

ICAO

INTERNATIONAL CIVIL AVIATION ORGANIZATION

Road to Recovery

On the heels of a very tough year for global aviation, 2010 GDP projections are finally providing our sector with some welcome, though still cautious optimism. ICAO's Economic Analysis and Policy Section looks at how bad it really got post-2008 and how tentative the ongoing recovery remains.



State Profile Features:
The Republic of Korea **and** Malaysia

Also in this issue:

Jane Hupe: Aviation and the Environment Post COP/15 • UAE Climate Change Perspective
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THE ICAO JOURNAL
VOLUME 65, NUMBER 2, 2010

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Submissions
The *Journal* encourages submissions from interested individuals, organizations and States wishing to share updates, perspectives or analysis related to global civil aviation. For further information on submission deadlines and planned issue topics for future editions of the *ICAO Journal*, please forward your request to info@philbin.ca.

Subscriptions and single copies
Yearly subscription (Six Issues per year) US \$40.
Single copies available for US \$10. For subscription and sales information please contact the ICAO Document Sales Unit,
Tel: +01 (514) 954-8022
E-mail: sales@icao.int

Published in Montreal, Canada. ISSN 0018 8778.

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Beyond COP/15

Though the failure of certain States to arrive in Copenhagen with clear domestic policy positions ultimately led to the collapse of a potentially urgent international deal on climate change, ICAO's efforts in advance of and during the COP/15 proceedings helped to focus and bring unity to the aviation sector on a number of important fronts. Jane Hupe, Chief, Environment, reviews the work of the Organization pre-COP/15 and outlines the path for our sector as it looks to the coming opportunities to contribute to effective climate-related solutions 14

State Profile: Republic of Korea

As a forerunner and 8th largest market in the international air transport community, the Republic of Korea endeavours to take advantage of every opportunity to contribute to aviation innovation and success, and to promote open skies liberalization policies with other States. Along with its great success and confidence as it looks to its further contributions to the APAC Region and beyond, the ROK is striving to continuously take creative initiatives to face ever-present challenges for safety enhancement and to effectively respond to the evolving demands of global aviation 19

State Profile: Malaysia

Malaysia's airports handled more than 45 million passengers in 2007, more than 50 million passengers in 2009, and are expected to reach more than 55 million in 2012. In tandem with the rapid growth in passenger and cargo traffic in the Asia/Pacific (APAC) Region, as well as commensurate expansions in airline operations, the aviation and aerospace sectors in Malaysia have undertaken significant initiatives to meet the changing market demands that have been a direct off-shoot of the nation's rapidly globalizing air transport environment. A profile of this emerging force in APAC aviation 31

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Coordinated Climate Change Response: The UAE Perspective

Environmental protection and sustainable development are core elements of the UAE's policy agenda. The State is actively committed to stabilization of the global climate system, as evidenced by numerous initiatives and substantial investments in improved technology and infrastructure, but it remains opposed to the imposition of taxes, charges or adaptation levies on international civil aviation. Captain Aysa Al Hamili, Permanent Representative of the UAE on the ICAO Council, describes her State's priorities moving forward to address these important issues and the role which ICAO will need to play in any long-term solution. 40



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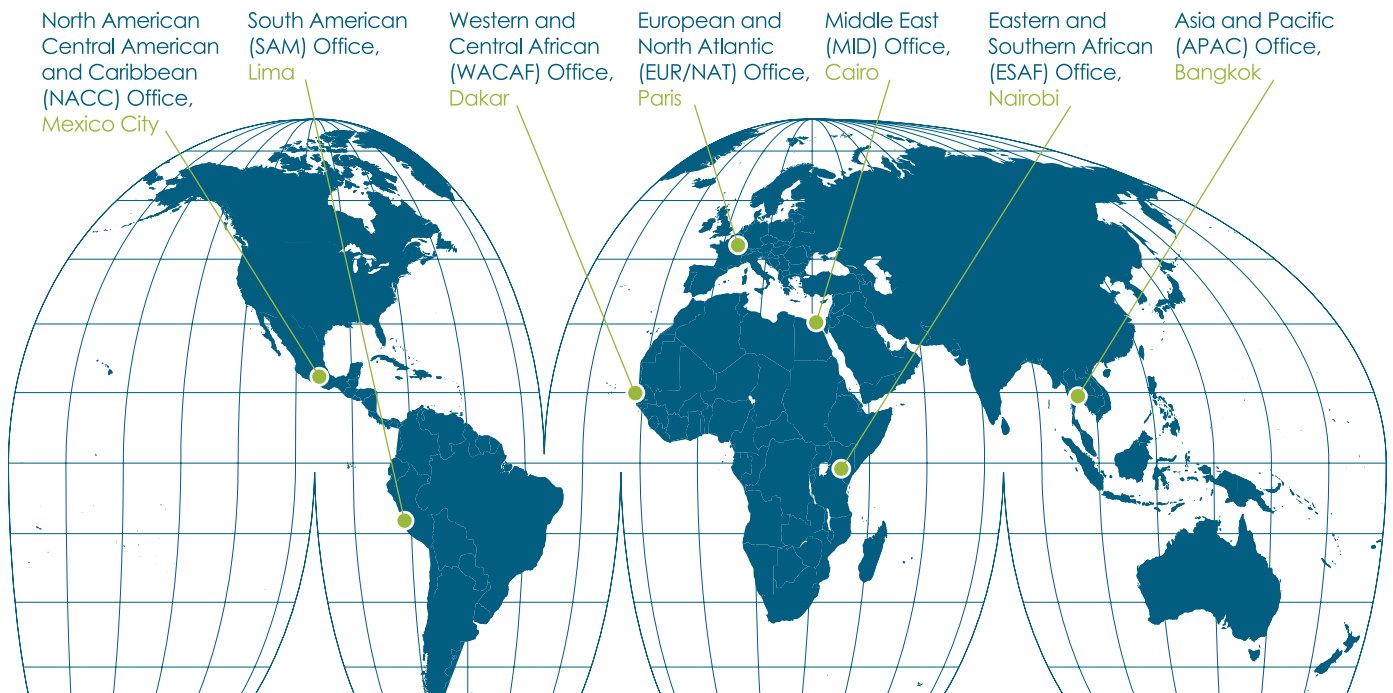
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ICAO's Global Presence



Keeping Safety and Security Strongly Supported

The safety and the security of the global air transport system should be considerably enhanced in coming years. My confidence in this assertion derives from the results of recent meetings on these subjects and from the expectations surrounding additional safety and security events scheduled for later this year and next.

Safety Developments

The ICAO High-level Safety Conference in March produced five important recommendations which will enhance our collective ability to increase the level of aviation safety around the world. The recommendations are based on meeting the three key targets of ICAO's Global Aviation Safety Plan (GASP).

The first GASP target calls for a reduction in the number of fatal accidents and related fatalities worldwide, irrespective of the volume of air traffic. While the trend in this respect is certainly positive, we must stay committed to doing everything possible to further reduce the number of fatal accidents.

The second GASP objective is a significant reduction in global accident rates. The concern here is that, while accident rates are low, they remain disturbingly unchanged. Future rate reductions are essential as the air transport system continues to grow.

The third safety-related target addresses the disparity in accident rates among ICAO's Regions and the fact that no one Region is supposed to have an accident rate exceeding twice the global average. This goal has not yet been reached as the true variances between Regional rates, and one in particular, still remain unacceptably high.

Participants to the March safety event were largely concerned with defining and implementing a fundamental shift in strategy so that the GASP targets can be met more successfully. This



implies complementing aviation's traditional prescriptive-based methodologies with a proactive safety management approach consisting of performance-based requirements.

This more proactive stance, in addition to the fostering of a less-punitive safety reporting culture, will together help lead to the identification of emerging safety issues before they result in accidents or incidents.

The first recommendation of the High-level Safety Conference was for a total commitment to the Continuous Monitoring Approach (CMA) regarding safety oversight. This supports the attainment of specific safety goals through the real-time sharing of information by States on the performance of their safety oversight systems. Associated results will include a more effective use of resources in assessing State compliance with ICAO guidance and the identification of more practical measures to correct deficiencies.

The second Conference recommendation called for the creation and implementation of a truly international safety information sharing mechanism. While a vast amount of safety data is routinely collected by various bodies around the world, it is not being effectively shared. All critical safety-

related information must be efficiently disseminated to the international aviation community and processed using globally-harmonized analysis methods.

A major step in this direction was made during the Conference with the signing by ICAO, the Federal Aviation Administration of the United States (FAA), the Commission of the European Union (EC) and the International Air Transport Association (IATA) of a new Declaration of Intent on the development of a Global Safety Information Exchange Agreement.

The third recommendation was actually the reaffirmation of the extremely productive role which Regional safety oversight organizations can play in improving safety. In many cases, individual States do not possess the resources or the expertise to act alone in resolving safety concerns. Regional organizations can help these States to combine their limited resources and to aggregate the data required for meaningful safety analyses in Regions with limited traffic volumes.

The fourth expectation was agreement on the development of a global organizational framework to protect the providers of sensitive safety data used for future information sharing initiatives. Without this protective framework, essential information will remain unavailable to ICAO and other organizations involved in the increasingly proactive analysis and resolution of global safety issues.

Finally, the fifth Conference recommendation was for the creation of a new Annex dedicated to Safety. A dedicated Safety Management Annex would not only reaffirm that safety is ICAO's primary focus, it would provide the clarity required to assist in the further implementation of Standards related to State Safety Programmes and Safety Management Systems. A new Annex would also facilitate a coordinated approach for the promulgation of the practices necessary to assure the

highest levels of safety throughout the international aviation system.

Action on Security

The attempted sabotage of Northwest Airlines Flight 253 on December 25, 2009, was the catalyst for a number of immediate, as well as additional medium- and long-term actions to cope with this and similar acts of terrorism.

Three Ministerial-level Regional Aviation Security Conferences were held in Mexico City, Tokyo and Abuja between February and April of this year and a fourth one is planned for Abu Dhabi in June. Participants to these events affirmed their commitment to fight terrorism, with particular attention to countering threats posed to civil aviation. The conferences emphasized the need to enhance international aviation security standards in order to respond more effectively to new and emerging threats, and the recommendations they made included: to broaden existing cooperation mechanisms among States and industry; to utilize modern technologies to detect prohibited items while respecting the privacy and safety of individuals; to strengthen and promote travel document security; and to seek to balance a high level of security with the facilitation of passenger travel.

For its part, following its Twenty-First Meeting this March, the Aviation Security (AVSEC) Panel produced recommendations to strengthen and support the ICAO AVSEC Programme, sustain and leverage political will, identify R&D and assistance resources, and to prevent complacency in aviation security.

The Panel also stressed that it was desirable to explore innovative uses of passenger data and their impact on enhancing security. It expressed its strong support for adopting and fully implementing existing means of achieving close international cooperation, including the sharing of threat information. It also developed a draft

Amendment 12 to Annex 17 in order to address new and emerging threats to civil aviation as well as regulatory gaps.

Later this year, the ICAO Assembly will be asked to adopt an amended Assembly Resolution A36-20, which covers acts of unlawful interference against civil aviation. The Resolution would reaffirm the critical importance of aviation security as one of the programmes being accorded the highest priority in the ICAO work programme. The Assembly is also expected to adopt the ICAO Comprehensive Aviation Security Strategy for the next two triennia, to succeed the Aviation Security Plan of Action adopted following the events of September 11, 2001.

The proposed strategy comprises the following seven focus areas: addressing new and existing threats; promoting innovative, effective and efficient security approaches; promoting the sharing of information amongst Member States; promoting global compliance and establishing sustainable aviation security oversight capabilities in States; improving human factors and security culture; promoting the development of mutual recognition for aviation security processes; and emphasizing the importance of security amongst all States and stakeholders.

In March 2011, a High-level Conference on Aviation Security will have as one of its objectives the endorsement of a globally-harmonized response to the Flight 253 incident. The Conference will bring together Ministers and high-level executives in order to build consensus, obtain commitments and formulate decisions deemed necessary for the effective implementation of counter-measures against threats to civil aviation by ICAO and its Members.

Throughout, ICAO will continue to work in close cooperation with all members of the global community in order to deal effectively with all threats to the security and integrity of the global air transport system. ■



Emerging From Crisis:

The 2009 Air Transport Year in Review

ICAO's Economic Analysis and Policy (EAP) Section compiles exclusive aviation data from the Organization's Member States. This makes it the only global source* for a wide range of data relating to global air transport activity—featuring statistics on more than 800 air carriers.

In her annual review of the state of the air transport sector in light of broader economic trends, Narjess Teyssier, ICAO EAP Section Chief, provides for the *Journal's* readership a detailed review of how the economic shockwaves of 2009 gave way to emerging, yet still conservative indicators of recovery in 2010.



Narjess Teyssier is ICAO Chief, Economic Analysis and Policy Section. In this role she is responsible for the statistics programme, the forecasting activities and the economic studies of ICAO, enabling the monitoring of the Organization's Strategic Objectives, including: Safety; Efficiency; and the Environment.

In addition, Teyssier also oversees the economic regulation of international air transport services by developing and providing ICAO policies on user charges and taxation for international air transport. Prior to this appointment she held a variety of marketing, sales and market research positions in the air transport industry, notably for a Regional air carrier and for Airbus, where she worked for over seven years.

In 2009 the world economy faced the most severe and synchronized recession since the Great Depression, leading to significant changes which heavily impacted the air transport industry. This difficult situation began in the first half of 2008, prompted by high fuel prices which peaked at \$150/barrel in July 2008, and was exacerbated in the second half of 2008 by the credit crunch and the near collapse of the global financial system—plunging the world into a downward spiral of recession which registered the first negative growth of the global economy since the Great Depression of 1929.

The freezing of credit markets has contributed to precipitous declines in world trade and industrial production. Mounting job losses and falling asset values are holding back consumer spending in discretionary areas like air travel, while deteriorating markets and tightening credit have forced operators to slash capacity, investments and payrolls.

