and security communications equipment	1	X		
Install Runway 10 Approach Lighting System (ALS) Category 1 and replace Runway 28 PAPI lights	1	X		
Acquire fire-fighting personnel protection equipment for RFFS personnel and air compressor for SCBA	1	X		
Construct a Runway End Safety Area—west runway end	1	X		
Acquire a pavement sweeper for runway, taxiways and apron	1	X		
Construct a temporary passenger processing facility including equipment and furniture	1	X		
Install a discrete communication system linking the fire station with the TWR and rescue and fire-fighting vehicles	1	X		
Construct a perimeter security fence barrier additional to and inside of existing wall and perimeter road providing clear areas and including perimeter guard posts and access security control posts	1	X		
Install apron flood lighting	1	X		
Repair runway and taxiway surface deterioration, rehabilitate apron pavement, and replace taxiway and apron edge lights and electrical connections	1	X		
Upgrade drainage system	1	X		
Recruitment and training of Airport Professionals and the development of procedures and manuals for airport operations and maintenance	1	X	X	
Install illuminated signs for the movement area	1		X	
Construct a new passenger terminal building including apron expansion, link taxiways, public access roads and vehicle parking areas	1			X
Acquire equipment for runway rubber removal and runway friction measurement	2		X	
Install airport perimeter security lighting including power supply	2		X	
Upgrade and pave perimeter security road	2		X	
Upgrade water supply and fire hydrant system	2		X	
Rehabilitate Runway 10/28 and taxiway pavement and upgrade airfield ground lighting (AGL)	2		X	
Relocate RFFS Station to provide direct access to the runway and comply with required response times	2		X	
Install Security CCTV system for perimeter, aprons and facilities	2			X
Construct parallel taxiway (could be phased with initial partial length to west runway end) and rapid exit taxiway	2			X

Swaziland

Fostering a New era of Air Transport Growth and Economic Prosperity



Swaziland's Director General of Civil Aviation, Mr. Solomon Dube.

Swaziland is currently experiencing a re-birth and complete overhaul of its civil aviation infrastructure and operations.

Pursuant to new legislation, the Swaziland Civil Aviation Authority (SWACAA) was established on World Civil Aviation Day; 7 December 2009. The Authority has been given full autonomy to govern all matters pertaining to the industry and uphold all safety and compliance standards as clearly defined by ICAO. The senior management team of the Authority is currently overseeing a vigorous recruitment and training in ICAO accredited institutes in South Africa and in the United Kingdom to regulate, license and enforce industry compliance and airport operations.

Swaziland has, with the implementation of these and other measures, begun to significantly address any and all deficiencies pertaining to ICAO's eight critical safety areas. It is on the verge of completing and launching its new international airport—Sikhuphe—a state of the art facility that will be an important strategic gateway to regional and global destinations.



Exhilarating beauty and warm, hospitable people await all travellers looking to appreciate Swaziland's breathtaking mountain views and serene green valleys. To all individuals and organizations seeking to benefit in the near future from the country's safer and more efficient air transport sector, Swaziland welcomes you with outstretched arms.

These governance, infrastructure and operational improvements are now bringing Swaziland's air transport network fully into the 21st century. It will facilitate a tremendous increase in economic and social development in the African State and officials are encouraging companies and other organizations interested in developing new strategic relationships to take full advantage of the ongoing improvements.



Delegates at Routes Africa, Swaziland May 2010

Effective Global Leadership Through Balanced Priorities

- Assess air navigation facilities and services, and in particular Haitian Air Traffic Management (ATM) capabilities, with reference to ICAO Standards and Recommended Practices (SARPs) and Procedures for Air Navigation Services (PANS).
- Assess airport facilities and services with reference to ICAO SARPs.
- Review assessment reports prepared by the U.S. Federal Aviation Administration (FAA), the U.S. Air Force (USAF), ICAO, as well as those prepared by private consultants.
- Establish the requirements for restoring, strengthening and upgrading the Haitian civil aviation system and infrastructure.
- Prepare an Air Navigation Services (ANS) and airports prioritized action plan.
- Review donor assistance offers for aviation infrastructure, facilities and services received from States and organizations.



Photo by Paul Jeffrey/ACT Alliance

Residents of Port-au-Prince, Haiti, sail aboard a ferry bound for Jeremie in order to escape from the capital city, which was devastated by a January 12 earthquake. As many as 200,000 people may have already left Port-au-Prince, seeking better conditions elsewhere in the country.

Many of ICAO's actions during the early hours and days after the Haiti quake are prescribed in pre-existing disaster ATS contingency plans that ICAO has drawn up at the Regional level. Martin and her team coordinated their information through ICAO HQ to cross-reference any information that was able to emerge from Haiti and ensure its validity to the best degree possible. Martin was assisted tremendously in this regard by ICAO's Chris Dalton, Chief of the Air Traffic Management Section in the Air Navigation Bureau.

Haiti's Director General of Civil Aviation, Jean-Lemerque Pierre, emphasized his country's gratitude for the early responses by ICAO and the international community, both of which were of such critical importance in the days after the quake.

"ICAO activated its Regional Contingency Plan the day after the earthquake and recommended to the States adjacent to Haiti to help facilitate the arrival of humanitarian assistance," commented Pierre. "This was accomplished through the urgent expediting of the emergency traffic by these States, or through their permission for arriving aircraft to make use of their airports. Both in terms of the global assistance that was sent and the sharing of these critical air transport systems by adjoining States, the international community demonstrated an unprecedented level of solidarity that was greatly facilitated by ICAO's preparedness and action."

"In the early aftermath it's incredible how you can come to rely on specific individuals for crucial aspects of your response," Martin commented. "Neither ICAO nor even the U.S. government, for instance, had any communication with Haiti immediately after the quake, yet we desperately needed an official invitation before we could move in with assistance—all the official channels were basically down. Luckily, a Haitian civil aviation official had been in Miami for an air navigation panel and we were able to contact him while he was delayed awaiting his return flight. He was able to make contact with Haiti through personal channels and get the required approvals in place that finally facilitated that crucial early aid."

Four close colleagues of Martin's, OECS Director General of Civil Aviation (DGCA) Rosemond James and his Director of Flight Safety, Gregory McAlpin, as well as DG Siegfried Francisco and Auxenio Isenia of the Netherlands Antilles Department of Civil Aviation (DCA), were tragically killed in Haiti's quake. The four had arrived a day early for a Caribbean Aviation Safety and Security Oversight System (CASSOS) Executive Board Meeting. The quake struck only hours before Martin herself was to have boarded a flight for Port-au-Prince for the same event.

Martin had high praise for the work of the U.S. FAA and military in the early days after the official approvals came through for aid and assistance. She also noted the crucial role being played on the ground in Haiti by the United Nations Stabilization Mission in Haiti (MINUSTAH), which was already stationed there before the quake and provided crucial logistical, security and air/ground transport support.

The FAA, meanwhile, was praised by Martin for its own rapid response and important early assistance. The FAA has an excellent Flow Management Unit and the two organizations worked jointly on establishing emergency guidelines for the Haitian airspace as aircraft from around the globe converged on Port-au-Prince with emergency experts, personnel and supplies. The FAA and U.S. military partnered with a Russian company, one of many examples of international camaraderie and cooperation in the quake's aftermath, to fly in an FAA mobile control tower to return ATC capability at Toussaint L'Ouverture (see sidebar and photo on page 24).

Summary of Preliminary Activities

Visits were undertaken by team members to:

- GoH Offices of Prime Minister, Minister of Public Works, Transport and Communication, and OFNAC
- Toussaint L'Ouverture International Airport, Port-au-Prince: passenger terminal, rescue and fire-fighting services (RFFS),

RETURNING ATC CAPABILITY TO TOUSSAINT L'OUVERTURE: THE FAA MOBILE CONTROL TOWER

The earthquake that devastated Haiti on 12 January also severely damaged Toussaint L'Ouverture airport's air traffic control facility, rendering it inoperable. The government of Haiti asked the U.S. government to help with a solution and, in response, the FAA produced a mobile control tower designed specifically for this type of crisis.

U.S. Air Force and Federal Aviation Administration officials paired with a Russian contractor to deliver the mobile air traffic control tower out of Homestead Air Reserve Base, Florida. The special mobile tower is still in use today at the Port-au-Prince airport—Haiti's largest—pending construction of a more permanent facility.

More than 100 airmen helped position the FAA mobile tower on the flight line and assisted the crew of the Russian Antonov An-124 as they loaded the aircraft. In addition to the U.S. Air Force and Polet Airlines, other organizations such as the Federal Emergency Management Agency, the U.S. Agency for International Development and the FBI also contributed to the effort. The tower took approximately 48 hours to set-up before it became fully operational.

ICAO and the FAA were in constant contact in the early days after the Haiti quake, confirming information and establishing the proper channels and coordination for the early assistance that was provided by the U.S. and partnering NACC States. The joint effort of the two aviation organizations was crucially instrumental in managing and facilitating the early relief efforts, many of which were arriving via aircraft coming in through Port-au-Prince.



Russian staff of Aircompany Polet and U.S. Airmen help to unload the FAA mobile control tower in Port-au Prince.

runway, taxiways, aprons, perimeter road and wall, ILS glide path and localizer, VOR/DME, and temporary air traffic control tower.

- Haiti's Area Control Centre (ACC) and technical room.

In addition to the longer-term priorities identified, the following immediate actions were recommended after the March ICAO visit as they were understood to require minimal or no financial investment:

- Runway rubber removal and re-paint markings.
- Restricting regular operations by aircraft types/weights exceeding the airfield pavement PCN.
- Resolving airport public access road congestion with procedural control measures and opening the car park near the passenger terminal.
- Provide perimeter security fencing around the University of Miami Hospital to exclude it from the airport airside area until its planned future relocation.
- Remove the Internally Displaced Persons (IDP) camp and temporary residences from close proximity to the airport perimeter boundary to provide the required clear area for security.

- Implement security procedures, e.g., perimeter patrols, cargo building access control, gate access control, employee background checks, revision of security ID system, airside vehicle permit system.
- Ask airlines to provide fire-extinguishing equipment suitable for initial intervention in the event of a fuel fire during aircraft ground servicing.

Proposed Technical Cooperation Mechanism for Coordinating Assistance from Multiple Donors

It was requested by Haiti early in the process that ICAO facilitate and assist the Government of Haiti, including OFNAC and AAN, in reviewing and managing the various assistance offers from States and organizations to ensure that assistance would be coordinated to achieve the most effective, cost beneficial and quickest improvements for Haiti. This is very much the role that ICAO is now playing in the Civil Aviation Steering Committee (CASC).

Martin noted that ICAO's full review of donor assistance offers for upgrading Haiti's aviation infrastructure, facilities and services will ensure proper

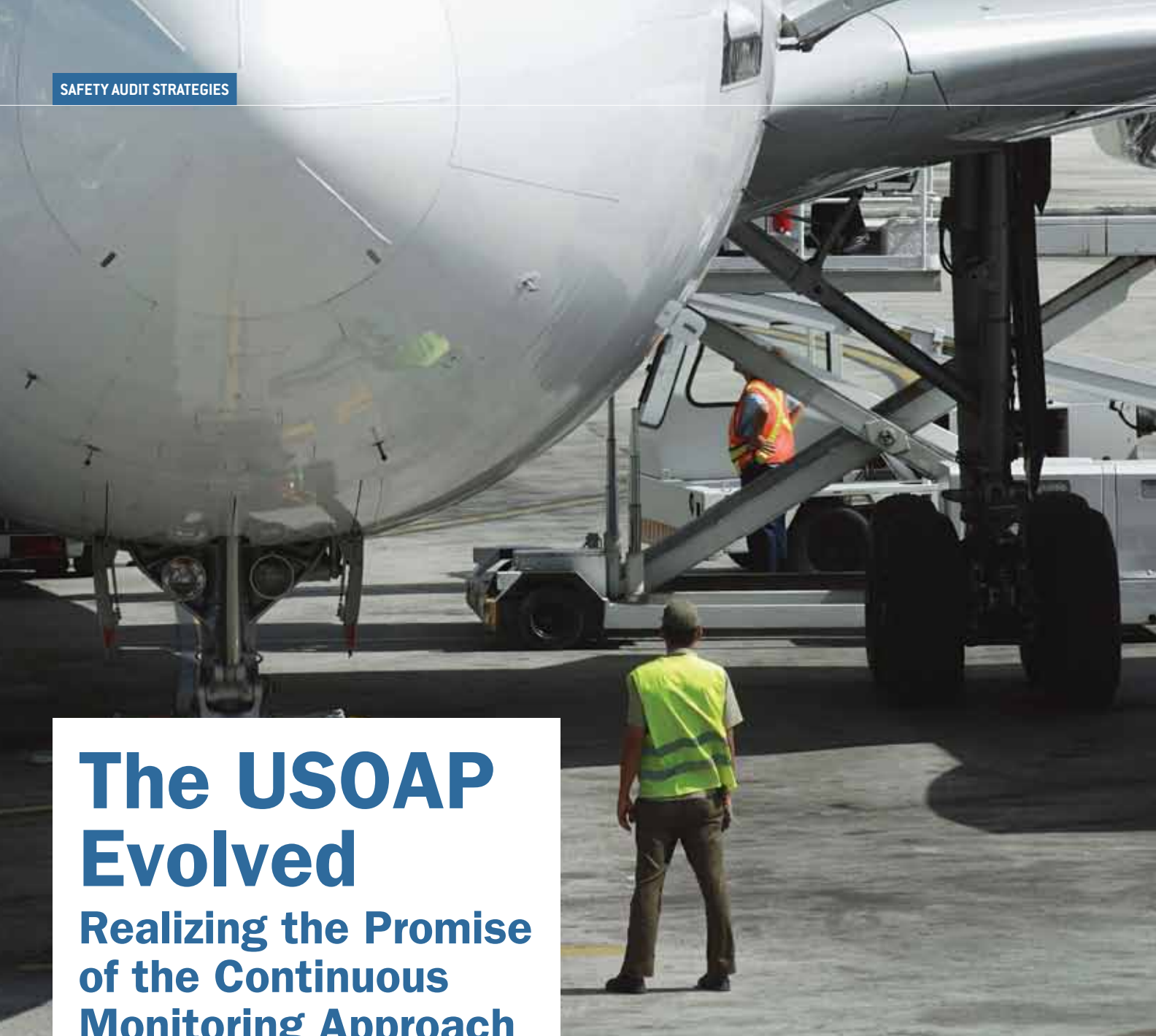
coordination with redevelopment stakeholders and proper compliance with applicable ICAO SARPs and Regional/national plans.

