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Editorial

Salvatore Sciacchitano
Executive Secretary of ECAC



The spotlight of this issue of the *ECAC News* is on Asia-Pacific, one of the strongest emerging aviation regions in the world that has undergone dramatic changes and the most prominent development in the global air transport sector over the past two decades.

Based on 2014 results, the Asia-Pacific region now manages 32 per cent of global air transport capacity and it is estimated that this region will contain more than 50 per cent of global traffic within the next 20 years, with an additional 12,000 aircraft and 350 airports to be added by 2030.

While reaping the benefits of such growth and development, the Asia-Pacific region is also confronted with numerous challenges in order to meet the success of its dynamism. Regulators and the industry need to keep pace with the projected growth in a changing globalised world, facing new risks while benefiting from new opportunities, in order to guarantee high safety, security and environmental standards, the retention of skilled personnel, and the sustainable development of infrastructures and their related services.

Since its inception in 1955, ECAC has always sought to establish relations and foster dialogue with external partners, including major aviation States, well aware of the international dimension that is at the heart of the sector. In less than a decade, ECAC has formalised cooperation agreements with six major players in the Asia-Pacific region, first with Singapore in 2007, then the Republic of Korea in 2009, Australia in 2011, Indonesia and China in 2014, and the latest with Malaysia earlier this year. It now looks towards India to further its external relations.

In this issue of *ECAC News*, some of ECAC's partners share with us their outlook on the landscape of their civil aviation sector and introduce us to the ways in which they address national and global challenges, such as Australia's scheme on air transport economic regulation and Singapore's take on cyber security regulation.

In matters of global cooperation, Dr Fang Liu, who was appointed ICAO Secretary General last August, answers *ECAC News'* questions with regard to her top priorities and strategic objectives during her tenure, the role of regional organisations, as well as where she expects the challenges of tomorrow to lie and how she proposes to prepare for them through the ICAO Forum.

The attainment of safe, secure and environmentally friendly air transport across the globe requires a strong commitment and close collaboration amongst all regions. ECAC looks forward to strengthening its relationships with its partners in the Asia-Pacific region, and facing together the pressing challenges of the continuing development of the air transport sector.

I hope you enjoy this first digital edition of the *ECAC News!*



Fang Liu

ICAO Secretary General

► Strategy/Priorities

You have recently been appointed Secretary General of ICAO. What are the major changes you wish to bring to the Organization and where do you hope to see major achievements? What will be your priorities for ICAO as newly-appointed Secretary General?

First of all, please let me acknowledge how truly honoured I am to have been given the opportunity to serve ICAO in my capacity as Secretary General.

A key goal I will have going forward will be to implement initiatives that can help Organization transcend its past achievements while continuing to rapidly address emerging issues. Timely development and updating of ICAO Standards and Recommended Practices (SARPs) will therefore continue to be the fundamental priority for the Organization.

I will also endeavour to streamline ICAO assistance activities to ensure that States are effectively supported in the implementation of SARPs. This will be realised by establishing a performance-based accountability framework in the Secretariat, by playing a more active coordination role between States and the donor community, and by generating political will.

Effective execution of the Council's *No Country Left Behind* initiative will be achieved by implementing an improved Headquarters and regional coordination mechanism, and by empowering the Regional Offices to assist Member States with the provision of resources and tools tailored for the benefit of individual States.

Safety is paramount in aviation, and there is a need to actively promote the important role of safe, secure and sustainable aviation for the socio-economic development of States and for the public in general. It is important that we garner the commitment of high-level State decision-makers and establish synergies with our partners to support the achievement of ICAO's Strategic Objectives and the targets of global plans for aviation safety and air navigation (GASP and GANP).

For that purpose, I am initiating new and expanded partnerships with Member States, United Nations organisations, as well as other international and regional organisations, with whom ICAO will work together to contribute to the realisation of the United Nations Sustainable Development Goals by 2030.

With effective implementation of SARPs comes the critical regulatory framework that builds trust between States and assures global connectivity. Only then can there be growth in traffic, trade and tourism, and the resulting economic benefits for a State which help lift people out of poverty and allows States to invest in further aviation development, commitments which then reinvigorate the cycle of increased air transport connectivity and mutually inclusive growth. Aviation is also critical to other economic sectors, such as travel and tourism, telecommunications, and trade.

Being a very strong proponent of measures to optimise human, financial and physical resources, I will enhance related activities by initiating results-based budgeting on the basis of a business plan and an integrated corporate performance management system. ICAO will also invest in the modernisation of business processes and increase staff motivation by building a performance-based culture to support management and programme activities. We will also seek to establish and refine partnerships with relevant organisations to share best practices and synergies and avoid unnecessary duplication.

I am fully confident that this strategic and pragmatic approach will help to positively transform the Organization, making it more modern, effective, efficient, responsive, and results-based. These are the best steps ICAO can take to help ensure its continued position as the global leader in civil aviation.

ICAO recently turned seventy years old. Do you consider that it is evolving sufficiently to keep pace with the tremendous changes in the air transport sector? What do you see as ICAO's fundamental role and mission in the 21st century? What do you believe are the strengths of the organisation? Where do you see room for improvements?

The Chicago Convention, which established ICAO, has proven to be a very durable and flexible multilateral agreement, even to this day. It has been recognised by scholars as one of the most successful international arrangements ever realised, and the fact the Annexes to the Convention now contain over 12,000 ICAO Standards and Recommended Practices is further testament to ICAO's ability to respond to the needs of our sector and to accommodate all operational, technological, political and legal progress.

With the Convention to guide us, ICAO and its States have evolved consistently with the needs of our sector, adopting new Standards, technologies and capabilities quickly and effectively. Our ability to react rapidly to new developments was clearly in evidence after the events of 2014 relating to conflict zones and flight tracking Standards, but I would also point out the proactive engagement we have undertaken with other recent emerging needs, such as the safe integration of remotely-piloted aircraft into the global system.

In this context, ICAO's fundamental relevance, mission and leadership role have not changed. We still serve as the global forum where States need to deliberate and agree upon how our sector responds to emerging issues and adopts innovations, keeping in mind our fundamental responsibility to sustain or improve aviation safety, security, efficiency and environmental performance at every turn.

More efforts can and should be exerted towards the effective implementation of SARPs, primarily through systematic approaches to assist Member States as we are currently pursuing under *No Country Left Behind*. And we also continue to work in close cooperation with industry as well to ensure the solutions we derive are practical and fully supportive of the targets and objectives established in our complementary Global Plans for Aviation Safety and Air Navigation (the GASP and the GANP).

“ECAC is instrumental to ICAO’s ability to maintain pan-European relations beyond the EU membership, not to mention assisting us in building on relevant EU achievements where appropriate.”

ICAO's strengths are in fact more accurately described as aviation's strengths, and these relate strongly to our community being a very early adopter of new technologies, as just mentioned, as well as the historic tendency of our sector to cooperate on common goals and achieve practical, sustainable progress on a consensus-driven basis.

In terms of where there may be room for improvement, ICAO is constantly re-assessing the organisation and delivery of its core work on the basis of State and industry expectations, the latest management and monitoring approaches, and the realities of a funding environment which can be very dynamic based on global forces beyond our control. In essence we always have room for improvement and are looking for new efficiencies and cost savings wherever appropriate.

Lastly, with respect to both our strengths and challenges as an organisation, it is my strong belief that ICAO can do more to foster effective aviation develop-

ment and sustainable socio-economic prosperity in its Member States, serving as a source of global strategic guidance to guide State planning, a helping hand when it comes to the development of solid business cases supporting long-term aviation investment and the return on that investment, and of course as a facilitator for State and donor networking at the international level, consistent with our intensively multilateral mandate.

This last point also applies to how closely we affiliate ourselves with and support the work of the entire UN network towards the newly-adopted UN 2030 Sustainable Development Agenda. Air transport provides a solid platform from which States can more realistically reach toward many of the Sustainable Development Goals, providing as it does the essential connectivity supporting access to global travel and trade, expanded local tourism, and other sustainable economic activities.

► Regional Offices/ Regional Organisations

How do you see the role of the ICAO Regional Offices?

I am always grateful to be able to highlight the valuable efforts and contributions of our Regional Offices as integral components of ICAO. They play a major and continuing role in supporting our current Strategic Objectives, most especially through relevant and sustainable Technical Cooperation and Assistance Programmes for ICAO's Member States in close coordination with our HQ Bureaus.

I am also very aware of the fact that our Regional Offices will be expected to take on more work and responsibility in this regard, for instance with the new AFI SEC-FAL programme and other activities related to the *No Country Left Behind* initiative.

Efforts are being made during our budget planning to help ensure that the resources we have dedicated to our Regional Offices will be aligned with the business plan. And it is important in this context that we outline not only the programmes and activities of the Regional Offices, but also clear deliverables and expected outcomes. Enhanced transparency and accountability are critical in this respect.

Where do you see the added value of ECAC and its sister organisations ACAC, AFCAC and LACAC? How do you see the future evolution of the relationship between ICAO and Regional Organisations?

ECAC is a sister organisation to ICAO and an essential platform for the regional sharing of best practices, the coordination of initiatives and programmes, the exchange of views, and through which we can provide mutual assistance to one another on our shared priorities in the region.

More generally, ICAO has been strengthening many of its relationships through a significant and diverse expansion in the number of cooperative

memoranda we have been entering into with regional organisations. This supports our need to ensure elements of a shared vision, shared priorities and shared targets between the regional Civil Aviation Commissions around the world through continually enhanced communications and collaboration on joint activities in order to gain synergies and avoid duplication of efforts.