Financial and Economic Crisis: Roots, Spread and Status

The roots of the 2009 economic crisis may be traced to the aftermath of the collapse of the 2001 Internet bubble, when U.S. interest rates were slashed to make borrowing easier in order to spur home buying. The lower-than-low rates were also used to further expand mortgage-based credit to the so-called NINJA (No Income No Job and Assets) borrower market.

A positive reinforcement loop was therefore established between increasing debt and housing prices, leading to the eventual collapse of the housing bubble in 2008.

Interest rates continued to be cut even further and the credit expansion flowed into commodity speculation and foreign currency. Oil, food and gold prices jumped to historic highs and the U.S. dollar depreciated to historic lows. As many foreign banks had bad U.S. mortgages on their balance sheets, a domino effect ensued toppling financial institutions in country after country, leading to the global crisis.

Airline Impacts

As a result of the plummeting stock market, the capital value of airlines halved in 2009 compared with early 2008, while

limited access to capital markets further complicated cash flow availability. The current crisis hit the air transport, tourism and services sectors harder than other areas of the economy and there continues to be a huge amount of uncertainty vis-à-vis the depth and duration of the current downturn as well as the timing and strength of what appears to be an emerging recovery.

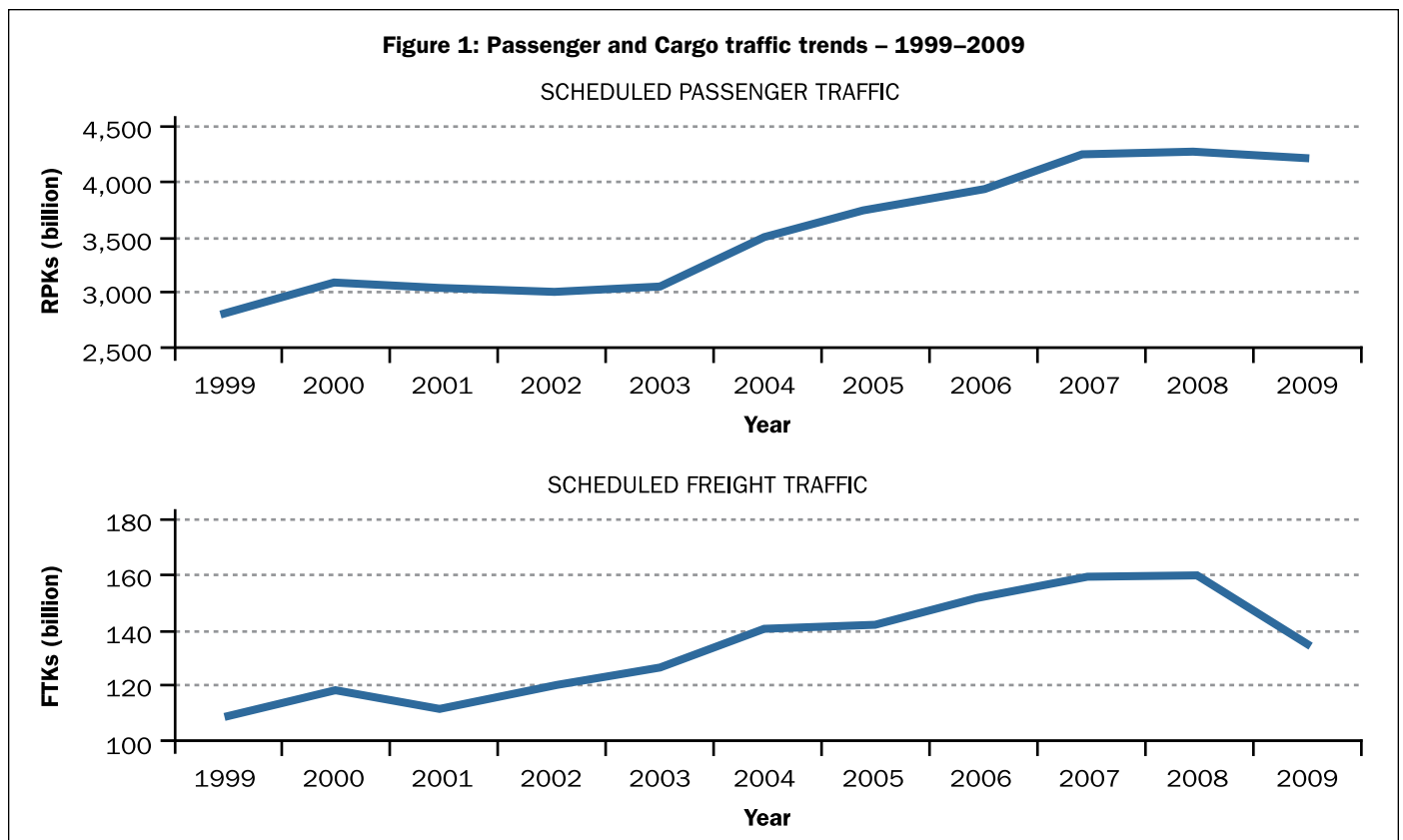
Indeed, this ongoing recession has heavily impacted air transport growth and profitability, as the leisure traveller has less or no cash to spend on holidays, and business clientele continue to employ technology-based alternatives to travelling by air for distant clients and meetings.

Together, these factors raise many critical questions regarding prospects for economic growth and its impact on the sustainable development of civil aviation activities. Because air transport is a value chain industry characterized by multiple stakeholders and various interdependencies, the failure of any one of them can have a domino effect on the rest of the sector.

Worst Ever Performance in 2009 for Air Transport

There is a direct relationship between declines in wealth and corresponding weakening in consumption and business investment.

Figure 1: Passenger and Cargo traffic trends – 1999–2009



Source: ICAO

In the first half of 2008, air travel demand was affected by higher fuel and commodity prices leading to increased airfares and a decline in consumer discretionary spending on leisure travel. This declining trend in air transport demand was amplified by the fallout from the global financial crisis in the second half 2008, culminating in the 2009 recession.

Additionally, the sharp decline in air transport spending by passengers and shippers over the past year further reinforced how the 2008 recession persisted into 2009. Reflecting a weak global economy, both the monthly passenger and cargo traffic indicators declined in 2009 from the prior year. This is despite 12 consecutive months of ticket price reductions intended specifically to give these indicators a boost.

The evolution of passenger and cargo traffic trends from 1999 to 2009 is

shown in Figure 1 (page six, bottom). The overall (passenger/freight/mail) revenue tonne-kilometres performed decreased some 6.4 percent over 2008, while international tonne-kilometres performed 7.8 percent below their 2008 levels.

It is estimated that the total (international and domestic) scheduled passenger traffic of airlines of ICAO Member States declined by some 3.1 percent in 2009 compared to 2008. This drop is the largest on record for the air transport industry. By comparison, a similar decline of magnitude, 2.9 percent, occurred in 2001 due to 9/11 ramifications and weak global economic performance.

International traffic in 2009 fell by 3.9 percent, while domestic traffic declined some 1.8 percent. All ICAO Regions except for the Middle East (MID), which saw an impressive 2009 increase of almost 10 percent, experienced declines in their respective traffic volumes.

The double-digit growth of domestic passenger traffic in the emerging markets of Asia and Latin America is reflecting to a certain extent the short-term actions initiated by some of the G20 states. The great majority of the G20 members have enacted large fiscal stimulus packages on both the borrowing and spending sides to offset the reductions in private sector demand caused by the crisis. The largest of these stimulus programmes were executed by the United States (two packages totalling nearly \$1 trillion during 2008 and 2009) and China (4 trillion Yuan or \$586 billion made available in November 2008), in order to support national consumption levels.

In addition, the relatively strong performance of Low-cost Carriers (LCCs) in North America, Europe and Asia/Pacific helped soften the severity of the decline in total traffic. In response to declining demand for air travel, capacity offered by airlines in terms of available

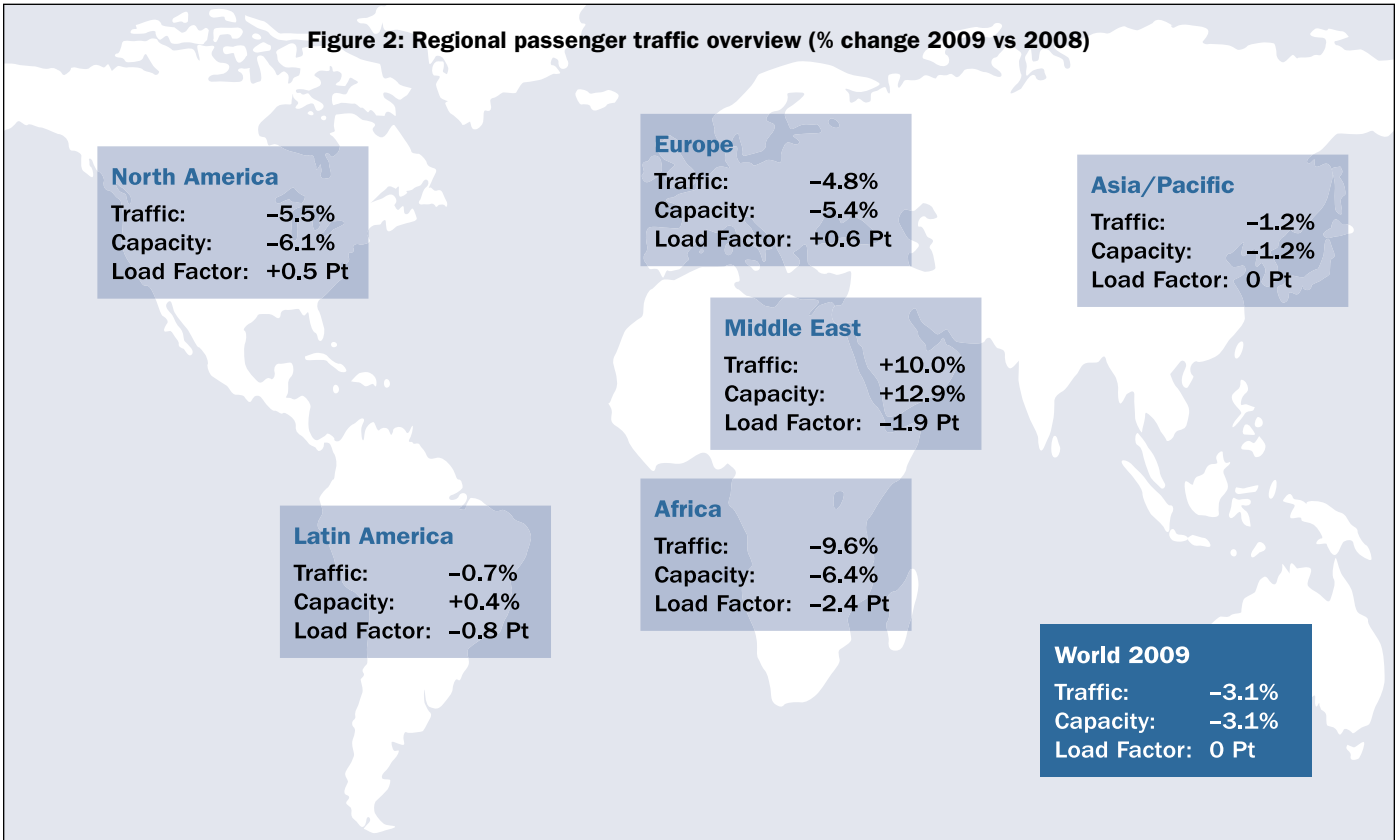
Table 1: Regional yearly traffic growth and market shares in percent (In terms of Passenger Kilometres Performed – PKPs)

Passenger traffic	International		Domestic		Total	
	Growth	Market Share	Growth	Market Share	Growth	Market Share
Africa	-8.9	3	-13.4	1	-9.6	2
Asia/Pacific	-7.1	25	7.6	31	-1.2	27
Europe	-4	41	-10.5	8	-4.8	28
Middle East	10	11	10.3	1	10	7
North America	-5.5	16	-5.5	54	-5.5	31
Latin America/Caribbean	-2.9	4	1.9	5	-0.7	5
World	-3.9	100	-1.8	100	-3.1	100

Source: ICAO

¹ICAO defines an LCC as "...an air carrier that has a relatively low-cost structure in comparison with other comparable carriers and offers low fares and rates. Such an airline may be independent, the division or subsidiary of a major network airline or, in some instances, the ex-charter arm of an airline group."

Figure 2: Regional passenger traffic overview (% change 2009 vs 2008)



Source: ICAO

seat-kilometres dropped by some 3.1 percent.

On the air cargo front, total (international and domestic) scheduled traffic is estimated to drop by some 15 percent in terms of freight-kilometres performed.

Freight traffic growth has been contracting much more significantly than the passenger figures suggest, despite a severe reduction in airline capacity. Freight volumes are generally a more straightforward reflection of the global economic situation because they directly reflect levels of global trade.

Since U.S. purchases alone accounted for more than a third of the total growth in global consumption between 2000 and 2007, the rest of the world had become very dependent on the U.S. consumer, who started saving rather than spending when faced with the 2009 recession. Therefore declines in growth elsewhere were similarly dramatic and

clearly reflected by the sharp drop in cargo traffic registered in 2009.

The air cargo traffic of the Asia/Pacific Region, the major contributor to air cargo traffic (approximately a 36 percent share of global totals), plummeted by some 14 percent, while that of the European and North American Regions (each accounts for about 25 percent of traffic) declined by roughly 18 percent and 17 percent, respectively.