The donor management mechanism presently consists of two levels:

Upper level: CASC, which provides high-level supervision and coordination among all donors and activities.

Lower level: Activities executed through multiple sources of assistance. In the case of ICAO, two Project Documents (PRODOCs) have now been approved by the Government of Haiti (the MSA and MOU covering OFNAC and AAN). These PRODOCs were signed by the Secretary General of ICAO and the corresponding authority of the Government of Haiti.

These projects will be implemented following the Regulations and Financial Rules of ICAO. ICAO, in close coordination with OFNAC and AAN, will also seek alternative funding and other types of contributions as required that will support the implementation of any other aviation-related projects. ■



The USOAP Evolved

Realizing the Promise of the Continuous Monitoring Approach

For well over a decade, ICAO has performed safety oversight audits within the framework of the Universal Safety Oversight Audit Programme (USOAP). These audits have enabled ICAO to evaluate the safety oversight capabilities of its Member States and achieve a more comprehensive understanding of this crucial component to air transport's continued growth and development.

As of the 36th ICAO Assembly in 2007, the USOAP was already in the third year of a six-year cycle of audits under the comprehensive systems approach (CSA). Almost half of all ICAO Member States had been audited and the audit results were presented by the ICAO Secretariat to the Assembly.

The Assembly was extremely pleased with the success of the USOAP but recognized that a six year audit cycle was too long. Delegates stressed that there was a need for ICAO to monitor States on a more frequent basis.

The evolution of the USOAP to a continuous monitoring approach (CMA) provides an ideal solution to collecting more regular information regarding the level of safety oversight provided by ICAO Member States. Under this new approach, cyclical audits will be replaced by an ongoing process of gathering safety information. This will allow stakeholders in international civil aviation to base their decisions on the latest information available.

The introduction of the CMA will require ICAO staff, Member States, and other stakeholders to be trained and familiarized with new reporting tools. These tools, which include the Audit Protocols together with the State Aviation Activity Questionnaire (SAAQ), will enable CMA activities to be gradually implemented across all levels.

This gradual implementation will take place over the course of a carefully planned transition period which has been tentatively set to last two years.

CMA Methodology

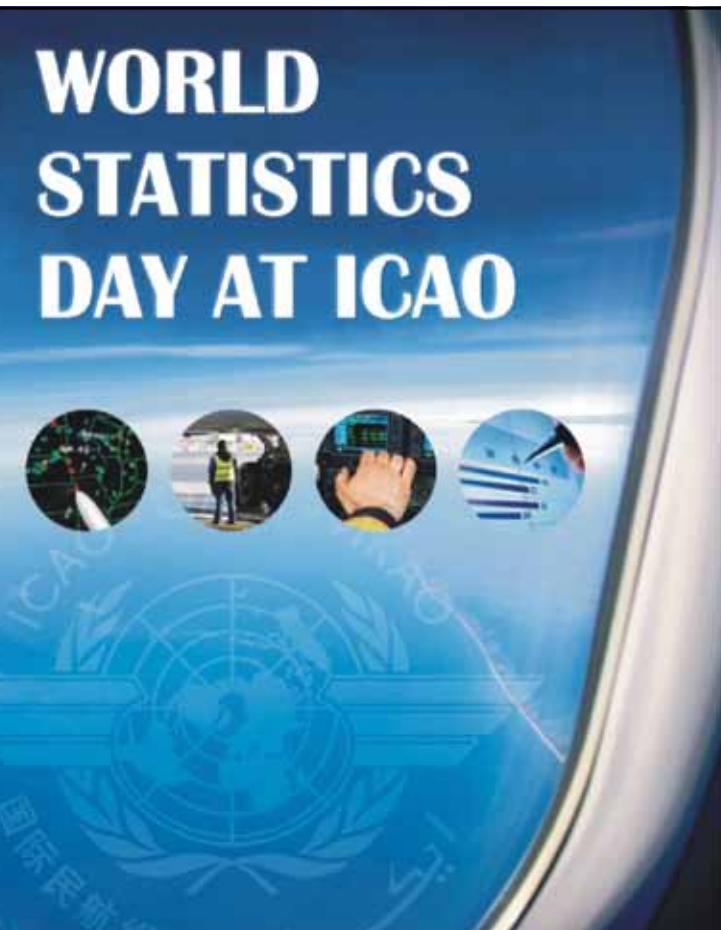
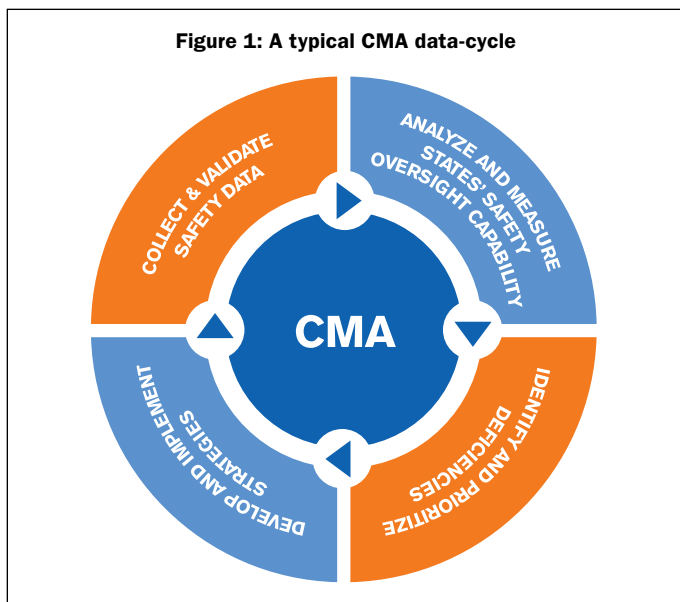
Under CMA, the objective of the USOAP is to promote global aviation safety through continuous monitoring of the Member States' safety oversight capabilities. The CMA enables ICAO to collect vast amounts of safety information, which is provided primarily by States. Safety information is also gathered from relevant external stakeholders, as well as through audits and other USOAP-CMA activities. Using the CMA, ICAO will be able to enhance States' safety oversight and safety management capabilities by:

- Identifying safety deficiencies.
- Assessing associated safety risks.
- Developing strategies for CMA activities and assistance.
- Prioritizing assistance.

Since CMA relies on multiple inputs, many of which may be received simultaneously, it is important when examining this new approach to look first at the big picture before breaking it down into component steps.

The cycle chart seen in Figure 1 (left) outlines the process of collecting and analyzing data under the CMA and displays how this information is then used to prioritize strategies.

While scheduled CMA activities will provide much important data and information, a vast amount of additional safety data will be collected and provided to the USOAP under the CMA by three types of stakeholders.



World Statistics Day
20.10.2010

ICAO will be joining other UN agencies in commemorating the first World Statistics Day on 20 October 2010 with a Forum and reception at its Headquarters. More information and the programme of the event are available at: www.icao.int/wsd2010

IMPORTANCE OF STATISTICS IN AVIATION

For over 65 years ICAO has been producing global civil aviation databases and statistics from raw data received from its Member States and the civil aviation community. These statistical products provide airlines, airports, air navigation services providers, regulators and other stakeholders with the necessary information enabling them to maintain high levels of safety and security standards as well as to be able to monitor and benchmark sustainability indicators.

PLANNING FOR SUSTAINABLE GROWTH

In civil aviation, as in most industries, statistics are essential towards learning from past experience, managing present operations and planning sustainable growth.

USOAP

www.icao.int/cma

Continuous Monitoring Approach

Promoting global aviation safety

by continuously monitoring and updating

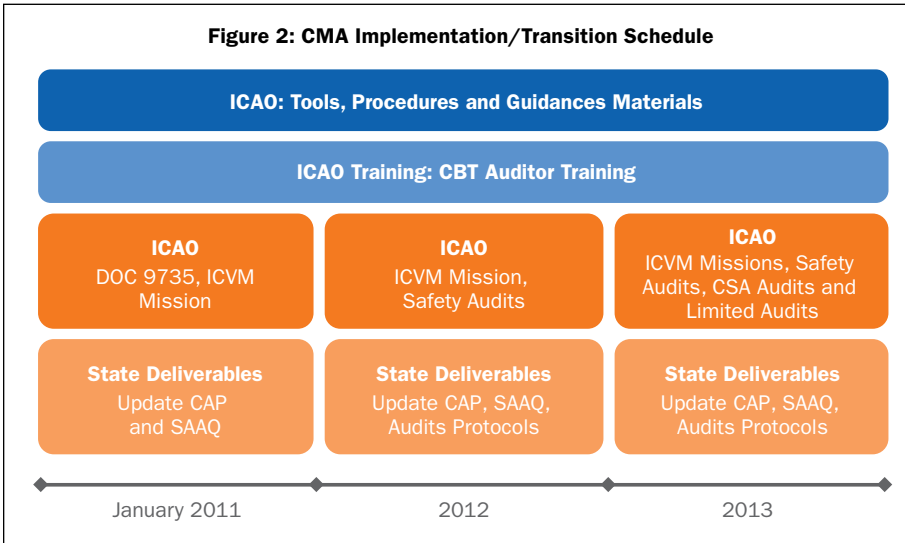
the safety oversight capabilities of

all ICAO Member States.



USOAP CMA
Continuous Monitoring Approach

Figure 2: CMA Implementation/Transition Schedule



- Transitioning from a one-time assessment 'snap-shot' process to one which features regular reports allowing for more effective real-time analysis.
- Providing for the collective sharing of safety data by promoting and encouraging the analysis of safety information by Regional and international organizations.
- Allowing for the continuous monitoring of Member States' safety oversight capabilities and performance.
- Enabling a proactive rather than reactive identification of safety risks.
- Providing States and stakeholders with access to safety information via a real-time and interactive online system.

States

States are the principal source of safety information, which is collected when they complete and submit their State Aviation Activity Questionnaire (SAAQ), Electronic Filing of Differences (EFODs), USOAP protocols, and updated Corrective Action Plans (CAPs). In addition, State Safety Programmes (SSPs) support the development of proactive activities that provide sources of safety information that may be used within the CMA. As SSPs evolve over time, they will be capable of providing an increasing flow of safety data. This data will be used to enhance the CMA's overall value and effectiveness.

Internal Stakeholders

ICAO's Technical Co-operation Bureau, Regional Offices and other ICAO Bureaux are significant sources of safety-related information, providing data to the CMA that is stored in the ICAO database. Once this data has been collected it can also be used to generate integrated safety analyses.

External Stakeholders

External stakeholders include, but are not limited to, international organizations such as EASA, EUROCONTROL, the European Commission, and IATA. These

organizations currently operate their own audit programmes, inspections and/or standardization visits that can provide ICAO with useful additional information. Through expanded agreements with such organizations, shared information can be used to help validate data currently held by ICAO, potentially reducing the duplication of monitoring activities. Other external stakeholders include Regional Safety Oversight Organizations (RSOOs), where available.

Benefits and Strategies Employed to Develop & Effectively Implement CMA

The CMA incorporates various activities, including both full and limited CSA audits, depending on the level of information provided by States.

Overall, the CMA represents the best long-term, cost-effective, resource-efficient, and sustainable approach to safety oversight monitoring. It allows for more efficient use of the resources of ICAO, its Member States and Regional organizations, as well as providing for a far more proactive approach to the management of air transport safety—one consistent with the policies of the Organization as defined under the Safety Management System (SMS) concept.

There are numerous benefits of the USOAP-CMA, including:

The development of agreements with external stakeholders, described above, as well as the implementation of CMA activities, will take place gradually during the planned CMA transition period. This process will provide both States and ICAO with sufficient time to become accustomed to working with the new approach and to conduct appropriate tests with CMA procedures and tools.

The chart reflected in Figure 2 (above) outlines the implementation schedule during this transition period, together with the activities that will be undertaken by both ICAO and by its Member States.

The successful and efficient implementation of the CMA depends on continuing partnerships among, as well as on communication and information sharing between, all air transport safety stakeholders.

In order to ensure the success and effectiveness of the USOAP-CMA, staff at ICAO Headquarters and Regional Offices, as well as Member States and participating international organizations, must all understand their essential roles and responsibilities and be prepared to work together to fulfill their joint responsibility to the safety of international civil aviation. ■

Applying Data-driven and Performance-based Advances to Fatigue Risk Management

ICAO has been pursuing the proactive modernization of air transport approaches to fatigue risk management for several years. Related progress in this area has been significantly informed by the now proven principles and methods that have guided aviation's recent and very successful evolution towards more performance- and data-driven Safety Management Systems (SMS).

As a true performance-based measure, the new ICAO Fatigue Risk Management System (FRMS) approach is designed to be flexible enough to meet the needs of all operational environments while retaining the protection of regulation and oversight by a competent authority. Michelle Millar, ICAO FRMS Project Coordinator, provides an update on this important new development.

In 2003, the ICAO OPS Panel formed a new Flight Time Limitations Sub-group to research factors related to flight and duty time limitations to help manage crew fatigue.

