Abbreviations

ADS-B /-C Automatic Dependent Surveillance – Broadcast /– Contract
ATC Air Traffic Control
ATM Air Traffic Management
BOT Build-Operate-Transfer
BOO Build-Own-Operate
BOOT Build-Own-Operate-Transfer
BTO Build- Transfer - Operate
CAA Civil Aviation Authority
CASDR IFC Advisory Services Department (WBG)
CES Charles E. Schlumberger, Lead Air Transport Specialist (WBG)
CINTS IFC Infrastructure Department, Transport Division (WBG)
COCESNA Central American Air Traffic Control Organization
DME Distance Measuring Equipment
GNSS Global Navigation Satellite System
EASA European Aviation Safety Agency (agency of the European Union)
EC European Commission
ECSSD Europe and Central Asia Sustainable Development Unit
ESW Economic Sector Work
FEU Finance Economics and Urban Department
FAA Federal Aviation Administration of the United States of America
GASS Global Aviation Strategy Summit
IATA International Air Transport Association
IASA International Aviation Safety Assessment (FAA)
IBRD International Bank for Reconstruction and Development (WBG)
ICAO International Civil Aviation Organization (UN Agency)
IDA International Development Association (WBG)
IFC International Finance Corporation (WBG)
ILS Instrument Landing System
IOSA IATA Operational Safety Audit
MIGA Multilateral Investment Guarantee Agency (WBG)
PPPA Public Private Partnership Agreement
PPP Public-Private Partnership
RWY Runway
TA Technical Assistance
TWITR Transport Unit of the Transport Water ICT Department (WBG)
US DOT US Department of Transportation
USSOAP Universal Safety and Security Oversight Audits Program (ICAO)
VOR VHF Omni-directional Radio Range
WBG World Bank Group
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We would also like to thank Jose Luis Irigoyen, Director of Transport, Water and Information & Communications Technology and Marc Juhel, Sector Manager Transport for their continued guidance and support, and Nora Weisskopf for her assistance with the research and compilation of this report.
FOREWORD

The recovery of the aviation sector, which resulted in a global industry profit of US$18 billion in 2010, was hampered by new challenges during fiscal year 2011. Political unrest in many parts of the Middle East and North Africa, and the effects of the tragic earthquake and tsunami in Japan, had a dampening effect on demand in certain regions. During the same period, the price of oil increased by 45 percent to a new average of US$129 per barrel, which resulted in a massive increase in the operating costs of most carriers.

Despite these challenges, passenger air travel volumes continued to grow, as load factors improved. Air cargo, on the other hand, remained well below expectations with weak demand, reflecting a continued slump in world trade. Meanwhile, growth in passenger demand varied greatly between regions. The strongest increases occurred in Latin America, catalyzed by the Brazilian domestic market, and in the Middle East, with the continued expansion of global carriers in the United Arab Emirates. These regions were followed by Europe, which was able to build its long-haul traffic to East Asia, as well as developing intra-European demand. The Asia and Pacific market provided a mixed picture of slowing growth. Certain countries, for example India, continued to develop their domestic markets, but others experienced a sharp drop of demand, notably Japan and China. Finally, demand in North America remained weak given the continued slowdown of the US economy.

Despite these increased headwinds, the global air transport sector continues to expand, as it remains a vital ingredient for global economic development. Improvements have continued in safety and security standards, especially in emerging countries which had been lagging behind. However, global challenges linked to the sustainability of the sector are increasing, as energy demand and its environmental impact require global solutions. Many governments of emerging countries now have to respond to these issues, while their aviation sector needs continued growth to support economic development.

The World Bank Group remains committed to support its client countries in developing a sustainable air transport sector. The provision of safe, secure, and affordable air transport services depends on their global sustainability, so our support for development will increasingly focus on aspects of green growth of aviation.

Dr. Charles E. Schlumberger
Lead Air Transport Specialist
EXECUTIVE SUMMARY

The World Bank Group (WBG) fiscal year 2011 Air Transport Portfolio includes nearly 30 projects or project components in all six World Bank regions, as well as 28 active IFC investments and several advisory mandates. In FY11 several new projects were approved in the Latin America and the Caribbean and the Sub-Saharan Africa regions, amounting to US$97.13 million in new commitments. IFC’s Air Transport investment portfolio increased slightly to US$685.5 million. Overall, the active air transport portfolio volume of the WBG showed solid growth of 4.6 percent to US$1.3 billion.

The IDA and IBRD Air Transport Portfolio still focuses to a large extent on Africa, with new and additional commitments in Kenya and Tanzania approved this year. Infrastructure rehabilitation, institutional strengthening, and capacity building remain the core of these projects. New projects have also been approved in Bolivia and Grenada, strengthening the Latin America and the Caribbean portfolio. Reducing vulnerability to natural disasters has become particularly important in the Caribbean. The implementation of IBRD- and IDA- financed projects in Asia and the Middle East progressed satisfactorily in FY2011.