Further progress has also been achieved in recent years by revising how our Regional Offices interface with their local States and stakeholders. Each has become much more proactive in fulfilling their assistance and coordination role with States and closer cooperation with related regional bodies is particularly instrumental to success in this area. They are also becoming more performance-based and accountable, a process which will only continue as per my previous reply, and each Region now has a real-time dashboard on its website where progress against a variety of critical regional targets is transparently presented.

▶ ICAO and ECAC

You have recently attended ECAC Directors General Special meeting in Turkey, at the end of August 2015. How do you see the role of ECAC from your perspective of Secretary General of ICAO?

ECAC is instrumental to ICAO's ability to maintain pan-European relations beyond the EU membership, not to mention assisting us in building on relevant EU achievements where appropriate.

It also serves to 'stand-in' for ICAO at major European meetings and events where our direct resources cannot be present, in addition to helping in the development and maintenance of inter-relationships with regional organisations and other States outside of Europe.

ECAC's role as coordinator of European positions on key strategic issues is also important and I would hope to see greater levels of coordination and cooperation between ECAC and ICAO's EUR/NAT Regional Office in Paris in the coming months and years, especially where *No Country Left Behind* capacity-building and our new goals to enhance SARPs implementation and aviation development are concerned.

Since September 2010, an additional MoC has been in place between ECAC and ICAO. What do you see as the most important activities which the two organisations could pursue together in this connection?

The most important objective of the 2010 MoC was to improve the general level of coordination and cooperation being undertaken by ICAO's EUR/NAT Office and ECAC. In other words, the regular exchange of information on respective activities, the organisation of joint meetings/ seminars in fields of common interest, joint attendance at each other's technical meetings, and related cooperative objectives at the leadership and secretariat levels.

Aviation safety, air traffic management, security and facilitation, and environmental protection are the areas where this enhanced cooperation is expected to deliver the most helpful results.

Besides the ongoing work on our current Strategic Objectives and the technical assistance and capacity-building we are engaged in under *No Country Left Behind* to improve SARP implementation, I would highlight that joint efforts promoting the ratification of the Montreal 1999 and 2009 treaties, as well as the Beijing 2010 treaties, by both ECAC and other ICAO EUR/NAT Region Member States, continue to be a priority for us.

Similarly, the general goal to promote greater harmonisation in State legislation, regulations and procedures, with ICAO's SARPs, policies and guidance material, is a key objective of this improved cooperation. ■

Dr. Fang Liu is the Secretary General of the International Civil Aviation Organization (ICAO), having been appointed for a three-year term beginning August 2015. Prior to her appointment, Dr. Liu served for eight years as the Director of ICAO's Bureau of Administration and Services (ADB). Previously, Dr. Liu served the General Administration of Civil Aviation of China (CAAC), where over the course of twenty years she successively held the posts of Legal Counsel, Deputy Director, Director and Deputy Director General, Department of International Affairs and Cooperation. She was responsible for China's international air transport policy and regulations, bilateral and multilateral relations with international and regional organisations including ICAO, the World Trade Organization, the Asia-Pacific Economic Cooperation (APEC), the European Union, and the Association of Southeast Asian Nations (ASEAN). During her career with the CAAC, Dr. Liu was elected chair of the Aviation Group of the Asia-Pacific Economic Cooperation (APEC) and was nominated by China to sit on the Air Transport Regulation Panel in ICAO. She also served as an expert on mediation and dispute resolution. She was chief negotiator for the Chinese government for bilateral and multilateral air transport agreements with foreign countries.

Dr. Liu earned a PhD in international law at Wuhan University, China, and a Master's degree in air and space law at Leiden University, the Netherlands. She is the Director of the Association of Air Law of China and of the Association of Private International Law of China, and has published articles and delivered lectures on a wide range of topics in international air transport regulation and air law. She speaks Chinese and English and has knowledge of French.



Aviation development outlook in China

Jean-Philippe Dufour

Aviation and aeronautics advisor to the French Embassy in China

Air transport in China has increased almost six-fold since 2000 in terms of the number of passengers carried, to reach 390 million in 2014. Over the same period, the activity of Chinese airlines rose from 12 to 74 billion revenue passenger-tonne kilometres performed. This activity has demanded a considerable increase in the fleet of commercial aircraft in service; from 450 aircraft in 2000 (which included 90 Airbus planes) to 2,400 at the end of 2014 (including 1,100 Airbus, i.e. approximately 50% of over 100-seater planes).

The bottom line is that air transport has developed by an average 15% a year over the past ten years. Its development reflects Chinese economic growth overall (+10.5% on average a year between 2005 and 2014). After more than a century of decline, China got back on its feet in 1949, opened up its economy to the West in the 1980s and the country, now the world's second economic power since 2009, has regained status as a major global business player.

Therefore, the French authority in charge of the air sector, the **Directorate General for Civil Aviation (DGAC)**, decided in 2007 to have a permanent presence in China manned by a seconded executive. More generally, the DGAC has set up a network of experts in civil aviation and the aeronautical industry within the economic services of French embassies in Brazil, China, India, Russia and the United States – and at the French Representation to the ICAO in Montreal – to contribute to developing relations with France's main partners in these economic sectors. These agents are primarily responsi-

ble for fostering relations with foreign authorities (dialogue on respective positions and interests, technical cooperation actions) and for supporting the development of French economic players (watching foreign markets, supporting commercial or investment contracts).

In China, the “Civil Aviation and Aeronautics” representative of the French Embassy works closely with the representation in China of the European Aviation Safety Agency (EASA), with the diplomatic representations of the other Members States and the European Union and with the European Union Chamber of Commerce in China whose “Aeronautics and aviation” task force brings together the main economic stakeholders.

Beyond noting the development of air transport in recent years, the outlook for Chinese aviation in the short and medium term should be considered, and the main inherent challenges for China analysed. In proportion to the Chinese population, air traffic is still little developed (there are four times less air passengers per inhabitant than in Europe) and the future rise in the standard of living will continue to mechanically fuel growth in air transport. Although the national context is one of relative slowdown in Chinese economic growth (probably of the order of 5% on average per year in future), the latest analyses carried out by aircraft manufacturers and specialised firms in the second half of 2015 estimate that the air transport market and aviation sales in China should continue to grow at around 5 to 7% per year over the

next two decades. Regarding the aviation sector, the general effects of China's economic slowdown should be offset by specific growth drivers: we can mention the rapid development of low cost airlines and the increase in the “long-haul” segment in legacy airlines as well as the macro-economic development trends of the service sector and the rebalancing of growth factors in favour of household consumption.

In the end, we can reasonably conclude that the development of Chinese aviation should continue over the next twenty years, but at a slower pace than over the past two decades. As a result, China should remain the principal market for aircraft sales in the world and it will no doubt eventually match Europe and North America in terms of aircraft fleets and traffic.

In this context, we must prepare to rise to the numerous challenges that future air traffic development will bring, both in this country and the rest of the world, to guarantee optimal safety, economic efficiency and environmental sustainability. Among the different issues to be resolved, four deserve to be spotlighted as they are emblematic of the role Europe is expected to play: (i) what consequences will the emergence of Chinese aircraft manufacturers have, (ii) how can we support the modernisation of air traffic management in China, (iii) how can Europe-China air traffic be organised on a basis of fair competition between Chinese and European airlines and (iv) how will market-based measures to combat climate change be used in aviation?

All aviation economic players agree that Chinese aircraft manufacturers will emerge

among the world leaders in the sector sooner or later insofar as, above and beyond the commercial interests, Beijing regards this development as a strategic objective and is taking the necessary steps to achieve it. Furthermore, aviation is a cornerstone of the Chinese industrial modernisation programme “*Made in China 2025*”. This ambition lays particular emphasis on technical cooperation in aeronautical certification implemented at the request of the Civil Aviation Administration of China (CAAC) with EASA. Above all, the main aircraft manufacturers – including the European leaders – legitimately intend to move closer to their Chinese clients by establishing industrial operations in China while ensuring they retain their technological lead. On all these aviation issues, Beijing regards European players as stakeholders of primary importance, and they are respected and listened to.

Future growth in traffic means that extensive modernisation of air space management is vital.

In particular, priority reforms include a thorough review of the system of allotting slots at airports, better coordination between the different air traffic control regions and rebalancing between commercial and military users in favour of civil aviation. To be successfully carried out, such a project requires organisational changes (between civil and military authorities, *inter alia*) and human and equipment investments. The Chinese regularly express their wish to cooperate with private and public European players on these topics. A vast modernisation of air space management is precisely underway



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in Europe with the SESAR programme and the development of Sino-European cooperation on these questions is obviously in the two parties’ best interests.

Air traffic between Europe and China is expected to triple over the next twenty years,

whereas the rest of European activity outside Asia is only forecast to multiply twofold (intra-European, with Africa and America). Europe-China traffic therefore represents one of the main sources of growth for European carriers which should fully benefit from it alongside their Chinese partners. To do so, European and Chinese regulators must agree on rules that enable the activity to develop in fair and competitive conditions.

The environmental conditions in which Chinese air traffic should develop

will be decisive for the environmental sustainability of aviation overall, given the size of the Chinese market. This observation particularly applies to actions to limit carbon emissions to preserve the climate. Now, the implementation of a global offsetting market-based measure (MBM) is certainly essential, in addition to various technological measures, to achieve growth in aviation without any increase in emissions as of 2020. In China, as part of

experimental carbon emissions trading projects implemented since 2013 in seven pilot regions, domestic flights of airlines based in Shanghai are subject to the offsetting system (measure soon due for extension to Canton). This experiment with emissions trading in Europe and China should foster pragmatic talks on the use of MBM in aviation.