ICAO's efforts in this regard have focused on two primary areas related to this concern: updating the requirements for flight times, flight duty periods and rest period limitations to reflect modern regulatory and industry requirements; and secondly establishing more effective and performance-based alternatives to the existing prescriptive approaches to managing fatigue.

"People were clearly recognizing when this process began back in 2003 that existing flight duty time limitations weren't adequately addressing related safety concerns," remarked ICAO FRMS Project Manager, Michelle Millar. "There were blanket guidelines in place that featured

various arbitrary measures, but these were becoming seriously inadequate in the sense that science was bringing forward a great deal of new information about the human body and how it handles fatigue. Aviation too was already beginning to think about SMS-type, data-driven advances and considering how they could be brought into this area to make it more tailored and flexible for operators."

The first part of this effort was completed in 2009 with the introduction of new prescriptive flight and duty limitations requirements for fatigue management. The introduction of FRMS as a complementary alternative to the prescriptive system has similarly been moved forward, with proposed new FRMS Standards and Recommended Practices (SARPs) for Annex 6, Part I, being sent to States for review in a 2010 State Letter. This proposal includes an early draft of detailed Guidance Material to assist States in their reviews.





“Prescribed flight and duty time limitations are characterized by a one-size-fits-all approach,” Millar continued. “We know very well, however, that they apply to a very wide range of operation and crew types—even in the context of a single operator. The FRMS approach will permit the operator to collect the sort of data required to determine where their more specific risks lie and to put mitigations in place to address these risks.”

In the end, an FRMS still provides flight and duty time limitations, but because of the context-specific data these are now operator identified, tailored to their precise needs, and much more flexible in the sense that they can be quickly adjusted to situations when those operations change—either temporarily or for the longer-term.

“ICAO Annex 6, Part I, currently features a number of Standards that relate to flight and duty time limitations which are distributed throughout it,” Millar added. “Under ICAO’s latest proposals, both the existing prescriptive measures as well as the new FRMS SARPs will be aggregated into a consolidated fatigue management section in Annex 6, Part 1.”

While the requirement to provide prescriptive flight and duty limitations remains, ICAO’s current proposal allows for States to decide whether they will also offer FRMS regulations. Where FRMS regulations are offered, the operator may use prescriptive and/or non-prescriptive methods to manage their fatigue risks. FRMS can be applied to as little as a single operation, which means that carriers and regulators can gain experience on a small scale before applying FRMS methods to a greater range of operational situations.

It must be stressed, however, that the basic requirements of a given FRMS must be met, even for a single type of operation, and these requirements are also detailed in the FRMS proposal. Millar also stressed that an FRMS will require review and approval by States before they can be used by operators to move away from existing prescribed flight and duty time limitations.

“Regulators will need to see an effective FRMS functioning within the constraints of the prescriptive limitations before approval can be given,” Millar continued. “Importantly, buying into the FRMS approach means that an operator has to respond to what the data tells them. In some cases, the data may well indicate that they can extend beyond prescriptive limits but in other situations they may have to reduce their flight times such that they are less than the prescriptive limits.”

In order to avoid the possibility of abuse, there is a requirement that the regulator

and operator establish upper limits for the flight times and duty periods associated with each operation. Flexibility has been introduced in that these limits may be adjusted upwards or downwards depending upon the demonstrated capabilities of the operator.

The ICAO FRMS proposal also includes the recommendation that FRMS and SMS activities function in an integrated manner. Like SMS, FRMS requires a culture of effective reporting.

“We’re also working on incorporating all the FRMS provisions now under development into the list of items that are reviewed under the auspices of ICAO’s Universal Safety Oversight Audit Programme (USOAP),” Millar concluded, “but those details still remain to be worked out at this stage.”

Guidance to support the FRMS SARPs will feature a wide range of examples to further describe how FRMS requirements should be effectively implemented across a variety of operations. ICAO’s *FRMS Guidance Manual* is now very far advanced, having had the benefit of the more than 30 scientists, industry groups, operators and regulators on the FRMS Task Force which was established in August 2009 to develop related provisions that would help regulators oversee, and operators implement, FRMS.

Another important note is that many of the lessons learned in developing FRMS provisions for Annex 6, Part I, and therefore specifically for flight and cabin crew, will eventually be migrated to other areas of air transport that could benefit from more advanced fatigue management provisions, such as aircraft maintenance engineers, air traffic controllers, etc.

Responses to the ICAO FRMS State Letter are due by mid-September. These will be collated and made available for review by the ICAO Air Navigation Commission (ANC), most likely this coming November. Depending upon the ANC review, the Standards could be adopted by the ICAO Council as early as March 2011 and become applicable by November 2011. ■



Nigeria's Aviation Sector: **Earning its Wings**



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One of Nigeria's many tourist beaches (left) and the State's famous Riyom Rock (right), a tourist attraction in its Western Lagos region. Tourism is playing an increasingly important role in Nigeria's economy as air transport advances its growth and development.

Air Transport is for a key driver of the ongoing transformation of Nigeria's infrastructure. No other transport sector comes close to commercial aviation with respect to the speed and efficiency with which it can foster economic growth. While upgrades to Nigeria's ground-based transport networks are indeed vital for business and social needs, air transport is felt to be the only sector which can truly catapult the West African State into a new development paradigm.

And civil aviation is already booming: more and more today Nigeria's inhabitant are travelling by air. The growing middle class of the State's 150 million-strong population represents enormous growth potential and the flourishing tourist industry and ever-widening business opportunities represent important complimentary prospects for growth.

Despite tough conditions faced by local airlines, growth for both domestic and international passenger traffic in Nigeria has been running around 20 percent a year. There has been a marked increase in the pace and breadth of air transport progress in Nigeria, with its newly-appointed Minister of Aviation, Fidelia Njeze (formerly Minister of State for Water Resources, Defense and Agriculture) having assembled a team of managers capable of overseeing the massive programme of upgrades.

Since her assumption of duties in the Ministry, Njeze has focused on

revamping Nigeria's aviation infrastructure, improving aviation safety and security and protecting consumers. It was to her credit that, just few days into her tenure, she successfully hosted the Regional Ministerial Conference on Aviation Security in Abuja, where she led other participating African Ministers to adopt far reaching decisions to enhance aviation security in the African continent.



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

"The Administration of President Goodluck Jonathan is committed to continue to make significant investments in the provision of aviation facilities for safe, secure, environmentally friendly air transport and for the sustainable development of international civil aviation," Njeze emphasized.

The Nigerian Government has stressed that it is going to use the aviation industry to drive its economy, pointing out that

Nigeria has already fine-tuned its economic development strategy by preparing the aviation industry as a launch Pad for future success.

As confidence in the sector builds, Nigeria is positioning itself to take advantage of both its substantial population and its advantageous location at the center of Africa. The Nigerian Government sees its State as a natural air transport hub and it is trying to promote it as such for West and Central Africa. It is working on various projects in Lagos and Abuja to open up the airspace and create more direct flights to long-haul destinations. Future growth will be fueled by new routes to Europe, the Middle East, Asia-Pacific, Latin America and North America.

With new routes and carriers there will doubtless be a need for better airport and airspace management. As with other sectors in the transport industry, the federal government is pursuing Public-Private Partnerships (PPPs) as a cost-effective means to upgrade the country's airports. A study by the Technical Cooperation Bureau of the International Civil Aviation Organization (ICAO) was commissioned in June, 2009, providing a roadmap for the State's airport concession programme. The vision now being pursued is to make the four major airports at Lagos, Abuja, Port Harcourt and Kano the envy of Africa, but to accomplish this funding is needed from the private sector and there are on-going communications with various international groups that have expressed interest in running these airports.

In order to avoid a situation where investors cherry-pick the largest operations and ignore Nigeria's smaller players, airports will be bundled into PPP packages—a system that has seen excellent results in other countries. Some operational responsibilities, such as fire-fighting and security, will remain under the control of Nigeria, while concession-derived assets will be closely monitored to ensure that they continually meet international standards.



Nigeria's Murtala Muhammed Airport is privately operated on the basis of a Build, Operate and Transfer (BOT) arrangement. The State is pursuing similar Public-Private Partnerships (PPPs) for its other facility needs as well.

The Nigerian Aviation Industry: Governance Structure and Policies

Nigeria's Ministry of Aviation was created by the Nigerian Civil Aviation Act of 1964. It now oversees a number of departments which share the responsibility for all elements of Nigeria's air transport system. Key duties are held by five Parastatals, namely: the Nigerian Civil Aviation Authority (NCAA); the Nigerian Airspace Management Agency (NAMA); the Federal Airports Authority of Nigeria (FAAN); the Nigerian Meteorological Agency (NIMET); and the Nigerian College of Aviation Technology (NCAT). In addition, the State maintains a Permanent Mission at ICAO.

Prior to 1950, civil aviation activities in Nigeria were overseen by the then Public Works Department. During that year, however, the Department of Civil Aviation was created and, with the achievement of the country's independence in 1960, the department was moved within the newly-formed Ministry of Transport. At different times over the subsequent years, civil aviation responsibilities were either handled by the Ministries of Works, Communication and Transportation, as well as being made a standalone Ministry at other times. It was separated from the Federal Ministry of Transport in 1980, for instance, only to be re-merged in 2007 with the Ministries of Works and Transport to form the Ministry of Transportation.

The present Federal Government later found it necessary, however, to restructure the Ministry of Transportation. As part of that process aviation regulation reverted again to a separate Ministry of Aviation. This restructuring will allow the air transport industry to fulfill its role more effectively as a pivotal factor in the

government's pursuit of a seven-point agenda for expedient national development.

The Aviation Ministry, as presently constituted, 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 updates and implements a National Aviation Master Plan in line with ICAO Standards and Recommended Practices (SARPs) and other national objectives.

The Ministry, which has five main departments (Finance and Accounts; Human Resources; Planning, Procurement, Analysis and Research; Safety and Technical Policy; and Air Transport Management), is currently headed by Mrs. Fidelia Njeze, the Honourable Minister of Aviation.



ICAO and Nigerian aviation dignitaries during the ICAO Regional Conference on Aviation Security held in Abuja, Nigeria. From left to right: Elham Ibrahim, Commissioner for Infrastructure and Energy, African Union Commission; Fidelia Njeze, Nigeria's Honourable Minister of Aviation; Raymond Benjamin, Secretary General of ICAO; and Folasade Odutola, Director of ICAO's Air Transport Bureau.

Collaboration with ICAO

Nigeria fulfills an important role in the field of air transport in light of the air services and 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.

The Nigerian Representative on the ICAO Council, Olumuyiwa Benard Aliu, is the current First Vice-President of the ICAO Council and the Chairman of the Steering Committee for the AFI Comprehensive Implementation Programme (ACIP). He has also



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served the Organization in various additional capacities, including as Chairman of the Finance Committee; and Technical Co-operation Committees, President of the ICAO Conference on Aviation and Alternative Fuels and as member of several other ICAO committees and working groups.

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

- Group on International Aviation Climate Change (GIACC).
- DGCA Climate Group (DGCIG).
- Committee on Aviation Environmental Protection (CAEP).
- 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).
- Technical Advisory Group on Machine Readable Travel Documents (TAG/MRTD).
- Regional Traffic Forecasting (Africa/Indian Ocean Traffic Forecasting Group).
- Aviation Security Panel.
- Governing Body of International Financial Facility for Aviation Safety (IFFAS).
- 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.

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. In the last triennium, Nigeria



Assembled dignitaries on the occasion of the Nigerian Honourable Minister's Familiarization Visit to ICAO Headquarters, August 2010. From left to right: Harold Olusegun Demuren, Director General of Nigerian Civil Aviation Authority; Roberto Kobeh González, President of the ICAO Council; Fidelia Akwabata Njeze, Honourable Minister of Aviation; Olumuyiwa Benard Aliu, Representative of Nigeria on the ICAO Council.

sponsored major ICAO initiatives, including the AFI Comprehensive Implementation Programme (AFI Plan) to enhance Aviation Safety in Africa, the establishment of a Regional safety organization and various international as well as Regional conferences, seminars, symposia and workshops, such as:

- Global Aviation Safety Roadmap Workshop, 2008.
- Performance Based Navigation Seminar, 2008.
- Air Transport Symposium 2008.
- SMS Training Seminar, 2008.
- Regional Seminar on Machine Readable Travel Document (MRTD), 2009.
- Regional Ministerial Conference on Aviation Security, 2010.

Similar efforts are also being made to support the African Civil Aviation Commission (AFCAC) and the African Union in their programmes towards accelerating the growth of aviation in the continent. Nigeria's efforts in this regards include financial contributions and secondment of experts to AFCAC. Nigeria is the headquarters of the COSCAP Project for the Banjul Accord Group (BAG) and the BAG Aviation Safety Oversight Organization (BAGASOO).

The Government of Nigeria has also decided to present Nigeria's candidature for re-election in part II of the Council of ICAO at the 37th Session of the ICAO Assembly to be held from 28 September to 8 October, 2010.



ICAO President Roberto Kobeh González meets with Nigeria's first female pilot and an instructor at the Nigerian College of Aviation Technology (NCAT), Capt. Chinyere Kalu, during a recent visit. In the center is the Director General of Nigeria's CAA, Harold Demuren.

“It goes without saying that the Government of Nigeria will continue to support the increased effectiveness and efficiency of the Organization and the achievement of its Strategic Objectives, in collaboration with other Member States,” Aliu remarked.

The Nigerian Civil Aviation Authority: Overseeing a Safety and Security Turnaround

The Nigerian Civil Aviation Authority (NCAA) is the regulatory body for aviation in Nigeria. It was established in 1999 to oversee all aspects of the safety and reliability of air navigation, in line ICAO SARPs. Current NCAA Head, Harold Demuren, was appointed in December 2005 following a series of accidents in Nigeria.