Air Transport Industry Trends

Airline Challenges

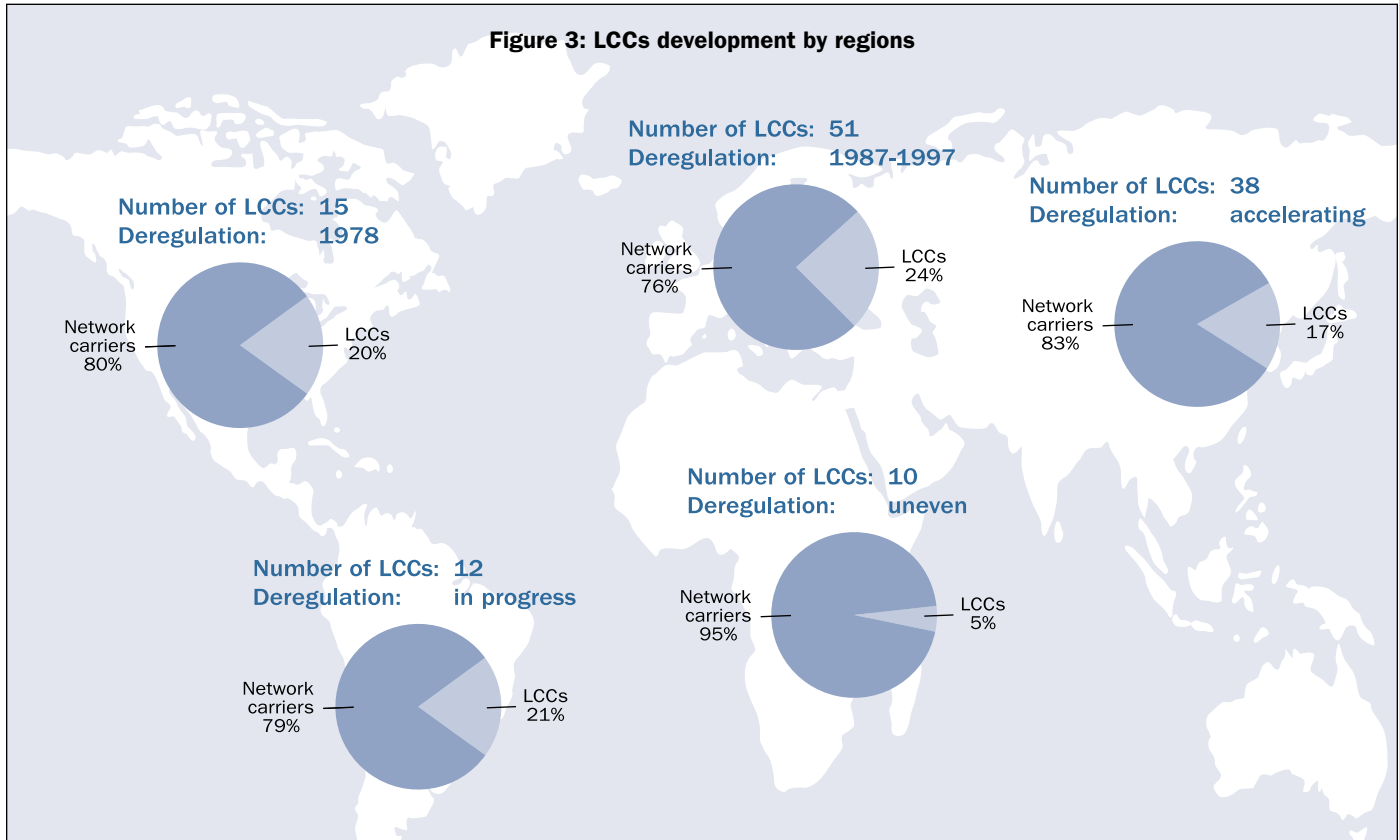
The air carriers have moved from a cost-side to a revenue-side crisis in a high operating-cost environment. In a context of stock market decreases, it was increasingly difficult to raise capital as there was less opportunity to borrow money leading to a high number of airline bankruptcies. In order to deal

with these traffic and revenue declines, especially on the premium segment (business travel), the following short-term solutions have been implemented by air carriers thus far:

- Aircraft capacity cutting (approximately 10 percent of the world fleet).
- Earlier retirement of older aircraft types (not always replaced by new ones).
- Frequency reduction and shutdown of several routes, hurting the quality of service.
- Delaying or cancelling orders for new aircraft.
- Substantial lay-offs (in North America and Europe, approximately 200,000 direct and indirect jobs have been lost).
- Discounted airfares to stimulate demand for air travel.

As indicated above, the preliminary 2009 results are revealing a passenger traffic collapse, with the exception of the LCC segment which seems to be particularly resilient during crisis

Figure 3: LCCs development by regions



Source: ICAO

periods. Liberalization is the necessary framework for LCC development and it has been evolving at various levels since the eighties. The success of the low-cost formula is based on the implementation of sustainable and significant cost advantages operating initially in domestic markets but, increasingly, also on international routes. The examples of Ryanair and EasyJet in Europe, Air Asia in Asia and Air Arabia and Jazeera Airways in the Middle East are the most significant examples of these trends.

Facing growing costs and competitive pressures, major network and charter air carriers have been forced to change their business priorities and concepts to develop alternative models for their operations. One of the models chosen by the major network airlines is to set up subsidiaries to handle operations on short-haul routes to be able to compete with LCCs and to avoid the potential threat of new entrants. This low-cost 'airline within an airline' strategy, despite the limited success of some earlier attempts, tries to combine key ingredients of LCC approaches with the reputation of existing brands.

This formula, developed mainly for domestic services (e.g., Click/Mexicana; Jetstar/Qantas; Nok Air/Thai Airways; Kulua/Comair and Mango/South African Airways) is also extending to international services (e.g., Jetstar Asia; Tiger Airways; Air India Express; BMI Baby; Atlas Blue; and Clickair are each

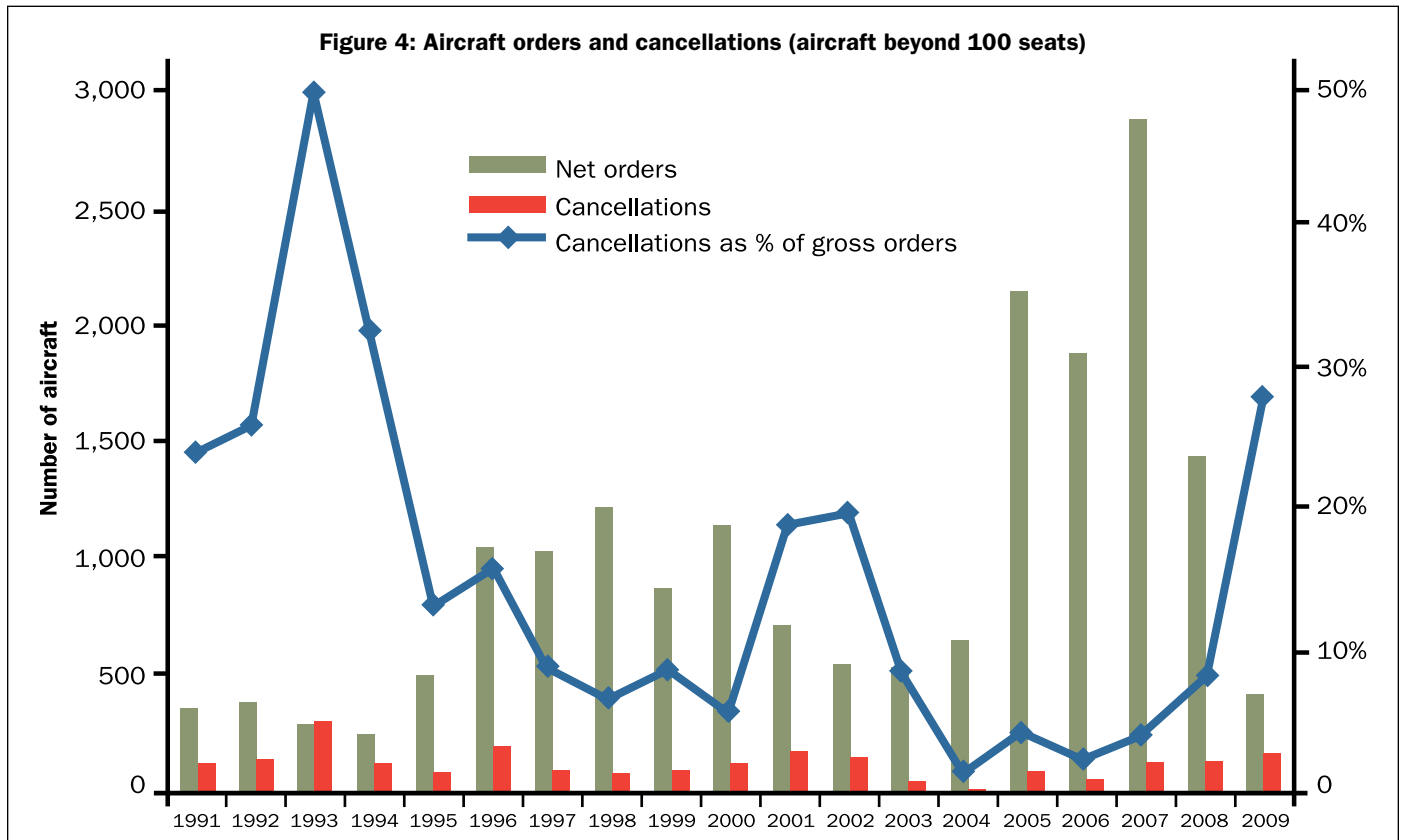
minority-owned by, respectively, Qantas; Singapore Airlines; Air India; BMI British Midland; Royal Air Maroc; and Iberia).

Furthermore, airlines known to be network or charter air carriers, such as Aer Lingus, Flybe, Air Berlin or Meridiana, simply transformed themselves directly into LCCs.

The current consolidation trends observed in the air transport industry, including takeovers (e.g., Lufthansa with BMI in 2009), the liquidation of weaker carriers, ongoing merger movements and partnerships (e.g., Jet Airways/Kingfisher), are impacting airline alliances and leading to higher ownership concentration in Regional networks.

Aircraft Manufacturers

Aircraft manufacturers, though generally in better shape than other industry stakeholders, have not been immune to the effects of the global recession. Certain airlines have cancelled orders or delayed deliveries for the coming years due to a lack of cash flow. Even relatively strong carriers are choosing not to exercise options to buy planes and are cancelling aircraft lease agreements. The number of parked jets worldwide has risen to 1,997 in 2009 from 805 in 2007, initially because these aging models used more fuel but more recently because of dropping passenger demand. Aircraft deliveries for the two



Source: Airbus and Boeing

major aircraft manufacturers, meanwhile, continued at an accelerated pace, with the 979 deliveries in 2009 exceeding the 850 achieved in 2008.

In parallel, some of the potential airline mergers will raise questions over the future of the respective aircraft orders, as a merged airline generally seeks out all possible economies of scale including the ability to operate with fewer jets. During 2009, the number of new jet aircraft orders received by the two biggest aircraft manufacturers has declined to the lowest level ever registered since 1995. Global net orders reached 413 aircraft with 160 cancellations, representing a 28 percent rate of cancellations on gross orders and one of the highest percentage decreases in this area ever registered.

It should be noted, however, that both Boeing and Airbus have huge backlogs corresponding to more than 6,000 aircraft, the equivalent of about six years worth of production. This factor, in addition to the geographical balance provided by the emerging markets, should cushion them and their suppliers from additional aircraft order cancellation or delay risks.

Leasing Companies

Before the context of the 2009 crisis was fully understood, aircraft lessors had benefitted from an upward trend in aircraft

values and a continuing shortage of aircraft—as well as a strong demand in emerging markets such as China, India and the Middle East. Delays in delivery of new wide-body aircraft (both the A380 and the 787), in addition to relatively easy access to capital and debt financing, had boosted the leasing companies' growth.

Since end 2008, the new economic deal and more restricted access to financing is bringing a level of uncertainty to the leasing market. With an increasing number of grounded aircraft and airline bankruptcies, as well as much more expensive access to debt funding, airlines have chosen operating leases as a primary source of financing. This provides them with the opportunity to access more interesting leasing conditions due to the high number of lessors in competition in a shrinking market.

Economic Recovery: What Route Leads us to Air Transport Growth?

According to Global Insight and thanks to the aggressive reflationary policies in most advanced economies and major emerging markets, financial markets have been relatively stable since the second quarter of 2009, when the world economy's downturn ended after three consecutive quarters of GDP contraction.

HIGHLIGHTS

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Global Aviation Data at your Fingertips

DAILY UPDATES



The global economy's rebound gathered considerable steam during the third quarter, during which period world GDP growth accelerated to well above three percent, up from 1.7 percent in the preceding quarter.

As a result, credit conditions have been loosening up and spreads have narrowed considerably, thereby providing badly needed relief for the beleaguered finances of households and businesses. The world's economic recovery is therefore emerging cautiously from the recession at present, as trade and industrial production rebound slightly from their previously depressed levels. After a one percent decline in 2009, global real GDP at PPP is now projected to grow by 3.6 percent in 2010.

The latest data and survey evidence reinforce expectations that the U.S. and Eurozone economies returned to growth in the fourth quarter of 2009, however these recoveries could well be W-shaped due to credit conditions staying tight, sluggish consumer spending and rigid labour markets.

Another very interesting component to 2009 trends is how GDP growth is reflecting two very different levels of recovery, one for the BRIC nations (Brazil, Russia, India and China) and one for the rest of the world favouring the development of some specific air transport markets.

Emerging markets (mainly BRIC) are leading the new global expansion, supported by aggressive fiscal and monetary stimulus and a rebound in world trade. China and India's real GDP are expected to rise respectively by 10.1 and 7.3 percent in 2010. Growth could further moderate if central banks normalize their policy rates to ensure financial stability over the next several quarters.

The demand for air travel remains weak, as evidenced by the untenable pricing environment which persists. While other sectors may be seeing signs that the economy is getting back on track, the airline industry is still facing challenges in its efforts to generate revenues. A beginning to the air travel sector's recovery is still projected for 2010, although the ramifications of the foiled terrorist attack on a Detroit bound flight in December 2009 will persist and affect the speed of the traffic recovery. A return to more traditional traffic growth levels might be expected by 2011.