Ultimately, the development of Chinese aviation, its dynamism and its challenges illustrate Beijing’s search for its place in the globalised economy today.

Year after year, China is again becoming one of the world’s biggest economies – like it was until the 18th century – and this rebirth compels it to find a place on a par with its stature in an economy which, over several decades, has become globalised in its absence. Aeronautics and aviation are no doubt vital attributes of sovereignty to attain status as a global power. This is therefore a capital goal for China. But as powerful as it may be, it cannot succeed on its own. Europe has many political, technological and economic assets to assist and thus influence Beijing in this process. It is in our European interest, and in the collective interest, to take action along these lines, as our own position on the future global aviation scene is at stake. ■

Jean-Philippe Dufour has been the aviation and aeronautics advisor to the regional economic department of the French Embassy in China since September 2014. Trained as an engineer, he began his career at the Institut Géographique National before joining the Ministry of Foreign Affairs, and then the French Embassy in South Africa between 2003 and 2007. In 2007, Mr Dufour joined the French General Directorate of Civil Aviation and represented France at the ICAO Committee on Aviation Environmental Protection (CAEP) from February 2013 until August 2014.



The civil aviation landscape in Indonesia

Pak Suprasetyo

Director General for Civil Aviation for Indonesia

Indonesia in Numbers

Indonesia is the world's largest archipelago with 34 provinces and is located in a strategic position with abundant potential of natural resources. With a population of more than 250 million people making it the world's 4th most populous country, its stable economic growth and available investment opportunities have made Indonesia a significant business and tourism destination for the international community. Due to Indonesia's geographical position and substantial economic potential, air transportation is a very important factor in its national economic growth.

Indonesian airspace is located in the heart of the Asia-Pacific region and plays an important role as a bridge for the regional air space and transcontinental route network. Stretching from east to west along 3,264 NM with a total area of

2, 219, 629 square miles, the airspace allows for airline savings and greater efficiencies.

An airways Performance Based Navigation (PBN) facilitates and provides safety and efficiency on flights today, particularly in newer planes equipped with the latest satellite-based computer technology. An optional, more economical, flight level available with the parallel route PBN—can save significant fuel consumption.

The dual surveillance system provides safe and efficient separation

through 36 radar stations simultaneously monitoring and providing surveillance backed up by 30 ADS-B stations installed and covering all of Indonesian airspace. ADS-B of data sharing has been agreed with neighboring countries (i. e. Australia and Singapore) toward a seamless regional Air Traffic Management (ATM) to enhance the capabilities of each Air Navigation Service Provider (ANSP) at the same level.

HF, VHF and Extended Ranges (ER) covered our airspace as a communication facilities strengthening aviation safety assurance and are back up by data communications (ADS-CPDLC) that can reach all of the oceanic region in the Indonesian airspace.

Remarks	2009	2010	2011	2012	2013	2014*
Aircraft Enlist	1.009	1.122	1.209	1.324	1.434	1.455
Aircraft Operating	737	839	865	950	1.026	1.074
AOC 121	381	432	426	478	511	530
AOC 135	192	225	253	276	282	294
AOC 137, OC 91, PILOT SCHOOL & FASI	164	182	186	196	233	250

1 PASSENGERS	2010	2011	2012	2013	2014*
- Domestic	51.775.656	60.197.306	71.421.464	75.770.222	76.498.400
- International	6.614.937	8.152.133	9.938.291	10.964.559	10.252.461
TOTAL	58.390.593	68.349.439	81.359.755	86.734.781	86.750.861
2 GROWTH	2010	2011	2012	2013	2014*
- Domestic	18,18	16,27	18,65	6,11	0,96
- International	32,19	23,24	21,91	8,57	-6,49
TOTAL	19,62	17,06	19,04	6,4	0,02

Remarks	2010		2011		2012		2013		2014*	
	Amount	Growth	Amount	Growth	Amount	Growth	Amount	Growth	Amount	Growth
Pilots	6.874	6,55%	7.428	8,05%	7.948	7,00%	8.608	8,30%	9.341	8,52%
Flight Operation Officers (FOO)	3.097	9,51%	3.404	9,91%	3.679	8,07%	3.909	6,25%	4.093	4,71%
Flight Attendants (FA)	8.139	13,1%	9.150	12,42%	10.359	13,21%	12.190	17,68%	14.032	15,11%
Aircraft Maintenance Engineer License Holders (AMEL)	5.963	3,21%	6.279	5,31%	6.827	8,72%	7.199	5,45%	7.535	4,68%

SUPPORTING FACTORS TO AIR TRANSPORT SERVICES NEEDS

To ensure domestic and international connectivity, Indonesia is supported by 18 airlines serving scheduled flights and 47 airlines serving non-scheduled flights.

The Indonesian Directorate General of Civil Aviation (DGCA) has issued permits for 294 routes connecting 113 cities in the country, served by 18 airlines (15 for passenger and three for cargo). For international routes, Indonesia's DGCA has issued permits for 56 routes which connect eleven cities in Indonesia with 28 cities abroad. These routes are served by nine domestic airlines (six passenger and three cargo airlines).

PIONEER ROUTES

To create access, encourage development in remote areas of Indonesia, and in order to promote the national economy, DGCA Indonesia has developed the so-called pioneer routes using a subsidy mechanism. Pioneer routes play a crucial role in national and regional economic development in the country.

Currently, there are 170 routes connecting 24 provinces and 165 cities. At present, there are 33 fleets consisting of DHC-6 (Twin Otter), CESSNA 208B (Grand Caravan), and PILATUS PORTER (PC-6) to accommodate these routes.



Air Transport Services

In order to improve air transport services, the DGCA of Indonesia commits to give transparent, effective and efficient service by providing technology-based information. The Directorate of Air Transport as the working unit which is responsible for preparing the policies and standardisation in Indonesia's air transport sector, has launched a user friendly, technology-based information service for the flight approval online application, flight route permit online application, airlines licenses application, on-time performance report on line application and hub payment.

SLOT TIME COORDINATOR

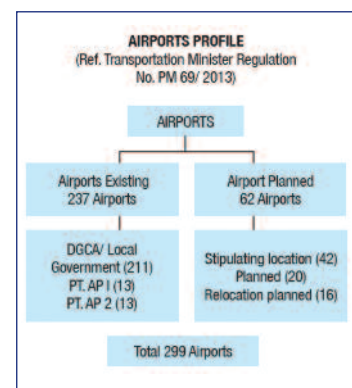
To support a fluent time slot setting, based on the Regulation of the Minister of Transportation No.PM 13 of 2015 on the implementation of all location of airport flight time availability (slot time), the time slot arrangements in Indonesia, which were once performed by the Indonesian Slot Time Coordinator, has now been accommodated by an organisation named the Indonesian Airport Slot Management (IASM).

NATIONAL AIRLINES

Garuda Indonesia, one of the national airlines, serves as a full service carrier and provides low cost carrier services to multiple Indonesian destinations under its subsidiary PT Citilink Indonesia. Founded in 1949, the airline is now one of the world's leading airlines and the newest member of the exclusive group of 5-Star Airlines by Skytrax.

The airline operates regularly scheduled flights to a large number of destinations in Southeast Asia, East Asia, Middle-East, Australia and Europe from its main hubs in Jakarta, Surabaya, Medan, Denpasar, Balikpapan and Makassar. Presenting a new level of service excellence in air travel, Garuda Indonesia seamlessly connects 76 destinations worldwide to not only one of the largest economies in Southeast Asia, but also an array of exotic locations in the beautiful archipelago of Indonesia all at once. With close to 600 daily flights and a fleet of 169 aircraft with an average age of less than five years, Garuda Indonesia serves its passengers with the award-winning "Garuda Indonesia Experience" service, which highlights Indonesia's warm hospitality and rich diverse culture.

As the airline embarked on its transformation programme covering all aspects of the company starting in 2005, the International Air Transport Association (IATA) certified Garuda Indonesia as a registered operator under the IATA Operational Safety Audit (IOSA), a global best-practice standard for flight operations, aircraft maintenance and safety management systems, in 2008.



The progress of Garuda Indonesia's transformation programme can be seen from achieving a Skytrax 5-star airline rating, ranked as the 7th best airline in the world in the 2014, as well as winning the prestigious "World's Best Cabin Crew" award in 2014 and the "World's Best Economy



Class" award in 2013, also from Skytrax. Garuda Indonesia has also been named the best airline of the Asia and Australia region by the Airline Passenger Experience Association (APEX) for two consecutive years.

NATIONAL FACILITATION COMMITTEE

In order to facilitate and promote reliable aircraft services, the DGCA of Indonesia has established a National Facilitation Committee (FAL) and Airport Facilitation Committees in each province of the country. The Indonesian DGCA is acting as the lead coordinator of the committee and working closely with other institutions such as Customs and Excise, Immigration, Health Quarantine, Animal and Plant Quarantine and others.

To ensure optimum service, the Immigration Authority is implementing border control management and passenger analysis units in all international airports of Indonesia. Immigration, Customs and DGCA are currently coordinating to implement the Advanced Passenger Information System

AIRPORTS DEVELOPMENT IN INDONESIA

(APIS) at all international airports. To further improve air transport services, Indonesia is dedicating special attention to the efforts to develop and improve the facilities in its national airports. Based on Minister Regulation Number 69 of 2013 on Airport Affairs, Indonesia has currently 237 airports located between Sabang and Merauke, with 29 among those being international airports. Indonesia also plans to build 62 new airports.