A sampling of some of the aircraft now operated by Nigeria’s airlines.

The Civil Aviation Act of 2006 granted the NCAA autonomy and freedom from political interference, giving it the tools it needed to oversee a broad-based revision of the entire air transport sector. The management team of the NCAA has set out to create a dynamic sector that could compare with the best in the world, its goal being to make the industry not just accident-free but also investment-friendly Nigeria’s first success was receiving a passing grade from the ICAO Universal Safety Oversight Audit Programme (USOAP). This was achieved in no small measure by the total re-certification of the entire industry,

including: airlines, airports, aircraft and human resources. Levels of skilled personnel across all these areas of aviation activity have been boosted in Nigeria through an aggressive training programme.

The upgrading of Nigeria’s aircraft fleet was a fairly straightforward task, due in no small part to the leasing arrangements facilitated by the Cape Town Treaty, which came into force five years after the associated 2001 conference in South Africa and has allowed brand new aircraft to become virtually



The National Assembly of Nigeria passed the Civil Aviation Act of 2006.



3-D total body imaging scanners recently installed at the Murtala Muhammed International Airport in Lagos.

standard in the State. Demuren points out that new-generation aircraft reduce maintenance and fuel costs significantly while enhancing safety and passenger comfort. His hope is that the local aviation industry will develop five or six airlines that are strong enough to service the domestic, intra-African and international routes on the basis of good governance, talented management and public-private participation.

The NCAA head has additionally been encouraging Nigerian carriers wishing to operate international routes to join IATA. Passing the IATA Operational Safety Audit (IOSA) is a precondition for membership and Demuren has been instrumental in getting IATA to set up an office in his State. IATA's facility was opened in 2008 by its CEO, Giovanni Bisignani, who noted at the time that he was pleased to see that air transport is among Nigeria's seven primary reform priorities and explained that his presence was to re-enforce IATA's commitment to Africa and launch a new approach to West Africa. IATA's Nigeria office will also cover Ghana, Sierra Leone, Gambia, Liberia and Cape Verde.

One of Nigeria's more pressing aviation challenges has been achieving the coveted Category One status from the U.S. Federal Aviation Administration (FAA). The FAA's Category One designation, part of their International Aviation Safety Assessment (IASA), permits State carriers to operate direct flights to the United States. The process normally takes 5 years, but the NCAA is trying to fast-track its application to achieve the required status in about half that time. Demuren has cautioned against cutting corners in this regard and has reiterated on several occasions that the point is not simply achieving Category

One status, but maintaining it. Demuren noted that 90 percent of the work has been done on Nigeria's path to FAA Category One approval and that he sees many positive benefits as a result of the overall process.

"This is not just about Category One status, but the achievement of a robust system that will serve Nigeria and the West African sub-region for a long time to come," Demeuren remarked.

While the final issues are being ironed out, one of Nigeria's designated carriers, Arik Air, has already begun direct flights between Lagos and New York under an arrangement whereby the carrier wet-leases its aircraft from Portugal, a Category One rated country. In the meantime, the NCAA continues to coordinate with other parastatals, notably the Federal Airports Authority of Nigeria (FAAN) and the Nigerian Airspace Management Agency (NAMA), to ensure a cohesive approach to all aspects of aviation safety.

Nigeria's Airports: Evolving to meet 21st Century Regional and International Challenges

The Federal Airports Authority of Nigeria (FAAN), a member of the Airports Council International (ACI), manages all of the commercial airports in Nigeria, providing the necessary maintenance and services for air transport in the country. The FAAN's management recently ordered an infrastructure audit on all airport facilities across the country and, based on its results, was able to prioritize the considerable issues requiring attention. The audit revealed several issues requiring urgent attention, namely: airfield lighting systems; firefighting equipment; and the state and strength of State runways.

"We have now completely rehabilitated the Port -Harcourt International Airport runway, including the airfield lighting,"



The main terminal building at the Murtala Muhammed International Airport in Lagos.



NAMA

NIGERIAN AIRSPACE MANAGEMENT AGENCY

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Nigerian Airspace Management Agency (NAMA)—10 Years of Progress

INTRODUCTION

Created in 1999, the Nigerian Airspace Management Agency (NAMA) is the nation's sole provider of air navigation services. As an ICAO contracting state, Nigeria operates under ICAO standards and recommended practices (SARPs). It is currently implementing its National CNS/ATM plan in tandem with the AFI and ICAO Global CNS/ATM plans.

The Agency is continuously upgrading and deploying new navigational equipment to meet demands for domestic and international services for both airports and overflying international traffic. Air Navigation services provided include integrated communication, navigation, surveillance and air traffic management activities (CNS/ATM).

AIR NAVIGATION EQUIPMENT UPGRADE

NAMA has undertaken and proposed a number of projects to fast-track the upgrade of its Air Navigation Equipment/Airspace to world class levels.

1. RADAR (Surveillance)

Nigeria's outdated analog-based radar technology for terminal approach did not provide total coverage of the entire airspace. The new Total Radar Coverage system for Nigeria (TRACON) is designed to modernize the country's air traffic management infrastructure. It includes: Primary Surveillance Radar STAR 2000 (PSR), Monopulse Secondary Surveillance Radar (MSSR-RSM 970), Integrated Flight and Radar Data processing (Eurocat 2000-C) at the four major airports – Lagos, Kano, Abuja and Port Harcourt, as well as stand-alone MSSR RSM – 970 at five other locations.

The Lagos and Abuja segments are currently flight-checked and fully operational, while the Port Harcourt and Kano segments are undergoing final testing and flight checking. The systems at Maiduguri, Obubra, Ilorin, Numan and Talata-Mafara are in various phases of testing prior to final flight checking. A 5-year technical support agreement was put in place effective January 2010. The completed system will provide the following:

- Enhancement of safety and security in the entire Airspace of the Nation.
- Reduce Air Traffic Delay, thus reducing cost for airspace users.
- Increased ATC capacity.
- Traffic conflict detection capability.
- Automatic billing system for NAMA.
- State of the art training facilities for ATCOs.

2. COMMUNICATIONS

The aging Satellite Communications system (SATCOM) was reactivated with increased speed for both voice and data, thereby forming the backbone of the country's aeronautical communication system and will eventually be replaced by the ongoing VSAT deployment.

A total VHF coverage project is underway to deliver: Total VHF coverage of the Nigerian Airspace (Air-Ground/Controller – Pilot); ATS –DS (Ground – Ground/Controller – Controller). When completed in June 2010, it will be operational at eight airports and one non-airport location: Abuja, Lagos, Kano, Port-Harcourt, Ilorin, Jos, Maiduguri, Sokoto and Wukari, respectively.

VSAT backbone infrastructure for aeronautical communications is required to carry VHF voice, ATS DS, AFTN, Radar data, Video and Internet. Under the TRACON and AIS automation projects, VSAT components are to be installed as follows:

- TRACON: VSAT installed in Abuja, Lagos, Kano, Port Harcourt and the remote MSSR locations – Ilorin, Talata, Mafara, Numan, Obubra, and Maiduguri.
- AIS Automation: VSATs will be installed at: Kano, Lagos, Port Harcourt, Abuja, Maiduguri, Ilorin, Sokoto, Wukari and NEMA, Abuja.

The destination plan integrates all CNS/ATM projects to achieve total Radar and communication coverage of the Nation's airspace to enhance safety and security of all flights. ADS-B or C and CPDLC to enhance oceanic airspace coverage is also contemplated.

3. MOBILE CONTROL TOWERS

NAMA has acquired two motorized Air Traffic Control Towers (i.e. Mobile Towers) for air traffic management in emergency situations. They are currently located in the Southern and Northern zones to cover those airports.

Technical configurations of the towers include, among other things: four (4) aeronautical radio frequencies comprising two Very High Frequency Radio (VHF), one High Frequency Radio (HF), and one frequency modulated radio (FM).

The mobile towers also have voice-activated Very High Directional Finder (VDF) capability for indicating the bearing of an aircraft. There is also a 25kva generating set to power the system. The towers are motorized on brand new Renault 210 Trailers and have meteorological facilities including speed and wind direction.

In line with the international aviation move towards Global Positioning System (GPS) technology for air navigation, NAMA has configured the mobile towers with state of the art GPS receivers, should Nigeria decide to adopt the GPS mode for air navigation. The entire towers system has back-up spares to ensure continuous serviceability.

4. NAVIGATIONAL AIDS

Navigational Aids (ILS, VOR and DME) at most of the airports and enroute stations have recently been flight checked while new navigational aids have been procured.

5. CALIBRATION

NAMA ensures that its equipment meets acceptable parameters/criteria for the assurance of safety of air navigation as per the requirements of ICAO Annex 10. Flight checks are done twice yearly of its CNS equipment including: ILS, VOR, DME, and Radar.

6. WORLD GEODETIC SURVEY-84 PROJECT

Adoption of Global Navigation Satellite System (GNSS) technology in modern air navigation requires that spatial co-ordinates be established on an ICAO acceptable international terrestrial reference framework known as WGS-84. NAMA's future air navigation system will use communications, navigation, and surveillance (CNS) technologies compatible with the WGS-84 platform.

The WGS and Upgrading Contract signed with IATA in 2009 covered 22 Airports, all of which have been surveyed. Two state-owned airports, Akwa Ibom and Gombe, also asked to be included. All 24 airports have now been surveyed, and full reports delivered to NAMA.

The GNSS Procedures, including SIDs and STARs, for the four major international airports – Lagos, Abuja, Kano and Port Harcourt – are awaiting charting and publication prior to necessary flight validation, and NCAA's final approval.

This project is a pre-requisite for Performance-Based-Navigation (PBN) implementation with deliverables that will enable the transition from Terrestrial to Satellite-based systems. When fully implemented, the system will offer numerous benefits:

- More flexible and direct routing.
- Instrument approaches will be possible where/when NAVAIDs are unavailable.
- No requirement for ground-based equipment or electric power.
- Reduced fuel consumption and emissions.
- Increased availability of airports in poor weather conditions.
- Life-cycle cost savings.

CONCLUSION

The CNS/ATM equipment deployment/upgrade and associated personnel training and implementation of Safety Management Systems (SMS) are being implemented in Nigeria in accordance with international best practices.

Because these projects are capital intensive and foreign exchange sensitive, substantial funding assistance has been received from the Federal Government and the World Bank.

NAMA therefore encourages prompt payment for navigational and other services provided to airlines so that it can ensure continuous availability of these services which are central to aviation safety.



Nnamdi Azikiwe International Airport (Abuja).



An airside view of Murtala Muhammed Airport's Terminal 2.

stressed Richard Aisuebeogun, Managing Director of the FAAN. “This was a massive challenge, but we are now very pleased to report that the re-opening of the airport has contributed very positively to the benefit of the Niger Delta region.”

Despite the urgency of this work, FAAN has also begun addressing an issue of even greater importance: the customer service skills of its employees. Some 47 percent of the FAAN workforce was sent on various training programmes, either locally or abroad in the last 15 months.

Despite the current administration’s commitment to upgrading State airports, there are limits to the funds available. With 20 airports in the country and a 12 month time frame to rebuild a runway, Nigeria would only finish its last runway in time to start all over again with the first. FAAN is therefore anxious to encourage public-private partnerships so that investors can participate in and benefit from the State’s ongoing facility development.

The intention is not to replace a government monopoly with a private monopoly, but rather encourage a competitive, free-market environment where investors can be confident in their return on investment.

New Airport Partnerships

Today’s airports are technology-driven and Nigeria is embracing new technologies in its airports as the primary means for improving efficiency. To this end the

government is seeking new partnerships. FAAN has partnered with Maevis Nigeria Limited, which has since provided the State with Airport Operations Management Systems (AOMS).

The Maevis AOMS encompasses various systems such as flight information display systems, Common Users Terminal Equipment (CUTE), and Baggage Reconciliatory Systems (BRCs)—all required elements for facilitating a modern and seamless travel experience. The passenger-related efficiency of a given airport is determined by how smoothly travellers can check-in and depart, or conversely pick up their baggage and depart the airport.

The FAAN is hosting ACI’s African Regional Conference in September 2010, an honour which Aisuebeogun notes is yet further confirmation of the newfound respect for Nigerian air transport that has been inspired by the many recent developments in the State’s aviation sector.

MMA2 Developments

Public-Private Partnerships are the current business model of choice for developing Nigeria’s infrastructure. The first example of a successful PPP initiative in the country’s aviation sector was the reconstruction of the main domestic terminal at Murtala Muhammed Airport, now known as MMA2. The structure needed to be rebuilt after a fire destroyed the original building in 2000. Work on the new terminal was begun in 2003 after Bi-Courtney Limited was awarded a

36 year concession on a Build-Operate-Transfer (BOT) basis. MMA2 opened four years later in 2007.

The financing for the MMA2 project provided a successful test case for the viability of BOT projects in Nigeria, at a time when long-term funding was nearly non-existent. As well as pioneering a new business model for infrastructure financing, the MMA2 terminal exceeded all expectations and provided a resoundingly modern and efficient service for both passengers and cargo.

Transforming the Airspace: The Nigerian Airspace Management Agency (NAMA)

The Nigerian Airspace Management Agency (NAMA) was established in May 1999 as part of an ICAO Compliance Programme which advocates the separation of aviation service providers from regulators. NAMA is also very active member of the Civil Air Navigation Services Organisation (CANSO).

The NAMA 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 it a world-class Air Navigation Service Provider (ANSP) with leading Communications, Navigation and Surveillance (CNS) as well as ICT systems. It was also given the funds to get the job done: some 7 billion Naira (approx. \$50 million) was made available for the provision of modern air navigation services for Nigeria.

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One of Nigeria's recent and very successful TRACON-enabling installations.