When the global recovery is more firmly entrenched, however, the air transport industry will still need to closely monitor potential sharp rebounds in oil prices that have already started occurring. At the end of 2009, the price for a barrel of oil was hovering in the \$80/barrel range, compared to the \$70/barrel registered at the end of 2007. Despite current levels being far lower than 2008 highs in the range of \$150/barrel, air

Table 2: Real GDP growth at PPP*

	Annual Growth (%) 1998–2008	Actual Growth (%) 2008	Actual Growth (%) 2009	Forecast Growth (%) 2010
Africa	4.5	5.2	2.4	3.9
Asia/Pacific	5.7	4.8	3.1	6.4
Europe	2.5	1.0	-4.1	1.0
Latin America	3.3	4.1	-2.2	3.1
Middle East	4.7	4.3	-0.6	3.7
North America	2.6	0.4	-2.4	2.2
World	3.9	2.8	-1.0	3.6

Source: IHS/Global Insight *PPP: Purchasing Power Parity

transport sector economic viability is generally tied to a \$70/barrel figure.

ICAO Actions in Light of its Strategic Objectives

The end result of the current crisis will be more industry consolidation leading to substantial layoffs that will present further challenges for governments, users and workers. This could adversely affect the overall contribution of civil aviation to the world economy, which before the crisis was estimated to be worth approximately \$1,200 billion or some 2.5 percent of global GDP. In an average year prior to the crisis, over 6 million direct jobs would be created worldwide by civil aviation industries (airlines, airports and aerospace & affiliates), with 6.5 million indirect jobs resulting from supply chain sectors and a further 3 million positions through consumption-related, induced employment effects.

As a matter of fact, before the air transport crisis in 2009, the threat of an widening gap between available and required licensed personnel was one of the potential traffic growth constraints in certain regions. A very comprehensive and innovative ICAO study revealing the capacity challenges for training institutions to train the next generation aviation professionals, without compromising safety, will be issued in the second quarter of 2010.

ICAO works steadfastly to achieve the safe, secure and sustainable development of civil aviation. Consequently, the Organization is closely monitoring how all stakeholders have been reacting to the current challenges of tightening credit conditions, rising airfares, the cutting of routes, failing carriers, lower passenger spending, and lastly rising utility and material costs.

The preliminary results of the new ICAO long-term traffic forecasts, developed by traffic flows (for 54 route groups) which take into account the 2009 crisis impact, are showing a projected average annual growth rate of 4.7 percent for the 20-year period between 2010 and 2030 for global passenger traffic.

The growth rates for each specific route group are anticipated to vary due to differences in expected economic trends, Regional characteristics and other relevant elements influencing air transport development. This *Global Air Transport Outlook*, to be published mid-2010, is intended to provide civil aviation stakeholders with ICAO's vision of how air transport will evolve in the future. This will be essential information to assist with aviation planning and decision-making policies. ■

Table 3: Forecasted regional passenger traffic growth (PKPs) percentage (%) change over previous year

Region	2010	2011
	Forecast	Forecast
Africa	6.5	7
Asia/Pacific	3.6	6.5
Europe	2.9	5.5
Middle East	9.5	12
North America	1.3	2.6
Latin America	7.5	8
World	3.3	5.1

Source: ICAO

Up in the Air

Since the unveiling of scientific evidence concluding that human activity is interfering with the global climate, great effort has been channelled into developing the building blocks for a new climate deal that would allow the international community to get back on track towards an environmentally-sustainable global development path.

As Jane Hupe, ICAO Chief, Environment, reports here for the *ICAO Journal*, even if decisions on how to deal with international aviation emissions may have stayed ‘up in the air’ in Copenhagen, the Organization was able to reach agreement at its High-level Meeting last October on global emissions goals, a Programme of Action for International Aviation and Climate Change, and recommendations which provide aviation with a clear path to sustainability under ICAO’s leadership.



Jane Hupe is the Chief, Environment, in ICAO’s Air Transport Bureau. She provides advice to the Organization on aviation-related environmental matters; cooperates with UN bodies and International Organizations; manages the recently established Environment Branch and coordinates the activities of the ICAO Council’s Committee on Aviation

Environmental Protection (CAEP), where she serves as Secretary. Hupe has also worked with ICAO as a consultant to ICAO’s Technical Co-operation Bureau, providing direct assistance to ICAO’s Contracting States in the environmental field. For 15 years she served as an adviser on environmental protection-related subjects for the Institute of Civil Aviation (IAC) in Brazil, developing policies and regulations and representing the Ministry of Aeronautics at government-related environmental forums.

ICAO is at the forefront of efforts to develop pragmatic and concrete proposals on how to address GHG emissions from international aviation in the context of a new global agreement on climate change. This undertaking has involved extensive research of the related scientific, technical, operational and economic aspects of aviation and the facilitation of discussions/negotiations among ICAO’s Member States.

The data that has been collected by the Organization has been analyzed using sophisticated tools and methods to determine, as accurately as possible: the extent of aviation’s effect on the global climate; the current and future levels of GHG emissions generated by aviation operations; the possible effects of practical measures to address these emissions; and the possible financial and capacity-building

mechanisms available or required for the effective implementation of any related programmes.

Furthermore, ICAO has made substantial efforts to establish an appropriate process to facilitate dialogue among ICAO Member States, industry and civil society, in order to reach a global agreement and a true consensus among all stakeholders on the best way to address aviation’s impact on the global climate.

The ICAO Process

At the 36th Session of the ICAO Assembly in September 2007, the 190 ICAO Member States recognized the urgency and critical importance of addressing aviation emissions that contribute to global climate change. They also re-emphasized the need for ICAO to continue to provide effective leadership in this area.

Accordingly, the 36th Assembly called for the formation of the Group on International Aviation and Climate Change (GIACC), in order that it could develop an ICAO Programme of Action on International Aviation and Climate Change. The Assembly directed the Organization to develop concrete proposals to aid the UNFCCC process and additionally requested that ICAO convene a High-level Meeting (HLM) on International Aviation and Climate Change, at which the GIACC recommendations would be considered.

The GIACC was duly formed in January 2008. It was comprised of 15 senior government officials and representatives of all ICAO’s Regions. GIACC participation respected the equitable input of developing and developed ICAO Member States and additional technical support was provided to it by the ICAO Committee on Aviation Environmental Protection (CAEP).

The fourth and final meeting of the GIACC took place at the end of May 2009. Consistent with the Assembly Resolution, the panel members presented three key elements of an effective Programme of Action for global aviation. Those elements were:

- Global aspirational fuel-efficiency goals.
- Suggested measures to achieve emissions reductions.
- Suggested methods and metrics to measure aviation's progress.

The GIACC proposals were accepted by the ICAO Council. In addition, it made recommendations on the way forward, including the convening of the HLM in October 2009 and a Global Conference on Alternative Fuels for Aviation—with a view to preparing international aviation inputs to the COP/15.

The UNFCCC Process

Three months after the ICAO 36th Assembly, the United Nations Climate Change Conference in Bali, Indonesia, agreed upon a process to develop a new global climate agreement that would involve all signatories to the United Nations Framework Convention on Climate Change (UNFCCC)¹ and its Kyoto Protocol. The agreement, known as the Bali Roadmap, included a two-year negotiating process involving two 'tracks'—one under the Convention and one under its Kyoto Protocol—with a deadline for concluding the negotiations in Copenhagen in December 2009 (COP/15).

The two key negotiating bodies under the Bali Roadmap were the AWG-LCA² and the AWG-KP³. The mandate for the AWG-LCA was to focus on key elements of long-term cooperation, namely mitigation, adaptation, finance, technology and capacity-building, as well as the articulation of a "...shared vision for long-term cooperative action, including a long-term global goal for emission reductions."

The work under the AWG-KP focused mainly on emission reductions by Annex I Parties under the Kyoto Protocol beyond 2012, as well as on legal issues including possible amendments to the Protocol. In total, four negotiation sessions were held in 2008 (April in Bangkok, Thailand; June in Bonn, Germany; August in Accra, Ghana; December in Poznan, Poland) and six sessions were held in 2009 (April, June and August in Bonn, Germany; October in Bangkok, Thailand; November in Barcelona, Spain; December in Copenhagen, Denmark).

During the 2009 sessions the emphasis of the work was on the development of negotiating texts under both AWGs.

The sessions of both AWGs before Copenhagen were held in November 2009 in Barcelona, Spain. The outcome of the negotiations was a series of non-papers, forwarded to Copenhagen as an Annex to the meeting report. One of these

included proposals regarding emissions from international aviation and maritime transport (commonly referred as 'bunker fuels' within the UNFCCC process), including the possibility of international aviation being one possible source of funding for adaptation activities in developing countries.

During the AWG-LCA process, considerable progress was made on issues such as adaptation, technology and capacity-building. However, views remained divided on mitigation and on financing aspects. This was also the case for the consideration of measures on bunker fuels.

In the AWG-KP, no significant progress was made on Annex I Parties' aggregate and individual targets. In addition, there were significant differences concerning whether the outcome from Copenhagen should be an amendment to the Kyoto Protocol or a single new agreement.

Results of the ICAO and UNFCCC Processes

ICAO Programme of Action on International Aviation and Climate Change (PAIACC)

ICAO held a High-level Meeting (HLM) on International Aviation and Climate Change in October 2009, with a view to evaluating the PAIACC and further discussing areas where progress could be achieved on the formulation of proposals to address GHG emissions from international aviation.

The three-day HLM agreed on measures that could be implemented by governments, working together with industry, to help reduce the impact of aviation on the global climate. States representing 94 percent of global commercial air traffic reached agreement on:

- A two percent annual improvement target in fuel efficiency globally until the year 2050.
- A decision to develop global CO₂ standards for aircraft.
- A framework for market-based measures for international aviation.
- Measures to assist developing States and to facilitate access to financial resources, technology transfer and capacity-building.
- Collection and submission of international aviation emissions data to ICAO.
- Continued work on alternative fuels for aviation.

The meeting also agreed to continue working on medium- and long-term goals, including exploring the feasibility of more ambitious objectives such as carbon-neutral growth and emissions reductions, taking into account the special circumstances and respective capabilities of developing countries and the sustainable growth of the industry. Such fuel efficiency improvements or other emission reduction goals would not attribute specific obligations to States.

¹ The UNFCCC now has 194 Signatories.

² Ad Hoc Working Group on Long-Term Cooperative Action under the Convention.

³ Ad Hoc Working Group on further commitments for Annex I Parties under the Kyoto Protocol.

Another important development of the HLM was the agreement that Action Plans could be submitted by States to ICAO, reflecting their initiatives to reduce aviation emissions.

The HLM approved a Declaration affirming the commitment of Member States to address aviation emissions that contribute to climate change by working through ICAO. This was the first globally-harmonized agreement to address climate impacts from a sector. This Declaration, together with the results of the CAAF/09, formed the basis for input by ICAO to discussions on international aviation under the UNFCCC in Copenhagen.

The Copenhagen Climate Change Talks and the Copenhagen Accord

The UNFCCC Climate Change meeting was held in Copenhagen from December 7 to 18, 2009. It included the Fifteenth Conference of the Parties (COP/15) to the UNFCCC and the Fifth Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol (CMP5). It was held in conjunction with the two UNFCCC subsidiary bodies and the two AWGs.

The objective of the Meeting, as a whole, was for governments to agree on a comprehensive, ambitious and fair international climate change deal. Over one hundred world leaders attended the joint COP/15 and CMP5 high-level segment. Close to 40,000 participants registered for the meeting, which faced many challenges of an administrative, procedural and political nature.

After two weeks of intense COP/15 negotiations, it was not possible to achieve a legal agreement. Instead, governments adopted a decision which took note of a political declaration known as the Copenhagen Accord. Furthermore, it was decided to extend the mandate of the AWG-LCA and AWG-KP to continue their work, with a view to presenting the results for adoption at COP/16 and CMP/6, to be held in Cancun, Mexico, from November 29 to December 10, 2010.

The Copenhagen Accord was drafted by representatives of all negotiating groups within the UNFCCC process and represents a political letter of intent that pledges to reduce national emissions. It recognizes the scientific view that an increase in global temperature below two degrees Celsius is required to stave off the worst effects of climate change.

In order to achieve this goal, the Copenhagen Accord specifies that industrialized countries would commit to implement, individually or jointly, quantified, economy-wide emissions targets by 2020 that will be listed in an Appendix to the Accord. As of January 31, 2010, 38 Annex I Parties have provided information on their economy-wide emission reduction targets for 2020, but specific targets on international aviation were not included in these submissions.

In addition, the Copenhagen Accord provided for the possibility of developing countries putting forward their own mitigation actions—on a voluntary basis—that will be listed in an appendix to the Accord. The Accord also specified that developing countries would communicate information on their efforts to limit greenhouse gas emissions every two years. As of January 31, 2010, 23 developing countries have submitted information on mitigation actions and seven of them have mentioned the transport sector.

The Accord also defines the amounts of short- and long-term financing projected to implement climate change action in developing countries. It set 2015 as a review year to verify if global actions need to be more urgently addressed to meet perceived challenges.

With regard to international aviation, there was some discussion on the subject in an informal group formed under the AWG-LCA but no decisions were reached. It should be emphasized, however, that there was recognition from Parties of the substantial efforts undertaken and the results achieved thus far by ICAO.

DECLARATION OF THE ICAO HIGH-LEVEL MEETING ON INTERNATIONAL AVIATION AND CLIMATE CHANGE

“Taking into account the relevant outcomes of the Fifteenth Conference of the Parties to the United Nations Framework Convention on Climate Change, and recognizing that this declaration shall not prejudice the outcome of those negotiations, ICAO and its Contracting States, with relevant organizations, will also keep working together in undertaking further work on medium- and long-term goals, including exploring the feasibility of goals of more ambition including carbon-neutral growth and emissions reductions, taking into account the collective commitments announced by ACI, CANSO, IATA and ICCAIA on behalf of the international air transport industry, the special circumstances and respective capabilities of developing countries and the sustainable growth of the international aviation industry, for consideration by the 37th Session of the ICAO Assembly.”