Airport expansion and development demonstrate Indonesia's goal to improve air transportation services to meet public needs. It has also become a key consideration for Indonesia's major expansion of Terminal 3 of Soekarno-Hatta International Airport-Banten, Labuan Bajo Airport-Komodo Island, Supa-

dio Airport-Pontianak, and for the establishment of Kerta Jati Airport-Krawang, as well as the relocation of Temindung Airport-Samarinda.

To support the implementation of the ASEAN Open Sky Policy 2015 and the AFTA agreement, Indonesia has prepared its five international airports to support those policies, i.e. Kuala Namu International Airport-Medan, Soekarno-Hatta International Airport-Banten, Juanda International Airport-Surabaya, Ngurah Rai International Airport-Bali, and Hasanuddin Airport-Makassar. These five international airports were chosen based on their readiness level in complying with the policies of the ASEAN Open Sky Policy.





► International cooperation

As an ICAO Member State, Indonesia always strives to comply with all the Annexes, Standards and Recommended Practices that have been published by ICAO on aviation safety and security. Indonesia underwent ICAO USOAP audits in 2009 and 2014, and set the establishment of corrective action plans to follow-up on the audits' results as a priority, in order to ensure full compliance with ICAO requirements.

Recently, Indonesia hosted several major ICAO events. It was an honor and a pleasure for Indonesia to host, in particular: The ICAO Air Services Negotiation Event, from 17 to 21 November 2014, in Bali; the USOAP & CMA Regional Workshop, from 30 April to 2 May 2014, in Jakarta; and the International Green Aviation Conference (IGAC), in August 2015, in Bali. In the future, Indonesia is hoping to be able to contribute more to both technical and non-technical programs of ICAO.

BILATERAL AND REGIONAL COOPERATION

To be able to advance the national air transport sector, Indonesia recognises the importance of establishing technical cooperation on civil aviation with other countries and international organisations. With this purpose in mind, Indonesia is actively involved in international cooperation without neglecting national interests. It has mutual cooperation with 75 countries in the form of Bilateral Air Service Agreements and closely cooperates in the frame work of multilateral cooperation of the Indonesia, Malaysia, Thailand Growth Triangle (IMT-GT), the Brunei, Indonesia, Malaysia, Philippines East ASEAN Growth Area (BIMP-EAGA), ASEAN, APEC, D8, and World Trade Organization (WTO).

To increase the safety and security of its flights, Indonesia has also formed close technical partnership cooperation on civil aviation with

some countries including the USA, Japan, Australia, France and the Netherlands. It has also engaged in partnerships with two regional civil aviation bodies, the African Civil Aviation Commission (AFCAC) and the European Civil Aviation Conference (ECAC).

In 2014, Indonesia signed a Cooperation Arrangement with ECAC to foster cooperation specifically on safety and accident investigation, security, environment and other topics of common interest.

The participation in international events and meetings, the organisation of training activities and of joint initiatives are also foreseen under the Cooperation Arrangement, which is perceived by the DGCA of Indonesia as an important element to forge closer ties with Europe in the field of civil aviation. ■

Pak Suprasetyo is the Director General of Civil Aviation, Ministry of Transportation, Republic of Indonesia. He graduated in 1985 from Gadjah Mada University, Yogyakarta, Indonesia with a Bachelor in Chemical Engineering and thereafter received specialised training at the Indonesian Civil Aviation Institute (ICAI) and other training institutions in aviation security and related civil aviation subjects. He began his career in the Directorate General of Civil Aviation in 1992 as Chief of Terminal Operations and continued as Chief of Rescue and Fire Fighting Services and then as Deputy Director, Aviation Security Standardisation and Emergency Services. From 2007 to 2011, he was posted as Transportation Attaché at the Embassy of the Republic of Indonesia in Washington DC, USA. From 2011, he was Deputy Director of Quality Control in the Directorate of Aviation Security and then Deputy Director of Emergency Services. In 2014, he became Head of the Airport Authority at Soekarno-Hatta Airport, Jakarta, and in early 2015 he was appointed Director General of Civil Aviation.



The Australian approach to economic regulation of the aviation industry

Stephen Brothwick

General Manager, Aviation Industry Policy Branch of the Australian Department of Infrastructure and Regional Development

► Introduction

Australia is a geographically vast island nation with a small, highly urbanised population, located some distance from the world's major population and trading centres. Consequently, the nation is heavily reliant on airline services for the timely transport of passengers and cargo, and an efficient and competitive aviation market is critical to Australia's economic performance.

Despite our relatively small population, Australians are highly mobile and our nation remains one of the most open aviation markets in the world, both internationally and domestically. Australia pursues a 'light-handed' approach to regulation of airlines and airports, with the primary objective of supporting a safe, competitive and productive aviation transport industry. This approach provides industry with certainty and creates an incentive to plan and invest for the long term, to maintain our excellent safety record and safeguard the interests of travellers, airport users and those affected by aviation activity.

Since the process of liberalisation and privatisation began in 1992, passenger and international aircraft movements have trebled. Underpinning this is a longstanding policy of maximising flexibility in a way which enables industry players to remain nimble and responsive to the challenges of a highly volatile industry. The openness of the Australian market is acknowledged by the OECD, which has ranked Australia's air transport services industry as the most liberalised of all 34 OECD coun-

tries and six major emerging economies. Maintaining a liberal, focussed approach to economic regulation in the aviation industry has been the key to unlocking the Australian aviation market's potential.

► Airlines

The aviation sector is estimated to contribute AUD\$41.3 billion to Australia's GDP per annum, and is forecast to add 2.4 per cent in total net new jobs growth over the years 2013-2018⁽¹⁾. The aviation sector also indirectly supports employment in the mining industry (which employs 54,900 people and generates AUD\$160 billion in export earnings), and the supply chain/logistics industries (which employed 373,500 people in 2013 with revenues of AUD\$19.1 billion in 2014-15)⁽²⁾.

The Australian domestic aviation passenger transport industry is dominated by a small number of airlines competing at various levels of intensity for increased market share. Smaller operators provide important specialist services such as remote area aviation, charter services and other general aviation activities such as flight training, surveillance and crop spraying.

In the domestic market, there is no economic regulation of air serv-

ices (passengers and cargo) by the Australian Government, leaving Australian-based airlines free to operate any flights and serve any markets they deem commercially viable. While there is state government regulation of entry and capacity on some thin intra-state routes⁽³⁾, most intra-state and all inter-state routes are free of these restrictions. Domestic airlines may be 100% foreign owned, subject to consideration by the *Foreign Investment Review Board under the Foreign Acquisitions and Takeovers Act 1975*, which provides an economy-wide framework for managing foreign investment. In this respect, Australia is one of the few countries to have opened its domestic aviation industry to Mode 3 services imports via the commercial presence of foreign investors⁽⁴⁾. This framework promotes a strongly competitive industry that benefits the tourism industry and the broader community.

International aviation forms a significant part of Australia's aviation industry. Australia has two major international airline groups – Qantas Group and Virgin Australia Group. Some international passenger routes are served by Qantas' low-cost subsidiary Jetstar International, and Tigerair Australia (part of the Virgin Australia Group) has announced it will commence international services from March 2016.

(1) Transport and Logistics Industry Skills Council Ltd, *2015 Transport and Logistics Environmental Scan*, 9.

(2) Tourism Australia, *Tourism 2020 Overview*, 2011.

(3) Generally this regulation is part of a Community Service Obligation and may be accompanied by subsidies to airlines operating services on routes that are otherwise commercially unviable.

(4) The World Trade Organisation gives the following example of Mode 3 consumption of services: "The service is provided within an 'importing country' by a locally-established affiliate, subsidiary, or representative office of a foreign-owned and controlled company (bank, hotel group, construction company, etc.)."

In 2014, Australian international airlines ranked among Australia's largest employers, with Qantas Group employing 32,841 people⁽⁵⁾ and Virgin Australia Group employing over 9,400⁽⁶⁾. Reflecting its history of public ownership, Qantas was previously subject to separate foreign ownership restrictions in the *Qantas Sale Act 1992* which limited total ownership by foreign airlines to 35 per cent and ownership by a foreign individual to 25 per cent. In contrast, other Australian international airlines are only subject to an overall 49 per cent foreign ownership limit under the *Air Navigation Act 1920*. On 18 July 2014, the *Qantas Sale Amendment Act 2014* passed through the Australian Parliament, aligning Qantas' foreign ownership restrictions to those imposed on other Australian international airlines.

Of the 32.378 million international scheduled passenger movements in 2013-14, the share of traffic accounted for by Australian designated airlines was 29.9 per cent⁽⁷⁾. The importance of this industry underpins the Government's policy to seek the removal of barriers in air services arrangements which restrict the growth of this significant services export industry.

The Department of Infrastructure and Regional Development (the Department) is responsible for negotiating Australia's air services arrangements with foreign economies. In all aviation talks the Department seeks to increase global aviation liberalisation, negotiate the removal of barriers to access and ensure we have the capacity necessary to meet future demand, while recognising the need to protect our national interest.

In its bilateral agreements, Australia typically seeks to negotiate third and fourth freedom rights in two separate capacity allocations. Third and fourth freedom rights at Australia's four 'gateway' points (Sydney, Melbourne, Brisbane and Perth) are often subject to a weekly capacity limit, expressed either in a maximum number of services or maximum number of seats that can be offered by airlines of both sides. In many bilateral arrangements Australia also looks to negotiate a separate entitlement – the 'Regional

Package' – which provides for unrestricted third and fourth freedom rights to/from the rest of Australia's international airports.

Due to the Australian Government's longstanding policy of keeping available capacity entitlements ahead of airline demands, in the vast majority of Australia's aviation markets sufficient capacity entitlements are available to permit continued growth in the market.