The NAMA has been a huge success story in terms of both the development of Air Traffic Management (ATM) services and the achievement and maintenance of higher safety standards.

"We have come a long way," commented Ibrahim Usman Auyo, Managing Director of the NAMA, "and our vision remains clear: assuring the safety and economic well-being of Nigerian airspace users. NAMA is the live wire of the industry and, if we are to reposition the aviation industry properly, its viability and vision must remain a priority of the present government."

NAMA has been pushing in recent months to complete two major projects. The first is the achievement of the total VHF coverage which, upon completion, will enhance communications between pilots and controllers to the extent that aircraft crew will now be in constant contact with any of the pertinent centers within Nigerian airspace. Aircraft will now have complete access to air traffic control services enabling safer and more efficient landings all over the country. This upgrade has taken into account the shift from terrestrial to satellite-based systems, a move that will be completed the world over by 2015.

Total Radar Coverage

The other major project underway within the NAMA is one that both defines past failures and enables future success: Total Radar Coverage of Nigeria, or TRACON. Exasperated by a five year delay on the project, Nigeria's former Minister of Aviation gave the contractor an 18 month deadline that has led to Lagos and Abuja stations being successfully completed and operational since August and September 2009, respectively. All other airports involved in the project are due to be completed during summer 2010.

NAMA's Auyo noted that the State's TRACON equipment is amongst the most advanced in Africa, if not the world. Accurate tracking of all aircraft entering Nigeria now brings not just security benefits but also commercial advantages. An Auto Billing System (ABS) is built into the TRACON system and captures any aircraft that enters Nigerian airspace.

"The minute aircraft enter our airspace and start communicating with our controllers they are recorded," explained Auyo. "Upon leaving Nigerian airspace they are billed automatically."

Predicting the Unpredictable: The Nigerian Meteorological Agency (NIMET)

Advances in aircraft design, radar systems, and air traffic management have all contributed to make air travel safer than ever. But there is one factor that cannot be controlled: the weather. It is the one part of the flight plan that the pilot always shares with the passengers and also one of the largest determining factors in aviation accidents.

The first question of any aircraft accident investigation is inevitably about the weather conditions. For this reason, meteorological services represent an area of aeronautical operations that is strictly regulated by ICAO in concert with the World Meteorological Organization (WMO). Every ICAO Member State 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. Anthony Anuforum, an atmospheric physicist, is the current Director General of NIMET and has been coordinating the agency's policies to align it with the sweeping improvements that have characterized the Nigerian aviation sector in the last three years.

"You cannot achieve aviation safety without accurate and timely weather information," explained Anuforum, "and for that you need a strong, well-equipped modern meteorological agency such as NIMET. I am happy to say that our government fully understands this and we have enjoyed their support in providing the infrastructure necessary to supply vital safety information to Nigeria's aviation sector."

The government of Nigeria is investing millions of dollars to ensure that NIMET is properly equipped to perform its duties, and the agency now boasts a wide range of new technological developments that are revolutionizing its capabilities. NIMET's Doppler Weather Radar Project is a network of six radar facilities that will more effectively track weather systems.

Another NIMET project critical to air transport safety is the Low-Level Wind Shear Alert System (LLWAS). Wind shear is a sudden change in the direction or speed of wind that poses grave risks to aircraft on landing and take-off.

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“We are implementing LLWAS immediately at all of Nigeria’s four international airports, and then we will move on to secondary airports,” assured Anuforom. “Thunderstorm detectors, another important safety implementation, have already been installed at eight airports across the country.

The Nigerian College of Aviation Technology (NCAT)

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 *abinitio* 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 over 40 years of experience in the development of human resources for the aviation industry in Africa. Academic activities in NCAT are carried out in five main training schools, namely:

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

Nigerian Accident Investigation Bureau (AIB)

The Federal Government of Nigeria, through the Civil Aviation Act of 2006, Section 29, established the State’s aircraft Accident Investigation Bureau as a corporate body and an autonomous agency reporting to the President through the Minister in charge of aviation. It commenced operations in April 2007 and is headed by Commissioner/CEO Sam Oduşelu.

The autonomy granted to the AIB was to ensure its independence from government bureaucracy and political influence to further ensure and enhance the credibility of its reports. The AIB’s vision is to be a leading accident investigation

MAIN FUNCTIONS OF NIGERIA’S AIRCRAFT ACCIDENT INVESTIGATION BUREAU (AIB)

- To investigate air accidents and serious incidents that occur within Nigerian air space and anywhere Nigeria’s interests are affected.
- To make safety recommendations.
- To gather and analyze air safety data for accident and incident prevention purposes.
- To ensure compliance with safety recommendations by carrying out accident prevention monitoring programs.
- To liaise and collaborate with industry stakeholders in ensuring aviation safety



ACCIDENT INVESTIGATION BUREAU

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AIB Accident Prevention Programme

Apart from investigating accidents and serious incidents, the Nigerian AIB also gathers air data and conduct 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 also conducts inspections to various facilities to monitor compliance with safety recommendations.

AIB FDR/CVR Laboratory

The AIB will soon be operating an FDR/ CVR laboratory where it will decode Flight Data Recorders and Cockpit Voice Recorders. The new facility for this purpose, in Lagos, will be operational shortly based on current timetables.

Nigeria’s Resurgent Airline Sector

The global aviation industry has recently faced some difficult times. The last decade has been characterized by high fuel costs and cut-throat competition, and was bracketed by the 9/11 terror attacks and last year’s global economic downturn. The impact of the latter was confirmed by recent IATA figures which show that overall demand in 2009 fell by 3.5 percent, the worst-ever decline in passenger demand, with an average load factor of 75 percent.

Nigerian airlines have fared better than the industry average during this period, benefitting from the State’s enormous investments and advances in technology and infrastructure and the deregulation of its 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, to the extent that last year the Federal Airport Authority of Nigeria (FAAN) reported that air traffic in the country had increased by 31 percent.

One of the most notable developments in Nigeria’s resurgent aviation industry is the proliferation of domestic carriers. Improved access to finance has spurred operator competition within Nigeria while simultaneously encouraging increased standards of service, reliability and choice—all tremendous benefits to local passengers.

Aero Contractors

Aero Contractors celebrated 50 years of service in Nigeria last year by overhauling its management structure and streamlining its services. The company introduced two new Managing Directors, Shafiu Syed to drive its Fixed Wing airline business and Richard Boswell to drive the company’s Rotary Wing helicopter unit. The remit for the dual management team was very straightforward: to change the fortunes of the company.

“Aero Contractors has had some challenges of late,” admitted Syed, “but we have since revamped our business model to address the fact that we had experienced losses on several contracts and below 50 percent load factor on our scheduled service flights.”

Syed previously served as the British Airways Manager for West Africa. Aero’s new management team will be rebuilding with respect to the basic tenets of safety, security and reliability, which they feel are well-embedded values in their organization.

“We are rebuilding on the basis of these values to create a world class business that provides new successes for our shareholders, customers and staff alike,” Syed stressed. “By following principles that have been tried and tested in the Low Cost Carrier market, we have managed to drive down costs to offer



— NCAT training aircraft (above) and students at work in its engineering facility (below).





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Arik Air

Arik Air is a new name in Nigeria aviation, but one that is rapidly establishing itself as the benchmark for quality air transport in West Africa and beyond. A significant milestone was reached when the new carrier became the first contemporary Nigerian airline to commence operations to the US.

"The approval for our U.S. route signaled a return to strength for an industry that had experienced some difficult times in the last decade," noted Arik CEO Michael Arumemi-Ikhide. "We are all incredibly proud to have played such a pivotal role in this turnaround."

A large part of Arik's success has been due to the incredible team of experienced industry professionals who strive to uphold the airline's world-class credentials. Arumemi-Ikhide is

particularly proud of the fact that that 95 percent of his staff are Nigerians.

"Nigeria has a vast pool of highly educated and skilled workers who need the opportunity to showcase their talents," he commented. "For far too long, the country had seen an exodus of its best talent and we're very pleased to be reversing that trend."

The first challenge Arik faced was building faith among Nigerian consumers at a time when confidence in the State's air travel sector was at an all-time low. Arumemi-Ikhide and his team knew that, if Arik Air was to be a success, it had to work hard to re-establish consumer confidence. The airline achieved this feat by acquiring brand new aircraft and establishing partnerships with the very best industry maintenance operators, such as Lufthansa Technik.

Arik Air then enacted a three tier strategy: consolidate domestically; then regionally; and finally internationally. The airline currently flies to 19 destinations in Nigeria and has over 40 percent of market share.

"Our focus now is on opening up the West African Sphere and interlinking key business and tourism markets in Ghana, Sierra Leone, Senegal and The Gambia," continued Arumemi-Ikhide. "Internationally, Arik has taken on the legacy carriers. From the onset we were determined not simply to replicate what those airlines do, but to be different and remain true to our heritage and culture. The Arik brand is designed to represent Nigeria and I feel that it is our showcasing of the very best of modern Nigeria that really sets us apart."

"We set out to create an airline that Nigeria—and the rest of the world—would be proud to fly", he concluded. "Our aim now is to exceed our passengers' expectations internationally and to



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demonstrate our credentials as the flagship airline for Nigeria and the gateway to West Africa”.

Dana Air

Increasing demand has encouraged new players to enter the Nigerian aviation market. Dana Group is one such participant which has expanded from its pharmaceutical base to become a new and major player in trade and industry. It is also now entering the air transport sector with the launch of Dana Air.

The company’s vision is to be recognized and respected as Nigeria’s most reliable and customer-friendly airline. Jacky Hathiramani, Chief Executive Officer of Dana Air, says the airline is committed to delivering the highest quality of service onboard its aircraft, making huge investments in staff training.

“At Dana Air, our most prized asset is our staff, and we have stringent recruitment



Chanchangi Airlines Congratulates ICAO on it's 37th General Assembly and The Government and People of the Federal Republic of Nigeria on their 50th Independence Anniversary



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procedures to ensure that only the best join our team," he commented. "Dana has committed its staff to a programme of continuous re-training and teamed up with Iberia for key resources in this regard."

Despite various challenges, Dana Air is also hoping to expand operations to more Nigerian cities in the coming months.

"We are committed to the development of the Nigerian aviation industry," stressed Hathiramani. "We will embrace economic growth and promote tourism."

IRS Airlines

IRS Airlines has remained a resilient and modest player in the Nigerian domestic airline market since 2003. Currently, the airline is a visible and dependable operator at the country's airports in Lagos, Abuja, Kano, Port Harcourt, Maiduguri, Yola and Enugu.

IRS is gradually but steadily growing into a major stakeholder in the air travel market through operational consistency, utilizing a mix of Fokker and Embraer aircraft as well as a staff featuring skilled technical and administrative personnel who were drawn from various areas across the industry.

Chanchangi Airline

Since its commencement of scheduled domestic passenger operations in April 1997, Chanchangi Airlines, which initially started in partnership with Aviogenex of Yugoslavia, has become a popular brand among its passengers. Its mission is to provide efficient, prompt and reliable services in the industry, and the airline currently operates daily flights to Lagos, Abuja, Kaduna, Port Harcourt and Owerri, using a fleet of Boeing aircraft.

Chanchangi counts among its personnel some of the senior technical and admin-

istrative professionals of the erstwhile Nigeria Airways, as well as former staff of other relevant national and foreign organizations. The common objective for all Chanchangi staff is to maintain their professionalism while ensuring air traveler confidence.

Overland Airways

Overland began scheduled domestic passenger services in 2003. It has since continued to carve a niche for itself as a dependable 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, while charter flights are operated mainly to Central and West African destinations.

Overland operates a new fleet featuring Beechcraft and ATR turboprops.

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Air Nigeria

Air Nigeria commenced operations in June 2005 as a private sector flag carrier for Nigeria, taking its leverage from a Memorandum of Understanding between the Federal Government of Nigeria and Virgin Atlantic Airways of the United Kingdom. It started operations simultaneously on both intercontinental and domestic/regional routes under the banner of Virgin Nigeria.

Following the eventual disengagement of Virgin Atlantic Airways from the joint venture, the airline went through a change of management and re-branding, including the new name, Air Nigeria, and a new livery. The company, according to CEO Jimoh Ibrahim, aims to expand its fleet by October 2010.

Air Nigeria's operations are fully automated and it was the first Nigerian carrier to totally embrace the IATA Billing and Settlement Plan (BSP), which is based on 100 percent e-ticketing in Nigeria.

Air Nigeria has a very strong presence and vast network of routes that extends to West, Central and South Africa. It enjoys appreciable patronage and customer confidence, which the CEO has pledged to enhance even further through corporate loyalty and a strengthened commitment to service delivery.

Kabo Air

Kabo Air, a Kano-based airline, belongs to the first generation of scheduled, private commercial airlines that heralded the liberalization of Nigeria's domestic airline market in the early 1980s. It grew to become a dominant operator on both scheduled domestic and international charter operations.

In recent years, Kabo has withdrawn from the domestic scene and now concentrates on scheduled intercontinental services to Cairo, Dubai and Jeddah, in addition to its annual pilgrimage operations to Saudi Arabia and other charter services. It operates a fleet of B-747s and other long-haul Boeing jets.

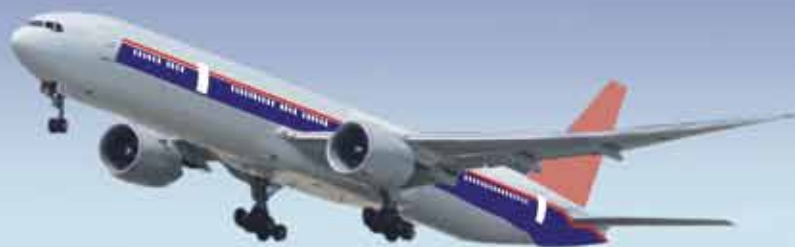
Conclusion

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 PPP initiatives.