(HLM Declaration, third resolving clause)



ICAO Colloquium on Aviation and Climate Change



Image selected from the ICAO drawing contest. Children and dependants of ICAO employees were invited to submit drawings on the theme of **Aviation in a Green Environment**.

ICAO invites you to attend, sponsor and/or exhibit at its upcoming:

Colloquium on Aviation and Climate Change 11-14 May, 2010, ICAO Headquarters, Montreal

The Colloquium will focus on current strategies and programmes being employed by ICAO, industry participants, academic/research institutions and other international organizations to harness new technological, scientific and economic solutions in the global fight against climate change. The event will prepare ICAO Member States for their environment-related discussions and high-level decisions to be made at the 37th ICAO Assembly in September 2010.

This special event will provide a unique forum on aviation and climate change, in particular on recent key developments that have emerged from:

- **The ICAO High-level Meeting on International Aviation and Climate Change**
- **ICAO's Conference on Aviation and Alternative Fuels**
- **UNFCCC COP/15**
- **Eighth Meeting of ICAO's Committee for Aviation Environmental Protection (CAEP)**

A tutorial on environmental issues will precede the Colloquium. Attendees will be fully familiarized with the vocabulary and concepts used in the description, measurement, regulation, and management of aviation GHG emissions.

For more information contact:
envclq@icao.int

For additional details visit:
www.icao.int/clq10

www.icao.int/clq10



**ACT»»
GLOBAL**

ICAO: UNITING AVIATION ON CLIMATE CHANGE

What next?

The political momentum for global action on climate change that preceded the Copenhagen Conference would be difficult to recreate in the short-term. The outcome of the AWGs, however, together with the Copenhagen Accord, provide an excellent basis for further negotiations on a global agreement in 2010.

In the case of international aviation, no decision was agreed at COP/15 and therefore options under the UNFCCC remain, literally, 'up in the air.' Irrespective of what happens with the UNFCCC, however, ICAO will continue to move forward with its plan of action to combat climate change. Further progress is expected on aviation initiatives pursuant to the recommendations from the Eighth Meeting of the Organization's Committee on Aviation Environmental Protection (CAEP/8) in February 2010, related discussions in the ICAO Council, and a full review of environmental policies and programmes at the next ICAO Assembly in the fall of 2010.

The ICAO HLM Declaration specifically requested that several areas be revisited in light of the results of the Copenhagen Conference. This is the case, for instance, for the activities regarding the

exploration of more ambitious goals and the development of a global framework for market-based measures to reduce aviation emissions.

The Copenhagen Accord sets a global temperature increase limit of two degrees Celsius. This over-arching goal might provide a good initial basis for the further exploration of mid- and long-term global goals for international aviation emissions.

To facilitate work and action by States, ICAO has already planned a series of initiatives leading to the ICAO Assembly. The Organization will hold a Colloquium from May 12 to 14, 2010 on Aviation and Climate Change. This event will provide the latest information to, and facilitate dialogue among States, the aviation industry and civil society, with a view to enabling sound policy decisions in this area at the next Assembly.

ICAO is also preparing its Second *Environmental Report*, focusing on aviation and climate change, to be launched mid-year 2010. In addition, a process for the development of the ICAO policy on aviation and climate change was established to support the Organization's efforts towards the development of a draft Assembly

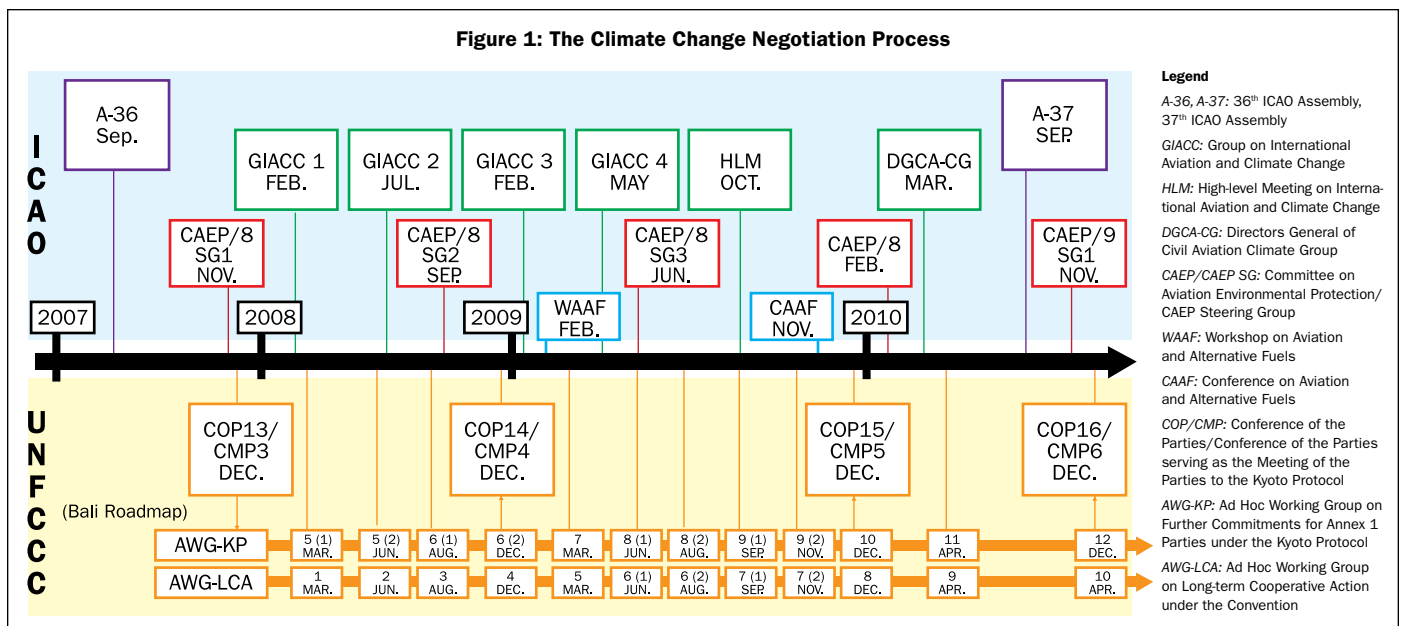
Resolution in this area to be submitted for approval at the next Assembly.

Other work areas that the Organization will continue to pursue include the development of a Global Framework for Market-based Measures, aviation data-collection monitoring and reporting, measures to assist developing States and to facilitate their access to financial resources, and technology transfer and capacity-building.

It is going to be a very busy year for ICAO and the Organization is up to the challenge. A new Environmental Branch has been established to better address the required efforts and ICAO remains steadfast in its close collaboration with the UNFCCC. The Organization, its Member States and the aviation community remain committed to make every effort to limit or reduce the impact of international aviation on the global climate.

Although decisions on how to address international aviation emissions may have stayed 'up in the air' in Copenhagen, no worries... With ICAO continuing to take the lead, global aviation stakeholders can rest assured that the sector will achieve a timely, safe and sustainable approach and landing. ■

Figure 1: The Climate Change Negotiation Process





STATE PROFILE

Korea

The Global Hub of Eastern Asia

The Republic of Korea is the 8th largest air transport market in the world and a key component of Asia-Pacific progress and development.

The special *ICAO Journal* profile of a unique APAC State that flies to every corner of the five oceans and six continents of the global air transport network.



Ready to fly with me?

The Honorary Ambassador of Incheon International Airport **KIM Yu-Na**
Gold Medalist, 2010 Vancouver Olympic Winter Games



Korea:

Harmonizing dynamic and rapid industry growth with the principles of a safe and effective air transport system

“The Republic of Korea has achieved remarkable safety improvements in the last decade despite rapid industry growth.”

Early civil aviation development in the Republic of Korea

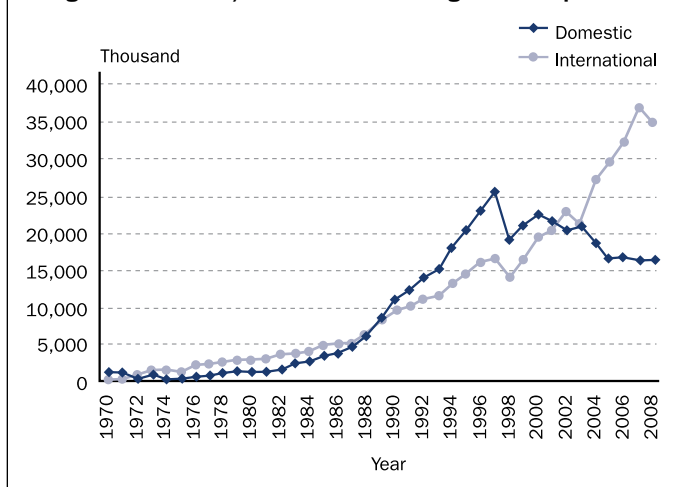
Nineteen years after the first powered flight by the Wright Brothers in 1903, Mr. Chang-Nam Ahn operated the first successful flight of a single-engined biplane in the Republic of Korea (ROK).

Air Transport Industry

Since that first commemorative flight, civil aviation in the Republic of Korea has demonstrated truly remarkable development, allowing the country to emerge as one of the largest air transport markets in the world over the past two

CIVIL AVIATION HISTORY OF THE REPUBLIC OF KOREA

- 1913: First airplane flown in Korea’s airspace.
- 1916: First airfield constructed at Yeouido in Seoul.
- 1922: Mr. Chang-Nam Ahn becomes the first Korean pilot to fly an airplane in Korean airspace.
- 1928: First flight school launched.
- 1939: Gimpo Airport opened.
- 1946: Korean National Air (KNA) established.
- 1948: KNA operates Seoul-Busan as a first domestic route.
- 1950: Services launched on Busan/Jeju and Busan/Daegu routes.
- 1952: National Aviation University established.
- 1953–1954: Test flights begun between Seoul and Hong Kong.
- 1962: Korea Airline Corporation founded as a government-owned public corporation.
- 1969: Korean Airline Corporation privatized as “Korean Air”.
- 1988: Asiana Airlines launched.
- 2001: Incheon International Airport opened.
- 2001: ROK elected as a Member of ICAO Council.
- 2005: Hansung Airlines, first Low Cost Carrier (LCC) launched.
- 2006: Korea’s first local LCC, Jeju Air, launched.
- 2008–2009: LCC market expands to include Jin Air, Air Busan and Eastar Jet.

Figure 1: Domestic/International Passenger Volume per Year

decades. In recent years, the Republic of Korea has become the 8th largest country in the world in terms of air transport volume and financial contributions to ICAO (2008).

The ROK has broad operational networks for scheduled international air transport. Fifty-nine airlines currently provide services to 146 cities in 45 countries on 265 routes (2,241 flights per week).

The ROK has recorded one of the highest air traffic growth rates in the Asia/Pacific (APAC) Region over the past several years, averaging an annual growth rate of 8.7 percent for international passengers and 6.4 percent for international cargo in the period from 1999 to 2008.

In 2008 there were nearly 35 million international passenger movements at Korean airports. Passenger traffic volume has increased continuously since 1999 except for the sudden drops in 2003 and 2008 due to the Severe Acute Respiratory Syndrome (SARS) outbreak and the global financial crisis.

While accomplishing this growth, the ROK has continued to develop prestigious, world-class global airlines and an award-winning international airport, namely:

- **Korean Air:** World's largest cargo carrier for the past five years.
- **Asiana Airlines:** Air Transport World's 2009 "Airline of the Year".
- **Incheon International Airport:** Voted "Best Airport Worldwide" for four straight years by the Airports Council International.

The volume of international cargo processed by Korean airports totaled approximately 3 million tonnes in 2008, reflecting an average annual growth rate of 6.4 percent since 1999. Cargo traffic has also been growing steadily and it is expected to keep growing with the international cargo market gradually moving towards increased liberalization.

Liberalization

The ROK has gradually undertaken progressive liberalization in both its cargo and passenger transportation sectors, working to increase capacity and routes through bilateral agreements with major States.

These efforts currently include negotiations on third party code-sharing arrangements, multiple designator/double tracking and price-filing systems. It is anticipated that a continuation of this approach will support increasing Regional liberalization over the near-term. This includes negotiating 3rd and 4th Freedom traffic rights in the first stage and eventually 5th Freedom traffic rights in the second stage. There are also 19 agreements currently in place covering passenger carriage.

Cargo services have been addressed in a more liberal manner due to their importance in stimulating trade between States in the Region and to support the role of the Incheon International Airport as an APAC logistics hub. Under this approach, the ROK has implemented cargo liberalization agreements with 31 States.



Aviation Safety

The ROK is dedicated to the development of a safe and efficient air transport system despite its rapid growth. In particular, the ROK is proud to have established a highly-standardized safety oversight system in full compliance with ICAO's international standards and recommended practices. These accomplishments were clearly demonstrated by the ROK results determined by ICAO's 2008 Universal Safety Oversight Audit Program (USOAP). The USOAP is a key indicator of the effectiveness of a State's civil aviation safety programmes.

The ROK's robust aviation safety system has enabled it to achieve a record of no major accidents for ten consecutive years with respect to its extensive commercial air transport operations.

Effective Implementation of ICAO SARPs

Implementing and managing the extensive range of ICAO Standards and Recommended Practices (SARPs), as well as the frequent ICAO amendments that provide constant improvements to air transport globally, can be challenging for Civil Aviation Authorities (CAAs). Identifying and filing differences with ICAO are comprehensive tasks which also require a great deal of time and effort. To improve the effectiveness and efficiency of its SARPs management, the ROK has therefore developed a unique **SARPs Management and Implementation System (SMIS)**.

SMIS is designed to manage and keep up-to-date all records relating to ICAO SARPs. It maintains full SARP compliance efficiently, on the basis of continuous monitoring. Moreover, it is devised to respond to ICAO State Letters in a timely manner in order to track related follow-up actions.