Australia's competition framework as it applies to airlines

The principal agency responsible for enforcing and regulating airline competition is the Australian Competition and Consumer Commission (ACCC), an independent statutory authority with legislated responsibility for regulating competition across the entire Australian economy, including the aviation market.

Briefly:

- The ACCC enforces Australia's competition, fair trading and consumer protection laws pursuant to the Competition and Consumer Act 2010 (Cth). This includes taking action and/or accepting court enforceable undertakings to remedy breaches of:
 - the trade practices provisions of the Act such as anti-competitive practices that substantially lessen competition, the misuse of market power and cartel conduct, and mergers and acquisitions that have the effect or would be likely to have the effect of substantially lessening competition in any market; and
 - the consumer protection provisions of the Act, including misleading or deceptive conduct by businesses and misrepresentations with respect to price.

As these laws apply to the aviation sector, the Australian Government does not consider aviation specific regulation of the type implemented in other jurisdictions to be necessary in the Australian context.

- The ACCC has the power to authorise airlines to engage in certain

anti-competitive arrangements, including airline alliances, when it is satisfied that the public benefits outweigh the public detriment, including from any lessening of competition. Decisions about the public benefits and detriments likely to result from such arrangements are made by the ACCC following a public consultation process. To grant authorisation, the ACCC must be satisfied that in all the circumstances: the benefit to the public outweighs the public detriments constituted by any lessening of competition that would likely result; and the public benefit is such that the conduct should be authorised.

- The capacity available to Australian international airlines under bilateral air services arrangements is allocated for existing and prospective routes by the International Air Services Commission in accordance with the *International Air Services Commission Act 1992* (Cth). This also includes capacity under code share arrangements. The IASC is empowered to approve applications for capacity on public benefit grounds⁽⁸⁾. Parties that receive IASC approval are not exempt from general competition and consumer laws, including those enforced by the ACCC.
- Notably, while Australian legislation includes provisions to direct that details of proposed tariffs be submitted for approval our policy approach is not to exercise these provisions in favour of a market-based approach to determining airfares.

▶ Airports

The regulation of aviation infrastructure has also followed the long-term trend toward liberalisation and deregulation, although some restrictions remain on foreign ownership of federal leased airports and some elements of service provision by airport corporations at such airports.

(5) *Qantas Data Book 2014*, 19.

(6) *Virgin Australia Annual Report 2014*, 28.

(7) Tourism Australia, *Tourism 2020 Overview*, 2011.

(8) See the *International Air Services Commission Act 1992* (Cth) and associated regulations.

Ownership

The operation of Australia's twenty-one major airports was privatised between 1997 and 2003 by selling long term leases over airport sites to private sector operators. The Department regulates ownership and control matters at federal leased airports in accordance with the provisions of the *Airports Act 1996* (the Act) and associated regulations. The key objects of the Act in relation to airport ownership are to:

- ensure majority Australian ownership of Airport Operator Companies (AOCs - 49% limit on foreign ownership);
- limit the ownership of certain airports by airlines (5% limit on airline ownership);
- ensure diversity of ownership and control of certain major airports (15% limit on cross-ownership of certain airport pairs); and
- promote the efficient and economic development and operation of airports.

The Department conducts an annual review of ownership matters relating to federal leased airports to monitor AOCs' compliance with Part 3 of the Act and associated Regulations.

One of the explicit objects of the Act is to ensure majority Australian ownership of federal leased airports. As such, the majority of the paid up capital, voting power, and rights to distributions of profits and capital of each company holding an airport lease and each management company for a leased airport should be Australian.

Airport price monitoring

The Australian Government recognises that a degree of regulation is required to minimise the potential misuse by airports of their market power and the capacity for airports to provide services below community expectations or to neglect the

maintenance of essential national infrastructure.

The ACCC monitors pricing and service delivery at the four major airports, reporting annually on prices, costs, profits and the quality of service levels related to the supply of aeronautical services / facilities and car parking and transport services at the four largest airports: Brisbane, Melbourne, Perth and Sydney airports. Part of the price monitoring regime includes the ACCC monitoring quality of certain airport services and facilities. The objectives of quality of service monitoring are to assist in the assessment of an airport operator's conduct in a prices monitoring environment; and improve the transparency of airport performance to:

- discourage airport operators from reducing standards for services that are associated with significant market power;
 - provide further information to users of airport facilities, including passengers and the aviation industry, as a basis for improved consultation and negotiation on pricing and investment proposals; and
 - assist the Government in its industry analysis and inform public debate.
- The ACCC also assesses notified price increases sought by Sydney Airport in relation to the provision of regional air services and by AirServices Australia in relation to air traffic control and aviation rescue fire-fighting services.

Slot management

Slot management or slot coordination is implemented at all of the major international gateway airports in Australia. Management of slots for all domestic and international flights occurs at Sydney, Brisbane and Perth. International flights require slots at Melbourne and Adelaide along with Australia's secondary

gateway airports including Gold Coast, Cairns and Darwin. The management of slots across Australia's gateway airports is undertaken in line with global practices established by industry through IATA. Slot Management at Sydney Airport is governed by the *Sydney Airport Demand Management Act 1997* and several associated legislative instruments. This body of legislation sets out a framework for the long-term management of demand at the Sydney Airport.

Slot management underpins a night-time curfew of between 11pm-6am at Sydney and Adelaide airports and a movement cap so no more than 80 runway movements may occur in any hour. These measures are an essential element limiting the impact of noise on the community and achieving balance between the efficient use of the airport and broader environmental impacts. The legislation also reflects unique policy priorities for the Australian Government such as guaranteed slots for New South Wales based regional services during peak operating periods and greater access for new entrant airlines to maximise competition and benefit consumers.

Conclusion

Australia's aviation industry is unique in that it provides safe and efficient services to an entire continent – a continent where but for the availability of reliable air transport services, our cities and our remote communities would be subjected to the 'tyranny of distance'. Our aviation economic framework ensures that vital links between remote, metropolitan and international destinations are maintained while ensuring the long-term sustainability of the industry. ■

Stephen Borthwick is the General Manager, Aviation Industry Policy Branch of the Australian Department of Infrastructure and Regional Development. His broad range of responsibilities include overseeing Australia's international and domestic aviation policy settings and managing Australia's bilateral air services negotiations program. He took up his appointment in April 2006. Mr Borthwick has held a number of positions within the Department of Infrastructure and Regional Development. He has been extensively involved in policy development and implementation in a wide range of transport areas since the early 1990s. Mr Borthwick's academic background is in economics. He completed a Bachelor of Economics (Honours) at the University of Sydney in 1987.

Civil aviation cyber security: possible actions by regulators and stakeholders

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The challenges faced by the global civil aviation industry regarding cyber security threats are an emerging concern for all stakeholders. Cyber security attacks and breaches that can disrupt security and operations have been recognised as a real threat in many sectors. In the civil aviation sector, caution has been raised about whether cyber-attacks can allow hackers or persons with the desire to cause an act of unlawful interference to cripple civil aviation operations. These include breaking into aircraft navigation and control systems, interfering with radar and communications systems, and affecting and corrupting various airport systems. The consequences of any successful cyber-attack on civil aviation operations can be catastrophic with the potential of causing human casualties and damage to critical infrastructure. These concerns are compounded by the fact that airlines, airports, and other stakeholders, viz., ground handling companies, security service providers, fuel companies, cargo agents, etc., are increasingly reliant on modern and advanced computer and information technology and communications (ICT) systems to raise the efficiency of their operations.

In recent years, civil aviation stakeholders have been paying more attention to the challenges posed by cyber security to civil aviation operations. In 2014, the International Civil Aviation Organization (ICAO), the International Air Transport Association (IATA), the Airports Council International (ACI), and the Civil Air Navigation Services Organiza-

tion (CANSO) issued a joint action plan on civil aviation cyber security to address these challenges. The IATA also developed a cyber security tool kit for airlines, while many other airports, air navigation service providers and aircraft manufacturers, also undertook various measures to strengthen the security of their operations against cyber security threats.

Despite the actions being pursued by civil aviation stakeholders, there are many who are still grappling with the challenges posed by cyber security threats to their operations. One of the key areas that would be helpful is to raise awareness and promote dialogue amongst stakeholders on their perspectives on

among airport operators, airlines, aircraft engines manufacturers, ground handlers, security service providers, security equipment providers, international organisations, regulators and other relevant aviation security stakeholders. The conference was attended by 200 delegates from sixteen countries, featuring 30 speakers and moderators from regulators and industry, including the European Civil Aviation Conference (ECAC), and with keynote speeches delivered by Mr Pang Kin Keong, Permanent Secretary, Singapore Ministry of Transport; Mr Raymond Benjamin, then Secretary General of ICAO, and Mr Tony Tyler, Director General and CEO of IATA.



tion. In this regard, the Singapore Ministry of Transport (MOT), the Civil Aviation Authority of Singapore (CAAS), in partnership with the ICAO and IATA, organised a conference on civil aviation cyber security from 9 to 10 July 2015. This conference was aimed at promoting the collective awareness of cyber threats

There were lively discussions between the speakers and participants. Several key points were highlighted which were useful in charting the way forward for civil aviation regulators and industry. These included considerations regarding preventive measures, response, as well as contingency and recovery actions in the event

of a cyber-attack on civil aviation operations. The conference noted that on average, 116 targeted attacks on companies worldwide are registered every day with many more undetected. Attackers were also assessed to be present in a victims' network for 243 days before detection. The civil aviation sector is particularly at risk, not only because cyber-attacks are more likely to happen in a sector that had component parts that were highly interdependent, but also because the civil aviation sector currently possesses only average cyber defence mechanisms.