All of these efforts have further promoted safety, efficiency and security in the Nigerian air transport sector, and current statistics attest to the fact that aviation in Nigeria will continue to grow faster than the world average for some time to come. ■

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APANPIRG ATM/AIS/SAR Sub-group

The Twentieth Meeting of the ATM/AIS/SAR Sub-group (ATM/AIS/SAR SG/20) of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG), hosted by the Civil Aviation Authority of Singapore, was held from 5–9 July 2010. The meeting was attended by 80 Participants from 20 States and three international organizations. Participants discussed ATM/AIS/SAR related issues including improvement of ATS routes structure and the implementation of flight plan amendments. Also developed were 15 Draft Decisions and Conclusions for consideration by APANPIRG/21.



APANPIRG CNS/MET SG/14

The Fourteenth Meeting of the Communications, Navigation and Surveillance/Meteorology Sub-group (CNS/MET SG/14) of Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG), hosted by the Indonesian Directorate General of Civil Aviation (DGCA), was held in Jakarta, Indonesia, from 19–22 July 2010. The meeting was attended by 103 participants from 24 States/Administrations, IATA, IFALPA and SITA. Participants discussed CNS and MET planning and implementation related issues, including improvement of AFS and AMS(R)S communications, implementation of PBN, ADS-B, the International Airways Volcano Watch (IAVW), Tropical Cyclone Watch (ITCW), and requirements of SIGMET and OPMET exchange. The meeting developed 28 draft Decisions and Conclusions for consideration by APANPIRG/21.

The meeting was opened by Arfiyanti Samad, Secretary of Directorate General on behalf of Herry Bakti, Director General of Indonesia's DGCA.

Deposit by Serbia

Serbia deposited its letter of Notification of Association with the International COSPAS-SARSAT Programme as a User State during a brief ceremony at ICAO Headquarters on 17 June 2010. The COSPAS-SARSAT Programme provides accurate, timely and reliable distress alert and location data to help Search and Rescue (SAR) authorities assist persons in distress. ICAO and the IMO are joint depositaries of the *International COSPAS-SARSAT Programme Agreement*, done at Paris on 1 July 1988.



Shown on the occasion (from left to right) are: Ove Urup-Madsen, Royal Danish Air Force, Head of International Cooperation; Denys Wibaux, Director, Legal Affairs and External Relations Bureau, ICAO; Cheryl Bertoia, Deputy Head of Secretariat, Principal Operations Officer, COSPAS-SARSAT Secretariat, Montreal; Goran Jovicic, Deputy Director General, Civil Aviation Directorate of Serbia; and Milorad Jeremic, Serbian Air Force, Head of SAR Office.

HIGHLIGHTS

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Traffic & Financials	On-Flight Origin and Destination			
Fleet / Personnel	Traffic by Flight Stage			

AIRPORTS

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Challenges vs Expectations Saudi Civil Aviation



الهيئة العامة للطيران المدني
General Authority of Civil Aviation



The history of Saudi Arabian civil aviation dates back to the year 1945, when the Late King Abdulaziz laid down the foundations of the State's currently expansive and modern air transport system.

Since that time, the Saudi Kingdom has made its aviation industry one of its highest priorities, supporting the importance of air transport services as a fundamental contributor to social and economic progress in a country with an area of 2,250,000 square kilometres—one third the size of the European continent.

Saudi Arabia features a geography that has cities and villages scattered along two primary axes: a north/south corridor extending over 200km starting from Tabouk in the north, through Jeddah, and ending in Najran in the south; and an east/west axis extending over 1400km from Dhahran city on the Arabian Gulf, through Riyadh the Capital city, and ending in Jeddah along the Red Sea in the west.

In light of these geographic realities, the need arose to bridge the associated distances and link these distant cities, villages

and regions together, not to mention connecting them with the outside world with the most modern means available. As the ideal solution to these Saudi priorities, air transport promised more national solidarity, would serve to raise both urban and regional standards of living, in addition to could enhance Saudi interaction with other States and civilizations.

Inspired by these noble objectives, the concern shown by the Government of the Kingdom of Saudi Arabia to its civil aviation sector has been evident since the first aircraft began to operate in its territory. The Arabian Aviation Association was founded in the Kingdom in 1949 and in 1953 the Saudi Civil Aviation Regulations were issued on the basis of all internationally accepted rules.

The Government of the Kingdom of Saudi Arabia also played a distinguished and vital early role by effectively contributing to a variety of international civil aviation organizations and associations, most important among them the International Civil Aviation Organization (ICAO). The Kingdom was among the first States to endorse civil aviation's most important treaty—the Chicago Convention of 1944.



The Custodian of the Two Holy Mosques (H.M. King Abdullah) and HRH. the Crown Prince (Prince Sultan Bin Abdulaziz) carefully monitor progress on the KAIA Development Project.

Elements of Saudi Aviation Success

In addition to its vast area, the Kingdom of Saudi Arabia is unique compared to other countries in the MID Region due to the presence of a number of elements. These enhance its aviation industry on several levels and assure the Kingdom's status as a driver of social and economic development. These include:

1. *The Kingdom's Distinguished Religious Status.*

On a global basis, Muslims now account for over 1.57 billion persons or approximately one quarter of the earth's population. The Saudi Kingdom embraces the world's most sacred Muslim landmarks (Makkah, Medina, and the Hajj sacred shrines, etc.) and approximately five million Muslim followers come for Hajj and Umrah each year. This figure is expected to double after completion of the huge projects now being executed.

2. *Unmatched Security and Political Stability.*

3. *Strategic Geographical Location.*

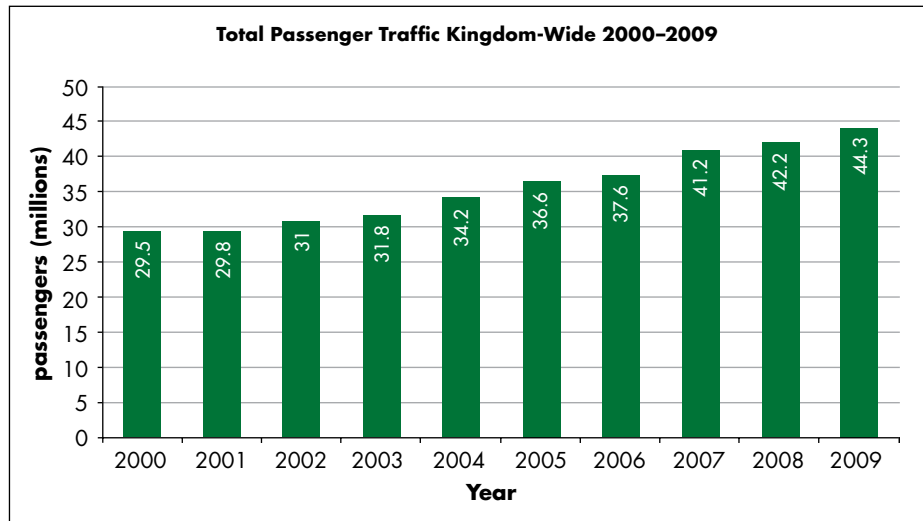
Situated in the centre of the world's major continents (Asia, Africa, and Europe), the Kingdom's civil aviation network plays vital role in connecting countries of the East and West by air and in attracting international air traffic.

4. *Economic, Financial, and Oil Power.*

The Kingdom is one of the world's major oil producing countries featuring the largest oil reserves of any nation in the world. The Saudi oil sector also embraces about seven million non-Saudi workers through various development projects and service facilities.

5. *Local Economic Factors.*

The disposable income of the average Saudi citizen is high and enables them to choose the air transport option as the fastest and simplest means of getting from A to B on a Regional



or global basis. This in turn contributes to the enhancement of the country's air transport industry.

6. *Ambitious Development Plans.*

The Kingdom's current planning meets or exceeds current needs and future challenges. It operates on the basis of a clear vision, well-defined objectives and the strong determination to implement them. This is backed by the nature of the Saudi citizen who likes challenge and seeks out well-calculated adventure.

7. *Diverse Tourism Potential.*

In addition to the aforementioned sacred cities and shrines, the Kingdom's vast area is characterized by diverse terrain that provides diverse tourist attraction areas in varying climates. The Kingdom has the longest coast along the Red Sea (approx. 2400km) which constitutes about 80 percent of the eastern coast of this body of water—one of the world's most important seas targeted by tourists for its unique treasures. In addition to its Red Sea shoreline,

SAUDI GENERAL AUTHORITY OF CIVIL AVIATION'S (GACA'S) MAIN FUNCTIONS

1. **Organizational Functions**

- Issuance and application of rules and regulations governing the Kingdom's civil aviation sector and air transport industry, including licensing all parties and forms of air transport activity and associated support services.
- Licensing of flight crews, maintenance stations, companies and organizations operating in this field in addition to flying schools.
- Conclusion of bilateral agreements between the Kingdom and other countries.
- Development of policies and procedures for maintaining airport security, air transport safety, and O&M standards.
- Development of the factors that ensure the generation of revenue by the Kingdom's airports and their associated facilities, preserving these investments, and attracting more investments.

2. **Operational Functions**

- Construction, management, operation, maintenance, and development of civil airports, and supporting them with infrastructure projects.
- Supervising those working in airports.

3. **Service Functions**

- Construction, management, operation, and upgrading of air navigation systems, organization of air traffic, and issuance of transit and landing permits.
- Control, inspection, and audits in its own jurisdiction over the operations of airlines and national and international air transport companies operating in the Kingdom.



Saudi Arabia's New KAIA Project.

the Kingdom also has a fascinating 1,000km long stretch of beautiful eastern coastline.

A chain of exhilarating mountains extends parallel to the Red Sea with heights that stretch up to 3,000m above sea level and adds to their attractiveness as charming summer resorts. Saudi Arabian deserts are furthermore considered to be one of the most suitable environments for flying sports and other desert-related recreational activities. The Kingdom

also features ruins of ancient civilizations, such as Madain Salih.

Based on these qualities it becomes clear that the Kingdom of Saudi Arabia constitutes a significant travel and tourism market that can only become larger and more active in the future. It is considered the biggest among the Region's countries, capable of competing with international destinations, and can accommodate more air traffic. Accordingly, the Kingdom welcomes airlines from

different countries of the world and continues to modernize and provide the myriad facilities and capabilities that enable international operators to benefit from its excellent tourism potential.

Progress Built on Achievement

A careful look at the history of the Saudi General Authority of Civil Aviation (GACA) reveals a considerable number of significant achievements. These have been coordinated to build on the successive developments witnessed by the world's broader civil aviation industry, namely its scientific, technological, and organizational progress and the fact that it is an industry characterized by rapid and dynamic change. The GACA has strategically accommodated these developments in order to compliment the Kingdom's needs and characteristics.

Some of the major achievements can be summarized within the following four categories of important and recent progress:

The Most Comprehensive Airport Network in the Middle East

The Kingdom has succeeded in constructing and operating the largest





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A New Era

airport network in the Middle East. It is composed of 27 airports, four of them international and seven regional facilities that operate as international airports in peak seasons. The Kingdom also operates 13 domestic airports.

All of these facilities were constructed on the basis of detailed feasibility studies that took into consideration numerous factors, such as population density in each area, the relationship between each area and other areas, and associated volumes of existing and expected economic and tourist activities. The airports were equipped with the most advanced systems and equipment in accordance with international standards and specifications. In preparing their construction plans, the GACA was very keen to enable these airports to provide passengers with the best services and ensure the highest safety and security standards.

Total investment funds provided by the Kingdom's Government to support Civil Aviation infrastructure has been close to \$27 billion. This clearly demonstrates how generous the State's spending on this sector has been in comparison to many other countries, and this has contributed to turning the Kingdom's airports into dynamic cultural and urban centres. Since their construction, Saudi Arabia's airports have witnessed an increasing flow of air traffic as the total number of passengers travelling to, from and through the Kingdom's airports reached 44.3 million in 2009. This compares to the approximately 28.7 million passengers in 1999. Likewise, total air cargo in 2009 reached 53,623 tonnes compared to 47,173 tonnes in 1999.

The Kingdom's airports have attracted approximately 60 international carriers up to the end of 2009, in addition to the other air carriers which operate special Hajj and Umrah flights during those seasons. Saudi Arabia's airports have benefitted from these cargo and passenger traffic increases while most of the world's international airports



The Royal Terminal in the King Fahd International Airport in the Kingdom's Eastern Region.

have suffered during the same period according to ICAO and ACI statistics. This clearly proves that the Kingdom's travel market is now sought after by international airlines due to its dynamic and increasing traffic flows.

Skilled Personnel

The GACA has made it a clear priority since the early days of Saudi aviation to provide effective training for its air transports sector's many skilled workers. It ranked training at the top of its priorities to the point that the education and re-education of Saudi air transport personnel became the core of its strategic objectives.

The GACA has always maintained a firm belief in the necessity of developing the expertise, know-how, potential, and efficiency of the Kingdom's skilled air transport cadres to ensure that they are capable of demonstrating and transferring technological skills and operational knowledge. Its efforts in this regard began early and took many forms, generating successes too numerous to denote in this brief space. To provide a rough profile, the following achievements have been provided:

- In 1962 a technical institute was established at Jeddah for the provision of training in the areas of: air traffic control, navigational communications, maintenance of navigational systems, fire & rescue, and meteorology.
- In 1966 another institute was established in Dhahran in the Eastern Region. It specialized in the maintenance of electronic navigational systems.
- This was followed by the establishment of a number of additional training centres.
- The GACA has sent a considerable number of its employees out-of-Kingdom for study and training in specialized universities and institutes in the United States, Canada, the UK, Germany, France, and other countries. This process has never stopped since the beginning of civil aviation in the Kingdom.