The ROK has made the SMIS freely available and has distributed it to over 30 ICAO Contracting States since the system's development in 2006. SMIS continues to evolve to meet all required objectives.

Aviation Safety Inspection and Surveillance

In line with its goal of ensuring the safe operation of aircraft and airports, the Office of Civil Aviation under the ROK Ministry of Land, Transport and Maritime Affairs, certifies air carriers and international airports in the ROK and approves maintenance organizations.

Highly-trained and experienced inspectors continuously monitor the capability, reliability and safety performance of ROK air operators, airport operators and other service providers in all pertinent aviation fields.

Harmonized Implementation of SMS

Safety Management Systems (SMS) have been fully implemented by ROK aircraft and airport operators and air traffic control service providers since September 1, 2008. In order to develop a harmonized and effective SMS, coordinated efforts have been arranged between the authority, service providers and various research institutes in the aviation field.

Furthermore, the ROK "Safety Reporting System" has been improved to better manage and share safety information systematically and promote safety culture in a non-punitive environment.

An efficient and effective tool, the internet-based electronic reporting system has been adopted to enable timely reporting for all aviation personnel. Various inspection results and training records have been provided through a web-based safety data management system, entitled the National Aviation Resource & Information System (NARMI), in order to support the management of aviation safety and aircraft registration data.

These tools and programmes have assisted the ROK to effectively manage hazards and risks. A project is also now underway to develop an international version of the NARMI in order to share these benefits with the global aviation community.



Aviation Personnel Licensing and Training

ROK airman certificates and licenses are issued in compliance with ICAO standards, including knowledge, skill and medical assessments to ensure required competencies. From 2010 onward, written examinations will also be available through a computer-based system.

Using the All-time Remote Testing System (ARTS), pilots, air traffic controllers, flight dispatchers and aviation engineers, many of whom are shift-workers, will be able to undertake a personnel licensing test irrespective of time. This transition from a traditional paper-based test to a computer-based model will be convenient and cost-effective. The new computer-based system will support the advancement of aviation personnel and improve the competitiveness of the ROK aviation industry.

In order to improve the English proficiency of its pilots and air traffic controllers, the Office of Civil Aviation has developed a customized Aviation English training programme and an Aviation English proficiency test programme, each fully-compliant with related ICAO SARPs.



Have you yet to experience the distinct, award-winning service of Incheon International Airport?

Incheon International Airport was named "Best Airport Worldwide" by Airports Council International (ACI) for five consecutive years in 2010. At Incheon International Airport customers always come first. Enjoy the most convenient facilities and the world's finest services at Incheon International Airport. What could be more perfect?



Recognizing future need to cope with high traffic growth and a foreseeable international shortage of commercial pilots, the ROK plans to develop a flight training center at a Regional airport for both national and international trainees. This initiative would also have a positive effect on Regional economic development.

Air Navigation Services

Qualified and well-trained ROK air traffic controllers handle more than 1,400 arrival and departure flights, 24 hours a day, with state-of-the-art equipment and precision.

NAVAIDs such as VOR, ILS and RADAR are operating day-to-day to ensure ROK flight safety. Additionally, flight inspection aircraft conduct regular evaluations to maintain the accuracy of all NAVAID systems.

The ROK has established a Master Plan for its National Airspace Realignment to deal with continuously-increasing air traffic and to ensure safe, efficient and environmentally-friendly flight operations. Various measures have been developed to fulfill these objects including ATS route realignment, Flight Procedure Redesign, etc.

The ROK has also been endeavouring tirelessly to establish its next generation CNS/ATM system for free flight and to develop an satellite-based ATS system that will enhance the safety and efficiency of all its air traffic services.

Transition of the Navigation System

To fulfill ICAO Assembly Resolution A36-23, which urges States to implement RNAV and PBN procedures in addition to a PBN implementation plan, the ROK has developed a PBN Implementation Roadmap as a guideline for the future air navigation systems.

The implementation of the PBN Roadmap will be a significant turning point for the improvement of the ROK national

airspace system, its flight safety and efficiency, and overall environmental protection. This transition will be a cornerstone for all future evolution of the ROK aviation industry and will also contribute to the harmonization and interoperability of the global air navigation system.

Aviation Security

Aviation security in the ROK has been strengthened by its comprehensive legal system and the effective implementation of advanced technology. Currently, the ROK has one of the most reliable and advanced aviation security systems in the world, as verified by the first cycle of the ICAO Universal Security Audit Programme (USAP).



The T-50 Jet Trainer

The ROK Office of Civil Aviation has put security policies in place to proactively deal with threats such as unlawful interference. In order to achieve this goal, the Office of Civil Aviation has developed and implemented a National Civil Aviation Security Programme that ensures the implementation of aircraft and airport operator security programmes. The programme is supported by the National Civil Aviation Security Quality Control Programme.

In-flight security is assured by both aircraft operators and the Office of Civil Aviation. Aircraft have been protected with bulletproof cockpit doors and in-flight security personnel on-board. In addition, the ICAO Security Control Guidelines for Liquids, Aerosols and Gels (LAGs) have been fully implemented as of March 2007.

Aerospace Industry

The aerospace industry in the ROK got its start with the maintenance of military aircraft in the 1950s. During the 1970s, Korean Air produced 500MD helicopters and F-5 fighters. As the aerospace industry became more developed in the 1980s, airframe structures for commercial aircraft were produced and exported to both Boeing and Airbus.

By the 1990s, Korean Air continued to produce UH-60 helicopters and the Korea Aerospace Industry (KAI) enhanced

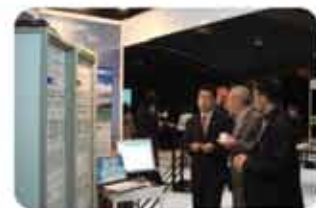


Korea Airports Corporation

leading aviation & IT technology



With accumulated know-how for 30 years, Korea Airports Corporation(KAC) developed the navigational aid systems, which are core of safe aircraft operation and are for sale in domestic and foreign markets. KAC's navigational aid systems passed the flight inspection test by Korean government and reliability for systems are ensured by getting a certificate from BUREAU VERITAS.



As an airport management specializing organization, KAC operates 14 airports from Gimpo to Jeju in Korea. KAC developed core of navigational aid systems such as ILS, DVOR and DME. KAC is going to open skies around the world with state-of-the-art technology.

its technology and knowledge in order to develop aircraft such as the KT-1 turboprop trainer and T-50 jet trainer. The KT-1 has been ordered and exported to Indonesia and Turkey and is still requested by additional customers.

The ROK aerospace industry continues to grow by participating as a risk-sharing partner for new commercial airplanes such as the Boeing 787 and Airbus 350, and through performing aircraft MRO (Maintenance Repair and Overhaul) under AMO (Approved Maintenance Organization) approvals from the US Federal Aviation Administration, the European Aviation Safety Agency and the Civil Aviation Administration of China.

With four maintenance bases in different parts of the country, Korean Air has the capacity for aircraft maintenance as well as cabin system modification and upgrades, cargo conversions and aircraft painting. Asiana Airlines has two maintenance bases, while KAI, Sam Sung Techwin, and the UI Helicopter Company are also providing maintenance services from their respective facilities.

Expanding the scope of the Bilateral Aviation Safety Agreement with the FAA has also provided for the development and certification of a project for a 4-seat, single-piston engine aircraft equipped with digital engine control systems and a glass cockpit.

The ROK has great potential to consistently improve and highly supports the establishment of its aerospace industry. Aerospace manufacturing will likely contribute significantly to the ROK becoming a member of the G10 group of countries by 2015.

Airports

Incheon International Airport Corporation (IIAC)

Incheon International Airport, operated by the Incheon International Airport Corporation (IIAC), is one of the largest and busiest airports in the world. The facility serves as a



Incheon International Airport (Main Passenger Terminal).

gateway to the Republic of Korea and a northeast Asian hub, making it a key component of the Region's future transport and economic development.

Currently, 70 airlines operate from Incheon International Airport, linking 170 cities worldwide. The airport achieved "Best Airport Worldwide" status for an unprecedented four consecutive years by ACI's Airport Service Quality Survey. It was chosen by Skytrax as the "World's Best Airport" in 2009 and chosen "Best Airport in the World" for four straight years by *Global Traveler magazine*.

As parts of Incheon International Airport's second-phase Grand Opening, the IIAC undertook extensive infrastructure upgrades, including improvements in security and the introduction of U-Airport, thus raising the efficiency of airport facilities and providing faster, more convenient immigration processing.

In 2009, the IIAC made a successful debut in the world airport services market for airport operations support to Iraq's Erbil Airport. It will continue to eagerly pursue and expand projects for the development of additional airports overseas.

Korea Airports Corporation (KAC)

The Korea Airports Corporation (KAC) manages and operates 14 airports as a specialized organization in airport management in the Republic of Korea. It also plays an important role for civil aviation in the ROK through the operation and maintenance of Area Control Centers, en-route NAVAIDs, and through the provision of aviation training courses.

As the first airport operator in the ROK, the KAC developed navigational aids, such as ILS, DVOR and DME, based on proprietary technology. These systems have since been installed both in the ROK and at 15 airports in ten other States.

KAC is also involved in consultation and construction projects of overseas airports. In 2009, it joined in a feasibility study for the construction of a new passenger terminal in Mactan Cebu International Airport (Philippines) as a technical advisor, and the KAC continues today to be recognized as a globally relevant specialist in airport management.

Airport Operation Certification

All the airports used for international operations in the ROK have been certified by the Office of Civil Aviation, in accordance with National Regulations and applicable ICAO SARPs.

Digital obstacle data management is enabled with a computerized, 3-dimensional airport obstacle surface management system and up-to-date land survey techniques utilizing Light Detection and Ranging (LIDAR) and GPS. The system provides the benefits of



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Office of Civil Aviation

Building Korea's strength in global aviation



The goal of the Office of Civil Aviation is to prepare a foundation which will allow for safe and convenient air travel while supporting Korea's aviation industry and enabling the ROK to become a global aviation leader.

In order to achieve this goal, the Office of Civil Aviation is well into implementing its Policy Plan, focused on performance-based programs and initiatives that provide the greatest return on investment despite limited human and financial resources, and which utilize working methods and management practices that lead to identifiable results. The Office of Civil Aviation will also be proactive in responding to the needs and expectations of global air transport in the future.



Il-young Chung, Ph. D
Deputy Minister for Civil Aviation Office

It is a fact that air transport brings tremendous benefits to humanity in terms of economic, social and cultural development. As aviation becomes closer and closer to human society, one of my roles is to enhance the morale, professionalism and accountability among staff members, which in turn will help us achieve our goals. In striving for excellence, we believe sincerely that we will contribute to the achievement of greater safety and increased efficiency in air transportation, and, without doubt, to the more effective and efficient development of global aviation.

improved, efficient workload management with a very high level of integrity, while at the same time reducing possibility for error.

Airlines

Korean Air

Founded in 1969, Korean Air has expanded its operations for over forty years in terms of both quality and quantity. It has become a leading global carrier. Flying to 117 destinations in 39 countries around the world, its advanced management system and innovative customer satisfaction policies have enabled the airline to achieve remarkable performance.

Korean Air is a premiere airline in the world, operating successful international passenger, cargo, catering, hotel and aerospace businesses.

As a founding member of SkyTeam since 2000, Korean Air has become the largest Asian airline flying in North America and the world's largest commercial airline cargo operator (since 2004). Korean Air will be operating ten Airbus A380s and ten Boeing 787 Dreamliner aircraft in the near future.

Asiana Airlines

Asiana Airlines, since its inception in 1988, has fully committed itself to providing its valued customers with innovative and world-class services that are second to none.

Asiana received the "Airline of the Year" award in February 2009 and was chosen as a "5-Star Airline" for four years consecutively by Skytrax. It flies to 65 cities in 20 countries around the world, using 74 aircraft including the B737, B767, B777, B747, A320, A321 and A330. Asiana has adopted the new A350WXB as its next generation passenger carrier and plans to receive 30 more aircraft between 2016 and 2022.

Low-cost Carriers (LCC)

Recent entries to the ROK Low-cost Carrier (LCC) market include Jeju air, Jin Air, Air Busan and Eastar Jet. All are making sound efforts to ensure stable passenger services in their domestic and international short-haul niche markets.

Through harmonized cooperation, the major and low cost carriers of the ROK are carrying passengers from northeast Asia to each and every continent in the world.

Environmental Protection and Climate Change

The ROK Office of Civil Aviation has established a comprehensive strategy and action plan in the aviation sector to positively address climate change—a global environmental issue.



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This action plan will be implemented with the joint efforts of government, operators, airport authorities and research institutes.

The ROK Group on Aviation and Climate Change is playing a key role for effective environmental implementation. Actions include the introduction of highly fuel-efficient aircraft, the establishment of a next generation navigation system, shortening both ground movements and flight distances as well as environmentally-friendly airport operation.

Also, programmes are under development for maintaining accurate emission statistics through the establishment of a database management system in the aviation sector and voluntary agreement between government and industry in order to pursue an aggressive limitation or reduction of emissions of greenhouse gases.