One key point that resonated with all the speakers and participants was the need for stakeholders to take responsibility to address and deal with cyber security threats. This includes demarcating responsibility starting at the global level, where delegates agreed that it would be useful and practical for the ICAO to establish a global framework for civil aviation stakeholders to address and deal with the challenges of cyber security. This framework could contain a set of common principles, guidelines

system, given the greater dependency and larger surface area vulnerability that stakeholders would face from potential cyber security attacks. At the stakeholders level, it is important that each stakeholder establishes its own set of responsibilities and actions needed to protect their operations against cyber security threats. There was agreement that common global standards to deal with cyber security threats in the civil aviation sector should be threat-based, risk-managed and outcome-focused, and had to be practical, sustainable and avoid duplication of security requirements. Such standards should be developed between regulators and industry in order for much better appreciation of the challenges, measures and standards required.

All stakeholders would also benefit from identifying cyber security threats as early as possible. In this regard, it was important for the civil aviation sector to develop a greater understanding of the vulnerabilities and threats from possible cyber-attacks and to develop ways in which such attacks can be quickly identified and addressed.

cyber-attacks on the civil aviation sector, and that the ICAO and stakeholders could use to develop effective preventive and responsive measures.

With greater system interdependencies between and across airport operators, airlines and stakeholders, sharing of information and best practices amongst agencies on civil aviation cyber security challenges and measures taken would be useful. The sharing of information and best practices can help States and stakeholders to jointly and collectively detect trends, identify threats and develop effective measures against cyber security threats. International collaboration amongst States, organisations and industry was strongly encouraged as the threat of cyber security is a global one that goes beyond borders and boundaries.

Training of civil aviation personnel to be aware of the threat and risks posed by cyber security attacks are important. With relevant and appropriate training, civil aviation personnel could help to detect anomalies or raise alert on any suspicious developments and activities which could prevent or contain a cyber-attack on their operations. In addition, it would be essential to train civil aviation professionals across the different parts of the eco-system to enable them to respond to cyber security attacks and activate appropriate measures and contingency actions quickly, so as to minimise disruption to civil aviation operations. In the near future, more aviation security courses with focus on addressing cyber security challenges will be needed. It will also be necessary to train and recruit future teams of aviation security specialists and auditors to be familiar with cyber security vulnerabilities and measures, to enable them to identify the critical gaps and work to strengthen the aviation security system.

Enhancing the aviation security culture across the civil aviation industry to include a greater appreciation of cyber security threats is also needed. If top management



and approaches that regulators and industry can take in dealing with cyber security towards preventing acts of unlawful interference against civil aviation operations. At the State level, it is also important that the aviation security authorities develop and provide regulatory oversight to deal with cyber security threats. The regulatory oversight regime should cover the whole civil aviation sector and all players in the civil aviation eco-

As cyber-security is driven by both threat evolution and new technology trends, the building blocks of people, process, technology, and systems must come together to ensure that there is a capability for identifying and mitigating threats. The conference appreciated the work being pursued by the ICAO Aviation Security Panel's Threat and Risk Working Group, which includes making periodic assessments on the threats and risks of



embraces the need to address the threats from cyber security, and lends strong support for training of personnel and invest in resources to deal with these threats, the civil aviation industry will be strengthened and able to address such threats effectively. The reporting of suspicious and possible cyber security attacks should also be encouraged, so that stakeholders can respond effectively or take remedial actions early.

The global civil aviation landscape transforming at a very fast pace with the use of new and more sophisticated advanced technology and processes. With this comes greater challenges posed from cyber security threats. While many States and stakeholders in the global civil aviation community are aware of the seriousness and catastrophic consequences that can

come about from cyber threats, many of them may not necessarily be ready or equipped to deal with such challenges, at the individual entity and national levels. It is therefore critical to raise awareness and encourage the relevant aviation security authorities and all stakeholders to undertake the re-

sponsibility of addressing the threats, risks and vulnerabilities from cyber security attacks, as well as to develop relevant and effective policies, plans and measures, to mitigate these threats. The cyber frontier is massive and the surface area for cyber-attacks is increasing. There are numerous inroads which terrorists and malicious persons can use to conduct cyber-attacks on civil aviation services providers, stakeholders and their critical infrastructure. Therefore, it is crucial that the ICAO, aviation security authorities, industry and all civil aviation stakeholders, jointly collaborate to raise the level of awareness, develop practical and sustainable policies, approaches, guidelines and measures, including training and capacity building programmes, to protect and mitigate against cyber threats faced by the global civil aviation system. ■



Bernard Lim is Director for International Relations and Security with the Ministry of Transport, Singapore. His key responsibilities include formulating and managing policy matters concerning international relations, transport security and climate change.

Mr Lim was previously with the Ministry of Defence and the Civil Aviation Authority of Singapore (CAAS). He has held various positions in areas such as Airport Management and Ground Operations, Air Transport and Air Services Negotiations, International Relations, Aviation Security and Emergency Preparedness. At the international level, Mr Lim served as the Vice-Chairman of the International Civil Aviation Organization (ICAO) Aviation Security (AVSEC) Panel from March 2009 to March 2011, and then as Chairman from March 2011 to April 2015. He was a member of the ICAO's Secretariat Study Group (SSG) on liquids, aerosols and gels (LAGs) (2007) that developed the ICAO guidelines on the hand carriage of LAGs. He served as the Rapporteur of various ICAO AVSEC Panel Working Groups, viz., Guidance Materials (2009-2011); Screening of Non-Passengers (2011-2012) and the Working Group that developed the ICAO Comprehensive Aviation Security Strategy 2011-2016. He has been the Rapporteur for the Working Group on Air Cargo Security since 2012 and in June 2015, he took on the role of heading the newly formed ICAO AVSEC Panel Task Force on the security of remotely piloted aircraft systems (RPAS). Mr Lim is also the Vice-Chairman of the Asia-Pacific Economic Co-operation (APEC) Aviation Security Experts Sub-Group (since 2008).

Mr Lim is a certified ICAO Aviation Security Instructor and has spoken at various international AVSEC conferences and seminars. He also conducted many AVSEC training sessions, including courses for Directors General of Civil Aviation.



ICAO's developments on flight tracking

Sven Halle

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As a result of significant events such as the tragic disappearance of Malaysia Airlines flight MH370 in March 2014 and the accident of Air Asia Flight QZ8501 in December 2014, a number of activities related to the global flight tracking of aircraft were initiated by the International Civil Aviation Organization (ICAO) during 2014. The first results of this work were presented at the second High Level Safety Conference in February 2015.

A special multidisciplinary meeting regarding global flight tracking was held in Montreal in May 2014, where over 200 experts concluded that global tracking of airline flights should be pursued as a matter of priority in order to provide early notice of, and response to, abnormal flight behavior. This meeting also concluded that a draft concept of operations (CONOPS) on flight tracking should be developed, which includes a clear definition of the objectives of flight tracking, defines roles and responsibilities of all stakeholders and addresses that information is provided in a timely fashion to fully support any kind of search and rescue, recovery and accident investigation activities. In addition, the meeting also established a framework (conclusions and recommendations) for near-, medium- and long-term tracking of airline flights.

Under the ICAO framework, the International Air Transport Association (IATA) established an Aircraft Tracking Task Force (ATTF) which started in June 2014 to examine, with experts from the whole avia-

tion industry, the options for improving aircraft tracking with an emphasis on existing equipment and capabilities. The ATTF developed a document which outlined the characteristics of a routine flight tracking process taking into consideration existing aircraft capabilities and distinguishing between air traffic control (ATC) surveillance systems and those used by air operators for other flight-following purposes. The ATTF document (report and recommendations) also described its relation to the broader CONOPS which addresses the role of governments, airlines and air navigation service providers in both routine and non-routine aircraft tracking situations. The ATTF report addressed aircraft tracking in terms of existing coverage, practices, and technologies. Finally, based on a review of existing technologies and best practices, the ATTF report defined useful performance criteria, which established a baseline for aircraft operators that elect to implement or enhance aircraft tracking capabilities in the near-term. These criteria were based on existing aircraft capabilities, equipment and industry best practices, which should facilitate the implementation in near future.

In addition, ICAO also established an Ad Hoc Working Group (AHWG) tasked, in the same timeframe as the ATTF, to develop a longer-term and more strategic aircraft tracking concept of operations (CONOPS) that would also address the search and rescue (SAR) activities. The Global Aeronautical Distress and Safety System (GADSS) CONOPS

was developed as a high-level system with a description of users and usages of flight tracking information during all phases of flight, both normal and abnormal flight conditions including timely and accurate positioning of an aircraft in distress. The GADSS CONOPS includes all identified phases of such a sequence, including the detection of an abnormal situation, alert phase, distress phase and further search and rescue activities. Furthermore, it also considers the responsibilities of different actors and vulnerabilities to single-point failures. The CONOPS does not prescribe specific technical solutions for flight tracking but provides scenarios that can be used to verify whether a specific solution complies with the concept. The CONOPS is divided into six sections: introduction, improvement areas in current operating environment, high-level requirements, target concept, concept steps and concept scenarios. The GADSS CONOPS must also be seen as an overarching framework (complementing the ATTF report) which is going to further guide the ICAO's work programme on any future development of provisions, guidance material and other activities regarding flight tracking, search, rescue and recovery, and accident investigation.