As a result of these and many more efforts, trained, qualified, and licensed national cadres were available and have considerably contributed to the transfer of expertise from advanced countries. They have similarly been instrumental in driving the need for and operation of the most advanced systems and equipment, as well as



Proudly introducing passengers from around the world to the Kingdom of Saudi Arabia

The Middle East witnessed the highest air passenger growth in the world in 2009—a testament to the Region's strategically placed hubs. Saudi Arabia particularly, featuring the largest economy in the Middle East and a rapidly-growing population, has the potential to achieve remarkable growth in this sector.

Strategic Fleet and Operational Growth

Two years ago, SAA reached major deals with Airbus and Boeing regarding the purchase of 82 new aircraft. In May 2010 it migrated its reservations services to the Amadeus passenger management system, allowing its travellers to take advantage of complete e-ticketing and e-payment systems through the convenience of online access.

SAA operates more than 450 flights daily to 80 destinations. It has an on-time performance rate of 85 percent—far ahead of many leading airlines in the world. SAA will eventually increase its flight frequency and number of destinations based on the results of an ongoing visibility study. It is presently focused more intently on improving services to its existing destinations.

Ensuring Customer Loyalty and Satisfaction

SAA manages a loyalty programme known as ALFURSAN. It is a unique value-offering providing SAA frequent flyers with a wide-range of benefits and privileges, including car rental discounts, credit card bonus programmes and discounts at world-class hotels.

Looking toward the Future

SAA began important privatization efforts in 2006, including its Catering and Cargo activities. An agreement with Al-Ahli Capital and Morgan Stanley was signed in March of this year regarding the airline's Aviation Unit, and its Ground-handling and Maintenance Services are also now undergoing a privatization review.

SAA's goal is nothing less than to become a Top-10 carrier. Its current slogan translates simply as "New Era", and the airline is effectively balancing its efficiency and safety priorities as it moves forward during this new phase in its success, re-shaping its corporate structures and modernizing its fleet and operations for the challenges ahead.



الخطوط الجوية العربية السعودية
SAUDI ARABIAN AIRLINES

passing along related knowledge to others. ICAO's role in these efforts cannot be underestimated.

In light of the tremendous advances made in recent decades by the Kingdom's civil aviation sector, not to mention the increasing need to address modern air transport developments with ever-increasingly skilled personnel, Saudi Arabia's Jeddah Technical Training Institute was recently transformed into a more technically-oriented and advanced learning academy now known as the Saudi Civil Aviation Academy.

This evolution was the result of an integrated work plan developed in collaboration with accredited and specialized national and international institutions including France's Thales University, the French Academy for Civil Aviation, the Fire Training Institute in Texas, the French Civil Pool F&R Co., and ICAO.

Highest in this project's objectives has been to address manpower requirements for the GACA, the Kingdom's airports, as well as its Air Navigation Services. It has also sought to raise the standard of the capabilities and skills of GACA's existing employees to a level that conforms to civil aviation-related international systems and standards in order to more effectively maintain the safety and security of civil aviation in the Kingdom's airspace.

The Academy provides four types of training (basic training, high-level diploma, upgrade training, and training for licensing). The areas of specialization it offers include all air traffic control specializations, all navigation systems maintenance specializations, F&R, civil aviation security, operational safety, and English language proficiency.

Safety & Security

The safety and security of air transport is the fundamental concern for all stakeholders involved in the civil aviation system globally.

Realizing the importance of this challenge and fully understanding the fact that the industry will not flourish and be stable unless safety and security are ensured for passengers, aircraft and airports, the Government of Saudi Arabia, represented by GACA, has adopted a strategy aiming to balance the effective provision of safety- and security-related regulations and programmes on the one hand, and the facilitation of travel procedures on the other, in order to ultimately ensure that travellers benefit from an experience which is as comfortable and enjoyable as possible.

To achieve this goal, the GACA has implemented a number of projects, procedures, and initiatives that can be summarized in the following points:

- Strict application of ICAO Standards and Recommended Practices (SARPs) regarding the safety and security of civil aviation, not just with regard to procedures but also to airport construction, development, operations, maintenance, and provision of services. The GACA has established new specialized departments for monitoring conformity to safety rules and regulations, such as its Safety & Quality Assurance Department.
- The GACA is currently involved in the provision of a modern security system through a project adopted for the protection of the Kingdom's airports. The project studies and the required technical, security, and engineering specifications were prepared in collaboration with a joint venture company composed of the U.S. Trans Secure Company and a national partner. Said joint venture company has already commenced operations and will submit its work upon completion to the higher authorities for approval.
- The GACA has established a project for the construction of a Search and Rescue (SAR) centre that will operate from Jeddah on the basis of a satellite network. This internationally-recognized project aims to save lives and property employing the most advanced technologies. It is linked to the

International Organization for Search & Rescue with services covering nine Arab countries including Kuwait, Bahrain, Qatar, Oman, UAE, Lebanon, Syria, Jordan, and Yemen.

- Effective participation and cooperation with the various organizations and countries with respect to all activities, programmes, and civil aviation security and safety-related committees. For example, the Kingdom is an active member in ICAO's Civil Aviation Security Committee and the GACA has hosted the Second International Civil Aviation Conference for Arab Aviation Security held in Jeddah under the slogan "Working Together to Overcome Aviation Security Threats". Additionally, the Kingdom has managed, through Bilateral Agreements concluded with a number of countries, to strengthen mutual cooperation in the area of Aviation Security. This stronger collaboration did and will continue to contribute to higher levels of MID safety and security.

It's also worth mentioning that the Kingdom's airports were subjected to ICAO Universal Safety Oversight Audit Programme (USOAP) and has obtained a score of 98% for conformity to standards whereas the international average is 72%.

Large-scale Development Projects

Due to the growing increase in air traffic in the Kingdom's airports, the GACA realized the necessity of adopting a number of development projects in its airports to be able to accommodate this growth and to raise the standard of associated services.

The GACA has also adopted new airport construction projects with estimated budgets amounting to \$8.3 billion. The following is a brief summary of the most important of these projects.

1. King Abdulaziz International Airport (KAIA) Development Project

This project's main objective is to cope with the increase in air traffic and



Prince Abdulmohsen Airport in Yanbu, on the West Coast of the Kingdom of Saudi Arabia.

associated technical developments in the global civil aviation industry. Phase One of the project is planned to raise KAIA's capacity from 14 million passengers per annum before the end of 2013 to 30 million passengers per annum. Capacity will then be raised to 80 million passengers per annum after the completion of Phase Three. The project will include a number of important facilities, including but not limited to:

- **Passenger Terminal Complex:**
This is a huge complex with an area of 678,000 square metres. It will allow all airlines to operate under one roof. Its design has provided for a short distance separating its gates and departure processing areas, with a possibility of accommodating a larger number of close aircraft parking positions. It will also provide a rail link for passenger movement between terminals.
- **46 Gates:**
These 46 gates will link the Terminal Complex via 96 moving bridges that can serve aircraft of different configurations and sizes, including the A380. The gates have been designed with great flexibility so that they can be used for international flights or domestic flights as operational requirements dictate.
- **Parking Facilities:**
KAIA will be capable of accommodating 12,800 vehicles in Phase One and up to 26,000 in the future. Part of its parking infrastructure is located in front of the Passenger Terminal Complex for short-term needs. Parking and Terminal areas are linked by moving walkways that enable passengers to move easily between their vehicles and the departure processing area inside the complex. There is also a less-expensive long-term parking area.
- **Huge Air Cargo Village:**
With a capacity of one million tonnes of cargo per annum in Phase One.

- **New Control Tower:**
Equipped with the most advanced navigation and communications systems.
- **New Runways, Taxiways, and Aprons:**
Capable of accommodating the new generation of large-scale aircraft in addition to a very large number of standard aircraft.
- **New Roads & Bridges:**
To allow easy access to and from the new Passenger Terminal Complex, a road and bridge network will be constructed to connect the airport to Jeddah's two highways.
- **Railway Station:**
This facility will connect the airport with Makkah and Medina by express trains which will provide great comfort to passengers including those coming for Umrah. It will also link the airport with downtown Jeddah by light trains.
- **Integrated Safety & Security Systems:**
Featuring the most advanced international specifications and standards.
- **Power and Water Plants and Systems.**
- **Modern FIDS Systems.**
- **Modern Baggage Conveyor Belts systems.**
- **New Fuel Farm.**

KAIA Architectural Design:

The Project's architectural designs follow the Islamic pattern which is consistent with the environment of Saudi Arabia.

KAIA Investment Opportunities:

According to the KAIA Master Plan, an area of 51,700 square metres inside the passenger terminals complex will be allocated to commercial investments in Phase One, and an additional 6.5 square kilometres outside the passenger terminals complex will be devoted to a number of airport-related commercial investments. These activities will provide great investment opportunities to the private sector and can be summarized as follows:

- a. Investment opportunities related to the air transport industry such as: duty free markets, aviation industry-related institutes, and air transport-related light industries.
- b. Investment opportunities related to general services such as: hotels from all categories, health centres, commercial, recreational, and cultural centres, business offices and centres, exhibitions, museums, light electronic industries.

2. New Domestic Airports

The Kingdom's domestic airports are undergoing a number of varying development projects. Some of these are basically new airport construction projects while others are radical renovation projects. A third category covers less extensive airport renewal to satisfy growth and other projected demands. In addition to these, the GACA is executing completely new airport construction projects, such as:



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- *Prince Abdul Majeed Bin Abdulaziz Airport in Ula:*
This facility is 90 percent complete and is expected to be opened in late 2010. Its cost will have come in at roughly \$42.2 million. It features a capacity of 100,000 passengers annually and the capability to accommodate three aircraft at one time.
- *King Abdullah Bin Abdulaziz New Regional Airport in Gizan:*
This will be relocated to a new site. As a step toward its construction its Master Plan and detailed new designs have now been tendered. It's projected budget is \$2.7 million.
- *Taif New Airport:*
This will be relocated to a new site. The GACA authorities responsible are currently engaged in examining proposals submitted for the Master Plan together with the detailed drawings. Its estimated cost stands at \$5.9 million.

3. *Radical Renovation Projects for Domestic Airports*

- *Nejran Airport:*
Work is currently underway on a major development project covering the construction of new passenger terminals to accommodate 1.4 million passengers per annum, construction of a new apron capable of accommodating four aircraft

at a time, and development of new utilities and associated airport infrastructure. Thirty-five percent of this \$84 million project is now complete.

- *Tabouk Airport:*
Work is underway on a major development project in the airport including passenger terminals with a capacity of 1.3 million passengers per annum, new utilities and associated airport infrastructure. Ninety percent of this \$60.5 million project is now complete.

4. *Expansion & Renovation Projects:*

These projects are being executed in eight airports: Baha; Rafha; Sharorra; Hasa; Taif; Wedjh; Qassim; and Hail. They include the expansion and renovation of passenger terminals and certain important facilities. Total cost of these projects amounts to approximately \$16.6 million. Based on the total project plan and timeframe, 85 percent of the associated development work has now been completed.

5. *Preparation of Master Plans for Various Domestic Airports:*

This includes 16 domestic airports, as follows: Abha; Bisha; Hasa; Jouf; Qassim; Baha; Wadi Eddawasir; Sharorra; Wedjh; Turaif; Rafha; Dawadmi;

Qaisomah; Hail; Arrar, and Quraiat). These plans include detailed designs for Hail, Arrar, and Quraiait Airports. The budget for these projects stands at \$8 million and they are now 35 percent completed.

Upgrading of Air Navigation Services and Infrastructure

The GACA has made its air navigation systems one of its highest priorities, due primarily to the benefits that an effectively-outfitted and operated airspace management network brings to both the safety and efficiency of the Kingdom's aviation system.

It has steadfastly applied and followed all pertinent ICAO SARPs in this regard and it actively participates in many international task forces investigating the upgrading of air navigation systems-related technical standards. The Saudi Kingdom's air navigation systems have been kept fully upgraded to ensure that they are as up-to-date and as possible and ready to adjust the all new technical developments in this area as they arise. To achieve this goal it has executed many recent projects in this field, including but not limited to:



Artist's concept of the new car park area for the King Abdulaziz International Airport.