International Cooperation

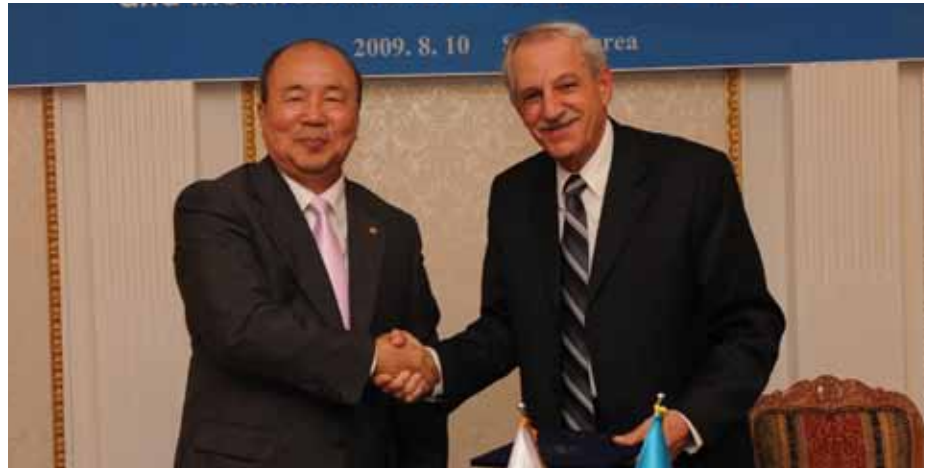
As Member of the ICAO Council

Elected three straight times to the ICAO Council beginning in 2001, the ROK is committed to supporting ICAO's objectives of ensuring the safety, efficiency and security of international civil aviation while making environmental improvements. The ROK considers its Council re-elections in 2004 and 2007 (by wide margins) as clear indication of Member State support of its commitments and active efforts supporting ICAO activities globally.

Through partnerships, associations, and collaborative efforts, the ROK is working with the rest of the world to achieve the highest standards of aviation safety and efficiency on a global basis.

International Contributions

Recognizing the importance of specialized support and cooperation to the international civil aviation community, the ROK has been contributing to global objectives on several fronts.



Over the three-year period from 2010 to 2012, 390 aviation personnel will be invited under the MOU signed between Mr. Jong-hwan Chung (left, ROK Minister of Land, Transport and Maritime Affairs) and Mr. Roberto Kobeh González (right, President of the ICAO Council) for cooperation in the development of training programmes.

It supports ICAO's primary international safety and security programmes and participates directly and indirectly in various projects by providing financial assistance, secondment of skilled personnel, etc.

With its advanced IT technologies, the ROK has developed various web-based programmes, including the SMIS and the Total Oversight Management System (TOMS). These have also been developed as international versions so that other nations may benefit from their advanced capabilities.

TOMS is being developed along with a new process of aviation safety oversight as a complementary and auxiliary means to support continued surveillance of certified service providers in the airline, airport and air traffic services sectors. Currently undergoing final evaluation, TOMS will be available to ICAO Member States free of charge in the near future.

The ROK has additionally invited more than 300 aviation personnel from 84 developing countries to participate in Fellowship training programmes since 2001. It has provided comprehensive programmes consisting of classroom lectures, practical laboratory training and on-site visits to airports and manufacturing companies.

Over the three-year period from 2010 to 2012, 390 aviation personnel will be invited under the MOU signed between Mr. Jong-hwan Chung (Minister of Land, Transport and Maritime Affairs) and Mr. Roberto Kobeh González (President of the ICAO Council) for cooperation in the development of training programmes.

Based on the remarkable results of its ICAO USOAP review, the ROK has shared its valuable experience with other states in the Asia-Pacific Region at their request. Technical advisories will be provided for each critical element in order to establish a systematic aviation safety system.

Conclusion

As a forerunner in the international air transport community, the Republic of Korea endeavors to take each and every opportunity to contribute to aviation innovation and success, and to promote open skies liberalization policies with other countries.

Along with its great success and confidence in ensuring aviation safety, the ROK will strive to continuously take a creative initiative to face new challenges for safety enhancement and to effectively respond to the ever-changing demands of global aviation. ■



State Profile

Malaysia: Serving Global Aviation

Malaysia consists of two geographical regions divided by the South China Sea: peninsular Malaysia (or West Malaysia) bordered by Thailand on the north, and the Malaysian Borneo (or East Malaysia) located on the northern part of the island of Borneo, bordering Indonesia and surrounding the Sultanate of Brunei.

Malaysia has a population of 28 million, representing a multi-ethnic and multi-religious national character. It is one of the wealthiest and most developed countries in South East Asia; outranked in GNP only by Singapore and oil-rich Brunei.

Since the first heavier-than-air 'Antoinette' monoplane, piloted by G.P. Fuller, landed at Kuala Lumpur in 1911, the civil aviation industry in Malaysia has been an important priority. Malaysia has invested substantially in the aviation industry and today the sector plays a major role in effectively connecting Malaysia to the world economy and competitive global markets.

In tandem with the rapid growth in passenger and cargo traffic in the Asia/Pacific (APAC) Region, as well as commensurate expansions in airline operations, the aviation and aerospace

sectors in Malaysia have undertaken significant initiatives to meet the changing market demands that have been a direct off-shoot of the nation's rapidly globalizing air transport environment.

Malaysia's air transport industry is experiencing rapid and significant growth, both in passenger and cargo traffic. Airports in the nation handled more than 45 million passengers in 2007, more than 50 million passengers in 2009, and are expected to reach more than 55 million in 2012 (see Fig. 1 - INSERT LOCATION).

Malaysian airports handled close to one million metric tonnes of cargo in 2007. This figure declined slightly, due to global economic downturns in 2009, to 0.8 million tonnes. In view of the economic recovery expected in the second quarter of 2010, these airports are projected to handle 1.2 million tonnes of cargo in 2012 (see Fig. 2 - INSERT LOCATION).

In terms of aircraft movements, Malaysian airports accommodated 451,334 aircraft in 2007; 530,750 in 2009; and some 600,000 aircraft movements are projected by 2012.

Figure 1: Malaysian Passenger Movements (actual and projected - millions)

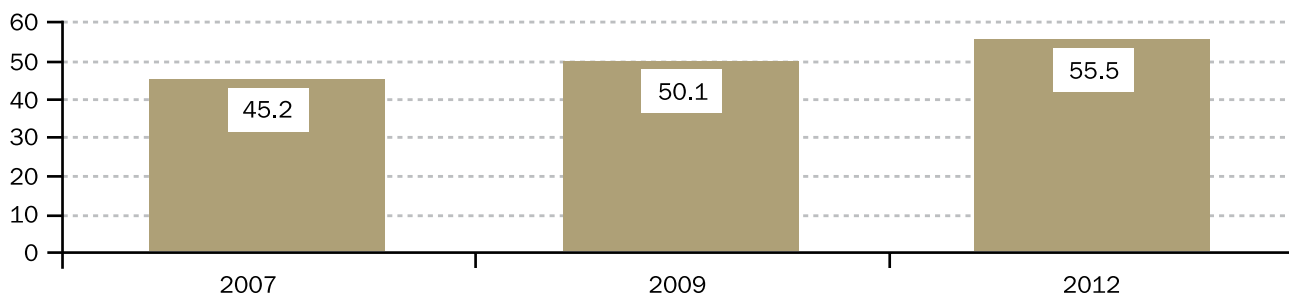
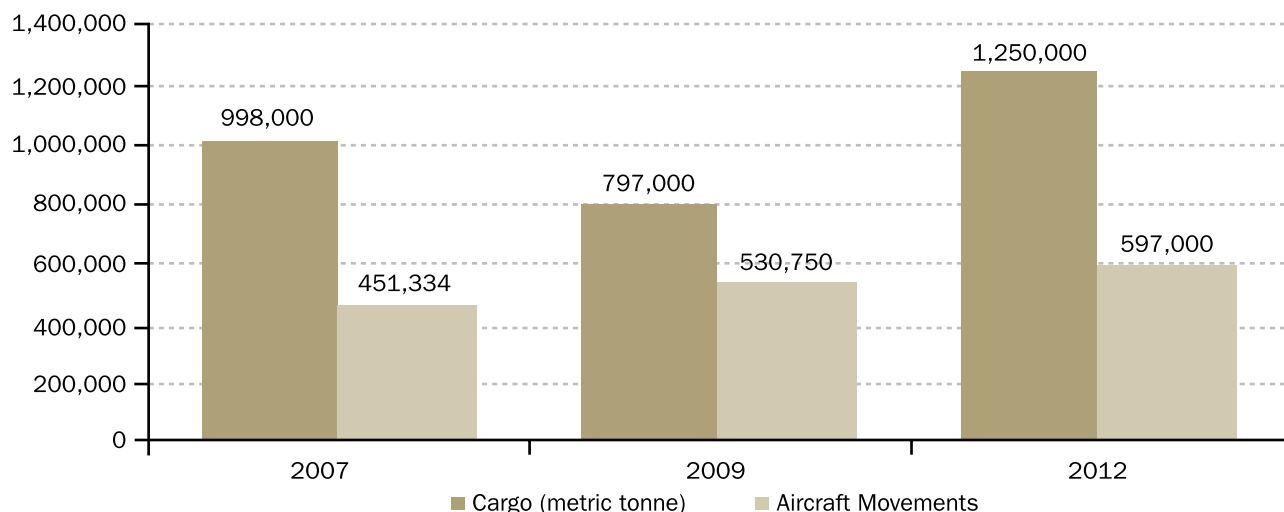


Figure 2: Malaysian Air Cargo (tonnes) in relation to total Aircraft Movements (actual and projected)





“Our vision is to provide an integrated, efficient, cost-effective, technologically-advanced and safe air transport system that will act as a catalyst to facilitate trade, promote socio-economic development and assist Malaysia in achieving its vision to be an industrialized nation by 2020.”

– Y.B. Dato' Sri Ong Tee Keat
Minister of Transport, Malaysia



“The Malaysian air transport industry has demonstrated some remarkable achievements and developments in line with its current modernization. We must not be complacent, however, but work harder still to achieve excellence. The Ministry of Transport shall endeavour therefore to continuously enhance its planning and implementation role to assist the ongoing development of the national air transport industry.”

– Dato' Long See Wool
Secretary General

In recent decades, Malaysian achievements in the civil aviation and aerospace industries have been numerous. The rapidly-industrializing APAC State designs and builds light aircraft for export and produces aircraft components for major global manufacturers under joint-venture arrangements. The general aviation sector has also made its mark through the development of the Malaysia International Aerospace Centre (MIAC) in 2005.

Since its accession to the International Civil Aviation Organization (ICAO) in 1958, Malaysia has continuously supported and upheld the leadership role of the Organization in promoting the safe and orderly development of international civil aviation. In tandem with the *1Malaysia* concept, regulators and industry players work hand-in-hand in serving the world of aviation. Inspired by ICAO's strategic objectives, Malaysia is ready to take a more prominent role towards the development of a safer and more secured, sustainable, and environmentally-friendly global aviation sector.

The Malaysian Department of Civil Aviation (DCA)

The rapid expansion of Malaysia's aviation sector and air transport industry is largely due to the pragmatic approach taken by the Department of Civil Aviation (DCA) in ensuring compliance to the Standards and Recommended Practices (SARPs) of ICAO.

The DCA has been established as a regulatory agency under the Ministry of Transport and its ongoing mission is to provide for the safe, secure, efficient and orderly flow of air transportation, as well as regulating aviation activities in Malaysia.

With the aim of enhancing the administration of its aviation matters, the Government of Malaysia has decided to restructure the DCA into an autonomous Civil Aviation Authority of Malaysia (CAAM). The new entity is expected to be established in 2011.

The Malaysian Department of Civil Aviation (DCA) provides a wide range of regulatory oversight and licensing services, including but not limited to those relating to:

- Aircraft.
- Air operators.
- Maintenance, repair and overhaul (MRO) organizations.
- Airports.
- The design and manufacturing of aircraft and aircraft components.
- Aircraft maintenance engineers.
- Pilots.
- Air traffic controllers.
- Aviation security.

The DCA also provides air navigation services (ANS) and flight inspection services (FIS), as well as working closely with airport concessionaires to ensure that effective service standards prevail, especially regarding the safety and security for air transportation.



“The DCA’s role in ensuring compliance to ICAO SARPs has made the aviation industry in Malaysia among the safest and most secure in the world. Collaboration and partnership with industry players have contributed significantly to this achievement. The management of aviation matters will be further enhanced through the establishment of the fully autonomous Civil Aviation Authority of Malaysia—CAAM.”

– Dato’ Azharuddin Abdul Rahman
Director General Civil Aviation

Airports

Malaysia has developed an extensive and well-developed airport network. There are currently six international airports serving global air transport: Kuala Lumpur International Airport (KLIA); Penang International Airport; Langkawi International Airport; Senai International Airport; Kota Kinabalu International Airport; and Kuching International Airport.

In addition, there are fifteen domestic airports in Malaysia and twenty-two airstrips providing scheduled services. The management and operations of all airports are privatized.

Kuala Lumpur International Airport (KLIA)

Kuala Lumpur International Airport (KLIA) is one of Southeast Asia’s major aviation hubs. It commenced operations in June 1998 and, today, KLIA is capable of handling 35 million passengers and 1.2 million tonnes of cargo a year as per its current development phase.

KLIA was voted “Best Airport” (15-25 million passengers per annum) on three separate occasions: once at the 2005 AETRA awards; secondly at the 2006 ACI-ASQ awards; and finally in 2007—again at the ACI-ASQ awards. KLIA was also voted the “Second Best Airport Worldwide” in the Asia/Pacific category

at the 2007 ACI-ASQ awards. The facility has matured into a model airport and is fast emerging as the gateway of choice in the Region. It has also been awarded many additional prestigious awards.

Currently, KLIA is comprised of two buildings; the Main Terminal Building (MTB) and the Satellite Building. All domestic and some international arrivals and departures operate from the Contact Pier at the MTB. Departure and arrival formalities (immigration, customs etc.) are also processed at the MTB. The Satellite Building caters solely to international arrivals and departures.



KLIA is linked to the rest of Peninsular Malaysia via a well-designed network of highways and expressways. From Kuala Lumpur, the primary access is through the North-South Central Link Expressway (ELITE) and the North-South Highway (PLUS) eastern route. Other modes of public transportation to and from KLIA include express buses, taxis, limousines and the Express Rail Link (ERL).