At the second High Level Safety Conference (HLSC 2015), the GADSS CONOPS was presented and further discussed. The Conference participants provided suggestions and recommendations to enhance the GADSS CONOPS with specific text, proposals for provisions, and

the inclusion of a performance-based approach. The envisaged plan to finalise the GADSS CONOPS by the third quarter 2015 was supported by all participants. The conference was also updated on the search for MH370 and the lessons learned from this tragic occurrence, in particular the challenges and suggestions to improve search and rescue (SAR) activities through regional SAR organisations. It agreed that regional SAR training exercises related to abnormal flight behavior can serve as a means to maintain proficiency on seldom used emergency procedures and also provide feedback to the further development of the GADSS CONOPS. The conference, recognising the essential role of cockpit voice recorders (CVR) in the prevention of civil aviation accidents and the need to increase CVR recording duration in order to prevent the loss of relevant data, noted and fully supported the ongoing work on extending the recording duration of cockpit voice recorders. It also supported the proposed review to improve the interaction between Annex 12 — Search and Rescue and Annex 13 — Aircraft Accident and Incident Investigation when search and rescue operations are completed but searching continues to locate the aircraft for investigation purposes.

With regards to the flight tracking technology, the conference noted the ATTF Report and especially the set of performance-based criteria that could be used to establish a baseline level of aircraft tracking capability. Additionally, the report also identified future technologies that could support flight tracking in oceanic and remote airspace such as satellite-based automatic dependent surveillance – broadcast (ADS-B). In this regard, the conference supported that ICAO should encourage States and the International Telecommunication Union (ITU) to discuss allocation requirements at the World Radiocommunication Conference in 2015 (WRC-15) to provide the necessary frequency spectrum allocations to enable global air traffic services (ATS) surveillance.

It agreed that there is a need for provisions requiring operators to determine the position of an aircraft at any time in any location and that States, air navigation authorities and the industry should begin the voluntary implementation of global tracking using available technologies as a matter of urgency.

These conclusions were even further supported with the adoption of new 15-minute aircraft tracking performance standard in normal flight conditions, which is the first-ever requirement for aircraft operators to track the position of their aircraft on a global basis. This recommended Standard in Annex 6 – *Operations of Aircraft (Part I - Aeroplanes)*, requires that aircraft oper-

ators shall establish an aircraft tracking capability to track aeroplanes throughout its area of operations. Operators shall track the position of an aeroplane at least every 15 minutes for the portion(s) of the inflight operation(s) that is planned in an oceanic area(s) under the conditions that the aeroplane has a maximum certificated take-off mass of over 27,000 kg and a seating capacity greater than 19, and where an ATS unit obtains aeroplane position information at greater than 15 minute intervals. This new standard is performance-based and not prescriptive, meaning that aircraft operators would be able to meet it using the available and planned technologies and procedures as described in the ATTF report⁽¹⁾.

ICAO UNITING AVIATION HLSC2015

Upcoming Normal Tracking SARPs

Performance-based Standards and recommended practices for normal flight tracking

- No changes to ATC procedures
- Establish operator responsibility to track
- Not technology-specific
- Establish communication protocol between Operator and ATC
- Oceanic areas where ATC gets position information more than every 15 min
- Aeroplanes with a take-off mass in excess of 27,000 kg and more than 19 seats

Timelines

- January 2015**
 - Preliminary review by ICAO ANC
- March 2015**
 - State Letter
- November 2015**
 - Adopted
- November 2016**
 - Applicable

ICAO UNITING AVIATION HLSC2015

GADSS Components

Aircraft Systems	Air Traffic Services	Search & Rescue Systems	Information Management
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- Most lead time
- Forms the baseline for any future developments

Procedures developed to make full use of additional Aircraft capabilities

To be integrated into the work programme beginning in 2015 to be available when equipage requirements are applicable

(1) These current proposals will require no changes to existing ATC procedures or aircraft equipage.



The process for the consultation of these non-technology specific performance based Standards and Recommended Practices (SARPs) started with the circulation of State Letter AN12/2015 at the end of February 2015 and ICAO is currently working on an expedited basis to review/refine all details of the tracking requirement with ICAO's 36-State Council (supported by the Air Navigation Commission) by the end of 2015. The proposed amendment to Annex 6, Part I is envisaged for applicability from 10 November 2016 onwards, as recommended by the High Level Safety Conference (HLSC 2015).

This global aircraft tracking implementation initiative must be seen as the first important step in the implementation of the three-tiered approach for global aircraft tracking covering normal, abnormal and distress conditions. Over the next years, ICAO will also be developing requirements⁽²⁾ and assistance measures for global aircraft tracking in abnormal and distress conditions, which will require more time due to their complexity and potential reliance on new technologies. These developments will be in full compliance with the finalised GADSS concept and ICAO will continue to work in close coordination

with all aviation stakeholders and the aviation industry in order to develop achievable and sustainable global aircraft tracking provisions.

Finally, ICAO has also launched on 22 September 2015 a new centralised online information area for aircraft tracking developments on the ICAO public website (http://www.icao.int/safety/global_tracking/Pages/Homepage.aspx). It provides a detailed timeline, and all supporting reports and documentation relating to the call for and realisation of the world's first global aircraft tracking requirements. This new information area responds also to calls from the HLSC to lead the conduct of a Normal Aircraft Tracking Implementation Initiative (NATII) using existing technologies. A NATII Steering Committee, with global participation, was formed and the Asia/Pacific Region was selected as a representative area of operations for this initiative. ■

(2) An additional requirement was recommended for performance-based flight tracking at one-minute intervals during abnormal/ distress operations. This is intended to determine the location of an aircraft accident site within 6 Nautical Miles and is a longer-term goal under the GADSS concept of operations.

Sven Halle works as Safety Regional Officer in the ICAO European and North Atlantic Office in Paris, France. He joined ICAO in January 2010 and is a Regional Officer, Air Navigation Systems Implementation (Air Traffic Management) with a focus on the support to the States in the Eastern part of the ICAO EUR Region, the implementation of the regional performance framework, civil/military cooperation issues, the crisis management and the inter-regional coordination aspects. Mr Halle started to work as an Air Traffic Controller in 1984 with the Berlin Aeronautics Unit and after the German reunification joined the German Air Navigation Service Provider as an ATC-Expert. In 1995, he moved to DFS (Deutsche Flugsicherung GmbH) Headquarter in Frankfurt, Germany where he started to work in the Air Traffic Management Systems Domain and on Airborne Collision Avoidance Systems (ACAS). As head of the operational ATM-System unit, he became an active member of several international civil (ICAO, Eurocontrol) and also military (NATO) working groups. In 2006, he was seconded to the European Commission DG TREN (Transport and Energy) Air Transport Directorate in Brussels, Belgium, where he was responsible for the development of Community Specifications, the support to Implementing Rules activities and the coordination of all standardisation/certification activities under the Single European Sky Regulations.



News from the JAA Training Organisation (JAA TO)

Some changes have taken place at JAA TO recently. The Chairman of the JAA TO Foundation Board and Director General of Civil Aviation of Italy has taken the functions of acting Director for a transition period. Daily operations will be run by the Deputy Director Ms. Paula Almeida.

▶ JAA TO celebrates its 10th Anniversary

A decade ago, in 2005, the Joint Aviation Authorities Training Organisation (originating from the former Joint Aviation Authorities) started off as a separate organisation, providing regulatory aviation safety training courses mainly in the fields of Maintenance and Certification. Since then, the JAA TO has expanded significantly to a current portfolio of more than 300 training courses across eight different fields of expertise. Besides developing courses, the JAA TO also achieved some huge milestones in the past ten years: becoming full ICAO TRAINAIR Plus

Programme (TPP) member, being nominated as the 1st ICAO Regional Training Centre of Excellence (RTCE) for the European and North Atlantic region and obtaining RITO (Ramp Inspection Training Organisation) approval by the Dutch CAA, to name a few. JAA TO aims at making aviation safety training globally available to the next generation of aviation professionals by continuing to strive for the best training methods, the highest course quality, and finding ways to train professionals in the latest developments and insights in aviation safety.

▶ JAA Training Organisation accepted as EASA Virtual Academy member



On 19 October 2015, the JAA Training Organisation (JAA TO) officially became a member of the EASA Virtual Academy. The European Aviation Safety Agency (EASA) initiated the EASA Virtual Academy to ensure that harmonised and high-quality training is available to the staff of Member States (MS) National Aviation Authorities (NAAs).

JAA TO has been selected by EASA through an approval procedure as a qualified external training organisation to provide training within the scope of the EASA Virtual Academy. The training is limited to regulatory courses that support the qualification of MS NAAs personnel involved in approval and oversight activities and includes the following training course fields: Initial Airworthiness, Continuing Airworthiness, Air Operations, Aircrew Licensing, Aircrew Medical, Aircrew FSTD, Aerodromes.

The EASA Virtual Academy is expected to play an important role in maintaining and developing the competencies of National Aviation Authorities' staff.

▶ New training courses

> AVIATION STRATEGIES AND INTRODUCTION TO AIR TRANSPORT MANAGEMENT

This course is focused on providing a global understanding of the air transport industry by analysing various aviation strategies and business models, to increase the knowledge and capabilities of participants in order to improve their performance.

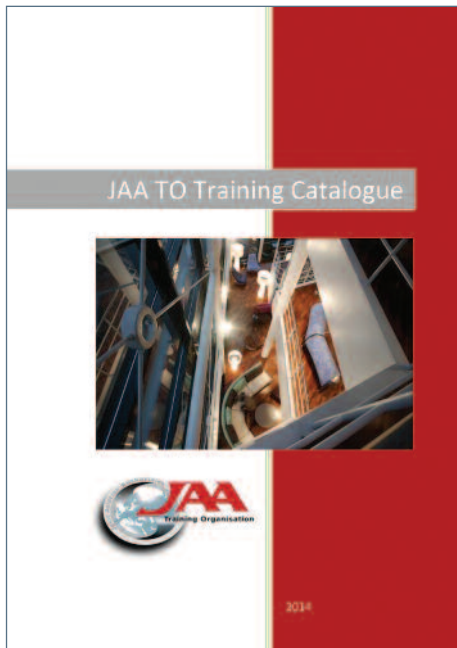
> FAMILIARISATION/AWARENESS ON RPAS REQUIREMENTS

With the publication of ICAO's Manual (Doc 10019) and EASA A-NPA 2015-10, JAA TO has introduced a new course on the challenges related to Remotely Piloted Aircraft Systems (RPAS, also called "drones"). It covers all the relevant evolving international and European concepts, rules and standards applicable to RPAS.