... A **star** shines

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National Air Services (NAS)

1. *Two Regional Control Centre Projects in Jeddah & Riyadh:*
This project addresses the increase in the number of aircraft using the Kingdom's airspace. This figure has doubled in recent years triggering the need for the construction of two regional centres for controlling and directing low-flying aircraft (between 15,000 and 29,000 feet). The second centre was constructed in Riyadh to control traffic at altitudes above 29,000 feet. This project was completed at a cost of \$58 million.
2. *Navigation Communication Systems Project for the Regional Control Centres in Riyadh & Jeddah:*
This project aims to improve and replace the navigation communication systems which provide the two regional control centres with voice communications. For this purpose (74) air control locations were provided. This project was completed at a cost of \$1.5 million.
3. *Navigation Communication Systems Upgrade Project:*
This project addresses the upgrading and replacement of navigation communication systems and air control locations at airports with control towers, in addition to the upgrade of radio systems in 34 Remote Communication Air/Ground Stations (RCAGs), 17 Digital Navigation Communication Stations, and 13 Advanced Digital Transmission Systems for automatic transmission of Airport information (D-ATIS) in all the Kingdom's airports. The project has been 90 percent completed and its eventual total cost will be \$21.3 million.
4. *KAIA & KKIA Radar Systems Replacement Project:*
This project encompassed the provision of modern radar systems (PSR/SSR) to replace outdated components and to take advantage of the advanced technologies used in the new Regional Control Centres in Jeddah and Riyadh. The new network allows for full control over the maneuvering and approach area in accordance with applicable ICAO Standards. This project was completed at a cost of \$13.5 million.
5. *Instrument Landing Systems/Distance Measuring Equipment (ILS/DME):*
This project seeks to replace older equipment in most of the Kingdom's airports with 24 new systems to assist aircraft in safely taking-off and landing in even the worst weather conditions (where vertical and horizontal visibility is very low). The project has been 97 percent completed and its eventual total cost will be \$13.5 million.
6. *Navigational Guidance Systems Type (VOR/DVOR/TACAN/DME) Project:*
These systems assist aircraft in flying in difficult weather conditions, enabling them to identify their locations and distances from nearby airports. Older equipment has been replaced with more than 40 newer more modern systems at a number of airports and military air bases. This project was completed at a cost of \$11 million.
7. *Air Navigation Services Installations Remote Control System:*
This project provides advanced control systems for remote access and manipulation of navigation systems in various locations throughout the Kingdom. Special display screens in the Jeddah Maintenance Control Centre allow for immediate maintenance in case of faults.
8. *Implementation of the Air Navigation System through Satellite (GNSS):*
This system will assist aircraft reconnaissance activities related to Non-Precision Approaches in addition to providing an advanced system for control, reporting, notification, recording, and NOTAMs. The project includes new training for GACA employees regarding the design, production and distribution of aviation bulletins and procedures in a highly professional and accurate manner. The project is now 63 percent complete.
9. *(PMA-APP) Prince Mohamed Bin Abdulaziz International Airport In Medina:*
This new centre provides an advanced radar system to control the terminal maneuvering and approach area (TMAR), enhancing the airport's new role as a fully international facility. The project was completed at a cost of \$13.5 million.
10. *Civil Aircraft Radar Centre (CARC) Project:*
This is considered one of the most vital projects to the GACA's Operations as it will provide a network of civil radar systems which will enable the GACA to provide maximum safety, increased capacity and far greater efficiency in every region of the Saudi airspace. The project has been 15 percent completed and its eventual total cost will be \$60 million.

International & Regional Relationships

The Kingdom of Saudi Arabia has occupied a prominent position since the 1940s in international fora addressing civil aviation issues. It has supported many international organizations during this time and has participated in the foundation of a number of them. It has also participated effectively in developing the strategic work plans of these organizations in addition to supporting their adopted programmes and projects.

The GACA also effectively participates in conferences and seminars held by these organizations. It has played an important role in many specialized committees driven by its belief in the importance of the role played by these organizations in serving the international community in general and the civil aviation industry in particular. This has augmented in turn the efforts exerted by the GACA in strengthening cooperation with the

countries of the world and international and regional air transport organizations. Foremost among these organizations have been ICAO and ACI.

The GACA's most important activities and achievements at the international and regional level can be summarized in the following points:

1. The Kingdom participates through its specialized technical members and the submission of relevant working papers to the committees of ICAO's Middle East (MID) Regional Office, specifically ICAO's Air Navigation Committees, Security Committees, Formulation and Diplomatic Conferences Committees, and the Facilitation Committee. Most important of these is the Middle East Air Navigation Planning and Implementation Regional Group (MIDANPIRG) and the various groups stemming from it, such as the (CNS/ATM) Team and the (RNP) Team.
2. The Kingdom was selected by ICAO, out of appreciation for its activities, to participate in a number of Teams of Experts such as the Aviation Security Team, the Explosives Experts Team, the Communications Experts Team, Mobile Air Navigation Team, Automatic Control Team, Secondary Control Radar Development Experts Team, Aircraft Crash Prevention System Team, Machine Read Passports and Visas Design Experts, and Future Air Navigation Team.
3. The GACA also has cooperative agreements with the FAA. The most important areas of this cooperation are related to the standards and specifications and training in the fields of aviation safety, airworthiness and Flight Inspectors.
4. Through the continuous efforts exerted by the Kingdom's Delegation in cooperation with a number of other Arab Delegations in ICAO, the Arabic language was recognized as an official language by this prestigious Organization.
5. The Kingdom was elected for the ninth consecutive time to the membership of the ICAO Council, second part. It's expected that the Kingdom will succeed again in the council's next elections which will be held in Sep/Oct 2010.
6. Since it joined ICAO, the Kingdom has participated in General Assembly meetings which are held every three years and which establish the Organization's priorities, work programme and budget for the next three years.
7. The Kingdom also provides generous financial support for ICAO's programmes. For example, the Kingdom donated \$152,508 in May 2010 to ICAO's Aviation Security Audit and Air Safety Programme. In August 2008 the Kingdom donated \$250,000 in support ICAO's Comprehensive Regional Implementation Plan for Aviation Safety in Africa (AFI-Plan).
8. In early May 2010, HH. Prince Turki Bin Faisal Al Saud, Vice President of GACA for International Organizations, was elected First Deputy of the CEO of the Office of the ACI Regional Council for Asia and the Pacific.
9. At the beginning of 2009, HH Prince Turki was elected as a full Member of the ACI World Governing Board, which is composed of 29 Members representing the Council's five Regional Offices. This Membership extends to three years.
10. During the activities of the Fourteenth CANSO Conference held in Oslo, Norway, in June 2010, the Kingdom was elected as a Member in the organization's Executive Council. This selection came as a sign of appreciation to the Kingdom regarding its status and role in upgrading its air navigation services. Prior to this, in January 2010 during the Second CANSO Conference held in Dubai, the President of the GACA was selected by the CANSO Civil Aviation CEO Committee for the Middle East as Chairman of the Committee.
11. The Kingdom was among the major founders of the Arab Organization for Civil Aviation (AOCA) and H.E.



Nasair: Putting the Passenger First

Nasair is a subsidiary of the prestigious National Air Services (NAS) group. It is the first and leading 'smart' airline in Saudi Arabia, transporting domestic and international passengers employing the low-cost carrier concept. Launched in February 2007, the airline is already serving 27 destinations within and beyond Saudi Arabia with over 400 flights per week. The airline operates a brand new fleet of Airbus A320s and Embraer E190/195s, providing it with the unique advantage of flying the youngest fleet in the Middle East.

The word 'nas' in Arabic means people, and Nasair builds on this legacy by remaining passenger-focused. It provides simple and efficient online booking procedures to help travellers manage their own preferred travel arrangements, and a variety of affordable food and beverage options are available throughout its flights.

As noted, Nasair operates based on the 'Smart Carrier' business approach. It strives to offer tailored services, competitive and simplified fare schemes (single class) and on-time, reliable departures and arrivals. The earlier you book your flight with Nasair, the less expensive your ticket will be. The airline strives at all times to keep its passenger experience simple, efficient and affordable.

President of the GACA has chaired its Executive Council in two consecutive sessions. Also Engr. Abdullah Muglad, from Saudi Arabia, was the AOCA's first CEO.

A Strategic Transformation

In 2004, the Saudi Council of Ministers issued a resolution calling for the transformation of the country's Presidency of Civil Aviation (PCA) into a financially and administratively independent general authority operating on a commercial basis. This was seen as a step toward the liberalization of the Kingdom's Civil Aviation Sector and its future reliance on self-generated revenues to cover its operational and investment costs—a transformative process ensuring improved performance and renewed focus on customer service. The new body was called the 'General Authority of Civil Aviation' (GACA).

A number of initiatives were implemented to ensure service quality levels, cost-effectiveness, and that Saudi Civil Aviation would become a more attractive target for private sector investments.

Strategic Plans

The transformation of Saudi Civil Aviation required setting a 10-year strategic plan from which three separate sub-plans will emerge. These plans have a number of objectives, including:

- Transforming Saudi airports into independent companies owned by a GACA holding company in order to improve their financial performance and raise the standard of their services.
- Evolving KAIA in Jeddah into a hub.
- Enabling airports to maximize their revenues.
- Formation of a fund for airport development and for financing unprofitable airports.
- Transforming Saudi air navigation services into an independent corporation balancing safety and profitability targets.

- Raising the standards of both safety and services in all airports.

The Fruits of Transformation

1. KAIA Hajj Terminals Complex Development Project in Jeddah: This large-scale project, which was completed at the end of 2009, will accommodate the expected increase in the number of pilgrims and those coming for Umrah in the next twenty years. It was executed on the basis of the (BTO) system by a joint venture company composed of a Saudi company and the French company ADPI which specializes in Airport construction and operation. The project, which had a cost of \$246 million, has succeeded in eliminating all operational problems and has raised the standard of services. The Saudi-ADPI joint venture will operate the complex for a period of 20 years.
2. Prince Mohamed Bin Abdulaziz Airport Development Project in Medina: The GACA has taken several steps toward this project's tendering and execution on the basis of the (BTO) system, in collaboration with the IFC. The project is expected to be awarded before the end of 2010 and to be the first airport fully-owned by the private sector. Funds invested in this project amount to about \$1.2 billion and it's expected to raise the airport's capacity to 12 million passengers per annum.
3. Airport Cities Project: To adopt this system, the GACA contracted with IFC for preparation of the necessary studies for constructing such cities in four international airports, starting with KAIA and two locations in Jeddah. It will be executed by the investing companies and in the budget for KAIA alone is expected to be \$2.5 billion.
4. International Airport Management: The GACA has hired two international companies, Germany's Fraport to

manage KAIA and KKIA, and Shangi Company to manage KFIA in the country's eastern region. Subject to these contracts, operational procedures and techniques will be aligned with international, performance-based norms and several training programmes will be initiated to upgrade the skills and knowledge of the airports' employees.

The objectives of these contracts include upgrading the standard of services and attracting a more appropriate share of air traffic. This will contribute to the gradual transformation of these airports from public sector units to financially and administratively independent work units that rely on their own investments and revenues. All three will then become independent private companies.

5. Licensing of New Air Carriers: The GACA has issued the necessary licenses to three new air carriers (NAS, SAMA, and Al wafer) to operate in its skies. All three companies are considered low-cost carriers; a move intended to broaden the scope of travel opportunities and facilities now available to Saudi citizens and travellers coming to the Kingdom. The GACA has left the door open to interested investors.

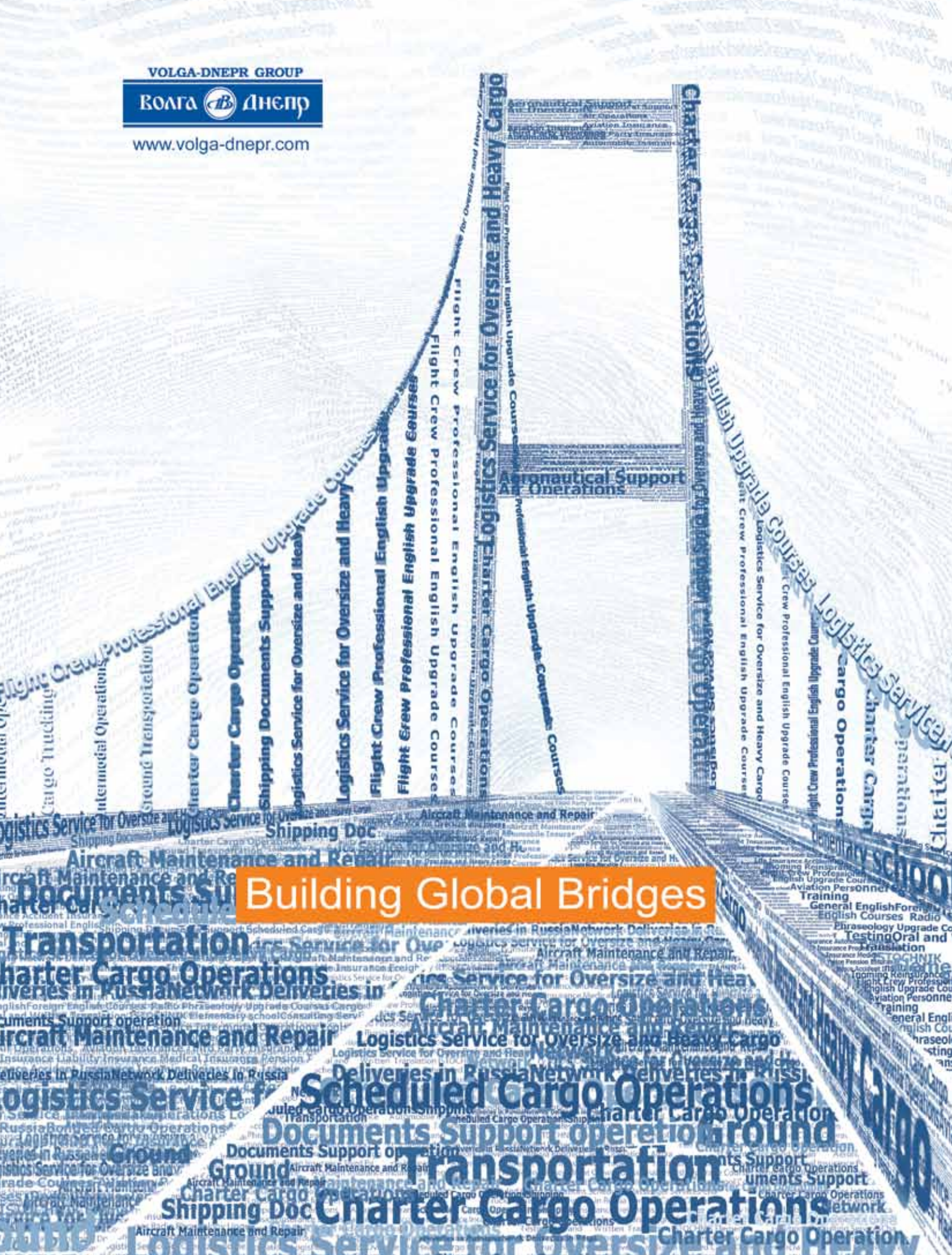
Consumer Protection Department

A new consumer protection department focused specifically on aviation was introduced in order to administer the contractual relationships between passengers and airlines. Since its establishment, the new department has succeeded in settling a number of disputes and concerns between carriers and passengers. ■

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