The ERL provides the fastest means of transportation to KLIA from the city centre. The KLIA Express and KLIA Transit trains provide dependable and rapid transport from the airport to Kuala Lumpur (KL Sentral - City Air Terminal) and vice-versa. At the City Air Terminal, departing KLIA-bound passengers have the option of checking-in their luggage and receiving their boarding passes before boarding their train for KLIA. Immigration clearance, meanwhile, is completed at the facility itself. Travel time between KL Sentral and KLIA is 28 minutes on the KLIA Express and 37 minutes on the KLIA Transit. The airport's new Low Cost Carrier Terminal (LCCT-KLIA) is an extension of its existing facilities. LCCT-KLIA was opened in March 2006 and initially operated at a capacity of 10 million passengers annually. It has undergone expansion in recent years that now allows it to cater to 15 million passengers annually. In Nov 2006, LCCT-KLIA was voted "Low Cost Airport of the Year" at the Centre for Asia Pacific Aviation (CAPA) Aviation Awards for Excellence. A new and more permanent LCCT is currently being built at KLIA.

Airlines

Malaysia Airlines

Malaysia's national carrier—Malaysia Airlines or MAS—provides service to sixteen domestic points and flies to more than one hundred international destinations, including those under code-share arrangements.

The carrier, which began operations in 1947 as Malayan Airways Limited, currently has a mixed fleet of Boeing 737s, Airbus 330s, Boeing 777s and Boeing 747s. Its specialized cargo subsidiary, MASKargo, operates eight Boeing 747 freighters. The airline is currently reviewing its network requirements for a total fleet replacement programme.

MAS has achieved a long record of service and best practices excellence, having received more than 100 awards in the last



10 years. The most notable of these include being the first airline with the "World's Best Cabin Crew" by Skytrax UK (consecutively from 2001 until 2004), "5-star Airline" in 2005 and 2006, as well as achieving No.1 status for its "Economy Class Onboard Excellence, 2006" – also by Skytrax UK.

AirAsia

Malaysia is also home to AirAsia, APAC's pioneering and largest low-cost carrier. An emerging Asian brand that has since gone global, AirAsia was voted the "World's Best Low-Cost Carrier" and the "Airline of the Year" for 2009. AirAsia flies to over 70 destinations in 18 countries and, through its "Now Everyone Can Fly" philosophy, has sparked a revolution in Regional air travel as more and more APAC passengers choose it as their airline of choice.

AirAsia X

Introduced in January 2007, AirAsia X has concentrated on the low-cost/long-haul market segment by focusing on the high frequency, point-to-point networks which characterize the long-haul services business. AirAsia X complements AirAsia's current and extensive route network, operating to destinations in Australia, China, India, Korea, Japan, the Middle East and Europe.

Firefly

Firefly is the first community airline in Malaysia and also a full-service, point-to-point carrier. Firefly is a full subsidiary of Malaysia Airlines and operates from two hubs—Sultan Abdul Aziz Shah Airport in Subang, Selangor, as well as Penang International Airport. Firefly leverages to market growth now being experienced by the dynamic Malaysia, Indonesia, Thailand and Singapore sub-Region—representing over 70 million people.

MASwings

MASwings is the commuter airline of Sabah and Sarawak, the two largest states of Malaysia which are located in Borneo.

Transmile Group

Another home-grown airline, Transmile Air is one of Malaysia's primary cargo carriers. It operates to nine international destinations using a fleet of sixteen aircraft comprised of MD-11s, Boeing 737s and Boeing 727s



General aviation

Malaysia has a full-fledged and thriving general aviation industry with twenty-one Air Services Permit (ASP) holders on the Malaysian register. Activities range from off-shore oil rig operations, cloud seeding, aerial photography, agricultural aerial spraying, and flying doctor services.

Aerospace industry

MIAC

The Malaysian International Aerospace Centre (MIAC) is strategically positioned at the former international airport at Subang. Following its launch in 2005, MIAC has helped to support and generate a thriving aerospace industry in the Region. MIAC supports various aerospace-related facilities and activities, including: Maintenance, Repair and Overhaul (MRO); Helicopter Centre; General Aviation Centre; Aerospace Training Centre; Aerospace Technology Centre (e.g. component manufacturing and aircraft assembly); and a Business Support Centre.

Malaysia's aerospace industry is expected to expand some 8 percent in 2010, supported by increased activity in the aero-manufacturing and maintenance, repair and overhaul sub-sectors. Revenue from the industry is projected to reach \$7.6 billion this year from \$7.3 billion last year, despite the economic downturn worldwide. From 2006 to 2008, Malaysia has attracted foreign investment of over \$500 billion in 13 aerospace projects, including the proposal by a first-tier manufacturer to set up operations in the country.

Bilateral Aviation Safety Agreement (BASA)

Malaysia achieved a significant milestone in the maturation of its aerospace development blueprint when it signed the FAA Bilateral Aviation Safety Agreement (BASA) in 1997.

This recognition was a first in Asia and only the fifth worldwide at the time. The BASA, in conjunction with the Category One Rating the FAA assigned to Malaysia in its International Aviation Safety Assessment (IASA) created an environment that was much more conducive to foreign investment in aviation-related industries. Major achievements since the signing have included:

- The export of Malaysian-designed and manufactured aircraft (Eagle 150 series and MD-3 160s) to the USA, Australia and New Zealand.
- The award of Airbus contracts to the Malaysian Composite Manufacturing Company (CTRM) for the design and manufacture of parts for the Airbus A320, A330 and A380. The CTRM has also been contracted by BAE Systems to design and manufacture aircraft composite parts and components.
- A joint-venture arrangement between Boeing, Hexzel, Naluri and Sime Darby for the manufacture and production of composite components and parts for Boeing aircraft.
- The award of a Honeywell contract to KOB Aviation to produce avionics parts and components for Boeing aircraft.
- The establishment of Malaysian-based MROs, like MAS, Airod and GEESM, to service aircraft.
- The setting-up of foreign MRO bases in Malaysia such as Eurocopter, AAR, General Electric, Hamilton Suntrands, Parker Hannifin and Honeywell, as well as aircraft component manufacturers such as Spirit Aerosystems and Honeywell.

Flight Training Schools

The airline industry is facing an increasing shortage of commercial pilots worldwide. To help mitigate any shortages in the supply of trained personnel, Malaysia has embarked on a deliberate policy to set up professional flight training schools—eight of which are now already in operation. More than one thousand pilots have graduated

from these schools over the last three years and all are planning to increase their capacity to cater to the growing and global demand projected industry-wide for pilots globally as this century progresses.

Aviation Training Centres

In the field of human capital development, the DCA has a comprehensive range of facilities and highly-qualified instructors at the newly built Malaysia Aviation Academy (MAVA). MAVA is self-sufficient in both radar and non-radar air traffic control (ATC) training and Malaysia has so far offered more than 350 fellowships to train air traffic controllers from more than 55 ICAO Member States under the Malaysian Technical Co-operation Programme (MTCP).

Another 800 participants from more than 40 countries have also benefited from the aviation security training programmes conducted at the Malaysia Airports Training Centre, an additional ICAO-accredited training facility.

ICAO audit performance

In compliance with applicable ICAO Annexes and SARPs, Malaysia had successfully undergone the following audits:

- Universal Safety Oversight Audit Programme (USOAP). This audit of Malaysian aviation was conducted in May 2000 regarding compliance with Annexes 1, 6 and 8.
- ICAO USOAP audit employing its new Comprehensive System Approach in June/July 2005. This process verified compliance by Malaysia with 16 ICAO Annexes.
- ICAO Universal Security Audit Programme (USAP) in January 2006. This process verified Malaysian compliance with ICAO Annex 17.

Malaysia continuously addresses the findings and recommendations that were generated through these audit processes and has authorized ICAO



to make available, on its public Web site, an executive summary depicting Malaysia's level of implementation of the critical elements associated with the USOAP.

Compliance and contributions

Malaysia is fully committed to the strategic objectives of ICAO with respect to the Organization's goal of enhancing global aviation safety and security, improving the efficiency of aviation operations, minimizing adverse environmental impacts from air transport and strengthening the laws governing civil aviation. Malaysia also remains fully supportive of the objectives and procedures related to the ICAO USOAP and USAP programmes. Malaysia has contributed its auditors, on a long-term secondment basis to ICAO, to support these programmes and will continue to

do so under the new Continuous Monitoring Approach (CMA).

As a Contracting State to ICAO, Malaysia consistently participates in meetings and hosts conferences held under the auspices of ICAO, both at the Regional and international levels. Malaysia has also participated and contributed its experts to ICAO's various panels, task forces and meetings, particularly at the ICAO APAC Regional level.

Towards a more prominent role for Malaysia in global aviation

Malaysia's expanding aviation activities, thriving aerospace industry, and dynamic aviation sector demonstrate its capability and potential to contribute more meaningfully towards the progress and advancement of international aviation. The State's aviation capabilities

and potential were clearly in focus when Malaysia was elected to the ICAO Council for the first time in 2007.

As an ICAO Council Member, Malaysia contributes positively to the work of ICAO through deliberations with and membership in the Council's various working groups and committees. Consistently inspired by ICAO's vision of the safe, secure and sustainable development of civil aviation, and with the support of other Member States, Malaysia stands ready to play a more prominent role in global aviation in collaboration with ICAO.

It is the hope of all Malaysian aviation stakeholders that their State will therefore be re-elected to the ICAO Council, so that it can continue to pursue and support ICAO's important objectives. ■

Deposit by Argentina

Argentina deposited its instrument of accession to the Montreal Convention of 1999 during a brief ceremony at ICAO Headquarters on December 16, 2009. This brought the total number of parties to the Convention to 93. ■



Shown on the occasion (from left to right) are: Mr. Sergio Prado, Alternate Representative of Argentina on the ICAO Council; Mr. Denys Wibaux, Director, ICAO Legal Affairs and External Relations Bureau; Mr. Alberto Singh, Representative of Argentina on the Council; and Mr. Guillermo Tagino, Alternate Representative on the Council and Consul General of Argentina in Montreal.

Fifth Meeting of the Central American Air Navigation Experts Working Group

The Fifth Meeting of the Central American Air Navigation Experts Working Group was held in Tegucigalpa, Honduras, from January 26 to 29, 2010, hosted by the Corporación Centroamericana de Servicios de Navegación Aérea (COCESNA). ■



The event was conducted in Spanish and attracted 42 participants from Belize, Costa Rica, El Salvador, Guatemala, Honduras, COCESNA and IATA. ICAO provided the Secretariat.



Aviation & Climate Change: The UAE Perspective

Capt. Aysha Al Hamili, Representative of the United Arab Emirates on the Council of ICAO

Environmental protection and sustainable development are core elements of the UAE's policy agenda. The UAE is actively committed to stabilization of the global climate system,

as evidenced by numerous initiatives and substantial investments in improved technology and infrastructure.

In this respect, the UAE's new Masdar City initiative will link climate change, economic opportunities, and clean energy. Its funding will go into infrastructure, manufacturing, and renewable energy projects such as solar power, hydrogen, wind power, carbon reduction, management technologies, and carbon capture and storage (CCS).

Moreover, Abu Dhabi is host to the headquarters of the International Renewable Energy Agency (IRENA), whose mandate is to promote the sustainable use of renewable energy sources globally.

Specifically on aviation, the UAE fully supports the consensus view of ICAO Member States as expressed at the High-level Meeting on Environment and Climate Change held at the Organization's Montreal Headquarters in October 2009. International civil aviation requires a global approach and the appropriate body to coordinate actions is ICAO. In any post-Kyoto global framework, it is imperative that ICAO continue to provide the necessary leadership and coordination.

Emissions from international civil aviation should be addressed through ICAO by embracing market-based measures through the adoption of a global, sectoral approach that would:

1. Not distort competition among operators.
2. Treat aviation as one indivisible sector rather than by country, incorporating an appropriate basket of complementary measures designed to have maximum effect.
3. Consider emissions reductions on a global basis.
4. Account (and pay) for aviation emissions only once.

In setting any proposed fuel efficiency standards and/or emissions reduction targets under a framework of market-based measures, aircraft operators having already invested heavily in modern, low emission fleets should be expressly recognized (i.e. the 'early mover' principle). The system should also incentivize investment in such fleets, and encourage diligent and conclusive research and development in renewable energy for aviation.

The UAE is encouraged by commitments of the international civil aviation sector to reduce CO₂ emissions and by its

willingness to adopt market-based measures—such as emissions trading—provided they are adopted on a global and sectoral basis.

Our State remains concerned, however, that failure to coordinate implementation would result in a patchwork of Regional and national measures. The prospect of multi-layered, conflicting and counterproductive Regional and/or local schemes concerns the UAE deeply, because we firmly believe that it would result in the following:

1. Uncoordinated and non-harmonized standards, making it difficult for operators to participate effectively. This, in turn, would result in carbon leakage, with its adverse effect on the environment.
2. Additional administrative burdens. Undoubtedly, multi-layered schemes would impose a myriad, differing monitoring, verification & reporting requirements.
3. Additional costs. Operators would have to pay more than once for carbon permits.
4. Numerous carbon markets, as opposed to a global sectoral one, might unnecessarily and unjustifiably boost the unitary price of carbon.
5. Additional costs might not necessarily translate into more environmental efficiencies, probably fewer.
6. A rise in the number of regional schemes might increase the risk of legal challenges, by raising questions of extraterritorial application.

The UAE does not support the imposition of taxes, charges or adaptation levies on international civil aviation. This is contrary to ICAO policies adopted through global consensus, an approach that has served Member States well. In our view, such taxes would severely compromise a sustainable future, not only for international civil aviation but particularly for some of the least developed countries as well as some island and landlocked States.

The UAE is unwaveringly committed to continue working within the ICAO process to achieve tangible, meaningful and lasting results at the forthcoming 37th Session of the ICAO Assembly. Failure to achieve such an outcome may not only jeopardize ICAO's leadership on aviation and climate change, it could once again cast the spotlight on international civil aviation as a potential source of 'adaptation funds.'

The UNFCCC's Report on Investment and Financial Flows has already noted this approach as an option. Should ICAO Member States truly believe that international civil aviation is a catalyst for economic growth, this last option cannot be entertained. ■



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