> SAFE-RUNWAY OPERATIONS TRAINING COURSE

This course is a practical training in addressing runway safety-related topics, runway incursion prevention and runway excursion mitigating measures.

.../...



> EASA SPO (SPECIALISED OPERATIONS)

The course will introduce the new EASA Commission Regulation (EU) No 965/2012. It is designed for any organisation that wants its management personnel to grasp a deeper understanding of the EASA SPO's implications for itself and for the NAA overseeing it.

> CONTRACTING & CONTRACT MANAGEMENT

This two-day course is dedicated to a detailed analysis of contracting and sub-contracting with regard to aircraft management with references to operations, maintenance and insurance. It focuses on the financial consequences of specific contractual clauses.

▶ MERGED COURSE

EASA Air Operations Management Team Workshop - Flight Operations & Crew Training

As Crew Trainers and Flight Operators need to be able to take over in each others' absence, this training has been designed to combine the Crew Training and Flight Operations courses into one. The combination will benefit both parties with an enriched content and interactions between both groups of participants.

▶ ONE-DAY COURSE

Implementing a "Just Culture" within your organisation: why?

The "Just Culture" is possibly one of the major steps forward towards a safer aviation industry. Human error still being the largest contributor to incidents, there is a need to investigate more often and more deeply. However, human error is a normal by-product of human performance and, when there are no adverse consequences, most errors remain unknown. These errors, regardless of whether they lead to negative consequences or not, need to be recorded. In order to do so, staff needs to be invited to report their daily errors on a voluntary basis. This can only happen in a context where people realise that by reporting their errors, they contribute to making the industry safer but that there will be no repercussions towards them. Hence the notion of a "Just Culture", a culture in which everybody feels free to speak up about errors, about problems within the organisation, about leadership issues, etc.

Implementing a "Just Culture" requires an effort from the whole organisation and it may take a long time before its effects become visible and measurable. The organisation must demonstrate its trust in a "Just Culture" by taking the necessary steps to allow its development. JAA TO's one-day "Just Culture" course provides all the information needed by those who are in charge of its implementation, to not only know what to do but also to gain a deeper understanding of the rationale behind it.

Participants will leave the course with a deeper understanding of the notions of human error, human information processing and their relation to safety. They will have all the necessary background and knowledge to take the measures that will allow for a "Just Culture" to develop successfully in their organisation. ■

▶ Member States News

New Directors General were appointed in:

- > Ireland – Mr Fitan Towey
- > Greece – Mr Konstantinos Lintzerakos
- > Moldavia – Mr Mircea Maleca
- > Spain – Mr Raul Medina Caballero
- > Portugal – Mr Luis Miguel Ribeiro
- > Ukraine – Mr Eduard Diomin (Acting)



▶ Special Meeting of Directors General of Civil Aviation (DGCA(SP)/64)

At the kind invitation of Turkey, Directors General met for their sixty-fourth special meeting (DGCA(SP)/64) in Bodrum from 27 to 31 August 2015. Chaired by President of ECAC Ingrid Cherfils, the special meeting was joined by several European members of the ICAO Council and by newly-appointed ICAO Secretary General Fang Liu, who delivered a welcome address. Ms Liu shared her priorities for ICAO during her tenure, and her vision for the European role at the global level, underlining that Europe remains one of the leaders in aviation. Representing the host country, Turkish Deputy Undersecretary for Transport Özkan Poyraz delivered the opening speech, in which he emphasised the importance of harmonising aviation requirements at both regional and global levels, and presented Turkey's key priorities in the field of aviation. Among other topics discussed during the meeting, a strong focus was

▶ Composition of the Co-ordinating Committee (November 2015)

- > **Ingrid Cherfils** – DGCA Sweden – President
Focal Point for External Relations
- > **Patrick Gandil** – DGCA France – Vice-President
Focal Point for Environmental Matters
- > **Bilal Ekşi** – DGCA Turkey – Vice-President
Focal Point for Pan-European Matters
- > **Gerold Reichle** – DGCA Germany
- > **Peter Müller** – DGCA Switzerland
- > **Alessio Quaranta** – DGCA Italy
Focal Point for Training
- > **Pekka Henttu** – DGCA Finland
Focal Point for Safety
- > **Patricia Hayes** – DGCA United Kingdom
Focal Point for Facilitation and Security
- > **Dan Simonić** – DGCA Croatia
- > **Silvia Gehrler** – DGCA Austria
Focal Point for Economic Matters
- > **Mario Nemeth** – DGCA Slovakia

placed on next year's ICAO Council elections. In the environmental field, as a number of landmark events are coming up within the next six months (COP/21, GLADs), Directors General discussed the challenges ahead in order to further develop a strong European position. The latest initiatives at the EU level, at EASA and at EUROCONTROL were presented to the meeting by Margus Rahuoja (European Commission), Pierre Jaeger, Director General of Luxembourg, which currently holds the EU Presidency, Patrick Ky, Executive Director (EASA), and Frank Brenner, Director General (EUROCONTROL). Finally, Directors General also reviewed the status of ECAC's 2014-15 Special Projects Funds and were brought up to date on the latest developments in security matters. The new functionalities of the ECAC website, launched on 1 September, were also presented during the meeting.

▶ Co-ordinating Committee (CC/175)

In the margins of the Directors General meeting, the ECAC Co-ordinating Committee met on 28 August for their one hundred and seventy-fifth meeting (CC/175). The members, whose election took place during ECAC's Triennial Session in July, confirmed the allocation of the ECAC Focal Point portfolios and appointed a new member, Ms Silvia Gehrler, Director General for Civil Aviation in Austria, as Focal Point for Economic Matters. Finally, ECAC Executive Secretary Salvatore Sciacchitano presented his proposal for the future re-organisation of the Secretariat.



▶ Ad hoc Meeting of Directors General

On 16 October, European Directors General of Civil Aviation met in Paris for a one-day ad hoc meeting. With a single agenda item, ECAC Member States expressed their views on ECAC President Ingrid Cherfil's proposal for the next two rounds of elections to the ICAO Council (2016 and 2019), with a view to reaching an agreement on eight European candidacies. The proposal was approved by the meeting, while it was agreed that future discussions should take place in order to plan a European strategy beyond 2019.

▶ Co-ordinating Committee (CC/176)

On 10 November, the ECAC Co-ordinating Committee met in Paris for its one hundred and seventy-sixth meeting (CC/176), joined by the European Commission as observer. Amongst the topics discussed, a critical share of the exchanges focused on the 2016 ICAO elections and the strategic objectives ECAC members wished to pursue in the global arena. The meeting took stock of the preparation of a number of upcoming events, such as the ECAC Forum on 2 December and the Directors General meeting on 3 December (DGCA/145). It also reviewed the provisional agenda in view of its annual discussions with the United States government in 2016. Co-ordinating Committee members also agreed to convene the Special DGCA meeting next summer in Slovakia.



▶ ECAC is now on Twitter!

ECAC has joined the global social media community! Since November, ECAC's latest news has been available on Twitter. Major events, new publications and contributions to the hot topics at the centre of the aviation community today - this new platform should allow for lively interactions and up-to-date news dissemination. Follow us on @ECACceac!

▶ Events to come

DECEMBER

- 2/ Eighth ECAC Forum of Directors General, Paris
- 3/ One hundred and forty-fifth meeting of ECAC Directors General of Civil Aviation, Paris
- 7-9/ Eleventh Best Practices for National Auditors Level 2 course, Belgrade
- 8-10/ Twenty-fifth Plenary Session of AFCAC, Cairo

JANUARY

- 6-7/ Fifteenth meeting of the Coordination Group on Market Based Measures, Paris
- 13/ Sixteenth meeting of the Ad Hoc Group on Security, Brussels
- 13-14/ Thirty-seventh meeting of the Guidance Material Task Force, Paris
- 13-14/ Meeting of the European Committee on Aviation Environmental Protection Members, Observers (13) and stakeholders (14), Brussels
- 20/ Eighth meeting of the ECAC Network of Training Organisations, Paris
- 26/ Meeting of the Common Evaluation Process Management Group, Paris

FEBRUARY

- 1-3/ Sixty-third meeting of the Technical Task Force, Paris
- 3/ Twentieth meeting between ECAC Co-ordinating Committee and US Authorities, Paris
- 4-5/ Fourteenth annual meeting of ECAC auditors, Paris
- 4-5/ Joint seminar for Mediterranean States, Paris
- 9/ Fifty-seventh meeting of the Facilitation sub-group on the Transport of Persons with Reduced Mobility, Paris
- 14-15/ Airshow and Aviation Leadership Summit 2016, Singapore
- 15-16/ Twenty-second meeting of the Study Group on Cyber Threats to Aviation Security, Paris
- 16/ Tenth meeting of the Committee on Aviation Environmental Protection, Montreal
- 16/ Forty-first meeting of the Facilitation Sub-Group on Immigration, Paris
- 18/ Twenty-eighth meeting of the Legal Task Force, Paris



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