The IFC Air Transport Portfolio remained strong throughout the fiscal year, with an increase of 5.5 percent in active project commitments. Additionally, IFC Advisory expanded its portfolio services, having begun due diligence of various airports during FY11.

The focus of External Relations remains collaboration with the International Civil Aviation Organization (ICAO) on promoting safety and security, as well as environmental issues. The WBG, ICAO, and Routes (representing the airline industry) held their 6th Global Aviation Strategy Summit in Vancouver, Canada in September 2010.

Finally, industry-relevant Research by the WBG this year focused on air transport and energy efficiency, analyzing various measures of improving energy efficiency of the air transport industry.
WORLD BANK GROUP: AIR TRANSPORT PORTFOLIO FY2011

The WBG FY11 air transport portfolio is composed of various lending and non-lending (Technical assistance and Economic Sector Work) projects in the six regions as defined by the World Bank (IDA and IBRD). In addition, the IFC has a current portfolio of proposed and active lending or investment financing throughout the aviation sector.

<table>
<thead>
<tr>
<th>Active Projects</th>
<th>IBRD</th>
<th>IDA</th>
<th>IFC</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FY11</td>
<td>FY10</td>
<td>change</td>
<td>FY11</td>
</tr>
<tr>
<td>WB Group Total Active Portfolio</td>
<td>102,305</td>
<td>100,427</td>
<td>1.9%</td>
<td>69,450</td>
</tr>
<tr>
<td>WB Group Active Portfolio-Transport</td>
<td>26,005</td>
<td>23,667</td>
<td>9.9%</td>
<td>13,156</td>
</tr>
<tr>
<td>% of Total Active Portfolio</td>
<td>25.4%</td>
<td>23.6%</td>
<td>1.9%</td>
<td>18.9%</td>
</tr>
<tr>
<td>Air Transport Active Projects</td>
<td>285.0</td>
<td>281.8</td>
<td>1.1%</td>
<td>334.2</td>
</tr>
<tr>
<td>% of Total Active Portfolio</td>
<td>0.3%</td>
<td>0.3%</td>
<td>0.5%</td>
<td>0.5%</td>
</tr>
<tr>
<td>% of Total Transport Portfolio</td>
<td>1.1%</td>
<td>1.2%</td>
<td>2.5%</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

The overview above summarizes the WBG’s most important projects WBG. Several smaller-scale projects, project components or projects in early stages of development are not included.

1 Excluding the Multilateral Investment Guarantee Agency (MIGA)
IBRD & IDA PROJECTS OVERVIEW

IBRD and IDA contribute to almost 30 projects worldwide focusing on regulatory reform, capacity building and some infrastructure investments.
<table>
<thead>
<tr>
<th>Country</th>
<th>Project ID Code</th>
<th>Project Full Name</th>
<th>Description (Aviation Component)</th>
<th>WGB Commitment (Million US$)</th>
<th>Product Line</th>
<th>Status as of end-June 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>P117313</td>
<td>AICD Air Transport Sector Review</td>
<td>Overview and assessment of air transport sector in Africa</td>
<td>0.016</td>
<td>ESW</td>
<td>Closed</td>
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<tr>
<td>Africa</td>
<td>P112210</td>
<td>Eastern Africa Regional Aviation Project</td>
<td>Aviation safety and security improvement and regional integration</td>
<td>123</td>
<td>IDA credit</td>
<td>Pipeline</td>
</tr>
<tr>
<td>Benin, Mauritania, Senegal</td>
<td>P108583</td>
<td>West and Central Africa Air Transport Safety &amp; Security Project (Phase II B)</td>
<td>Aviation Safety and Security Improvements</td>
<td>16.57</td>
<td>IDA grant, IDA credit</td>
<td>Active</td>
</tr>
<tr>
<td>Burkina Faso, Cameroon, Guinea, Mali</td>
<td>P083751</td>
<td>West and Central Africa Air Transport Safety &amp; Security Project</td>
<td>Institution capacity building, safety and security improvements at main international airport</td>
<td>35.76</td>
<td>IDA grant, IDA credit</td>
<td>Active</td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>P114911</td>
<td>Donsin Airport</td>
<td>Feasibility study of a new airport</td>
<td>0.307</td>
<td>TA(Non-lending)</td>
<td>Active</td>
</tr>
<tr>
<td>Congo, Democratic Republic of</td>
<td>P092537</td>
<td>DRC Multi-modal Transport</td>
<td>Transport connectivity improvement and national economic integration</td>
<td>255</td>
<td>IDA grant</td>
<td>Active</td>
</tr>
<tr>
<td>Country</td>
<td>Project ID Code</td>
<td>Project Full Name</td>
<td>Description (Aviation Component)</td>
<td>WGB Commitment (Million US$)</td>
<td>Product Line</td>
<td>Status as of end-June 2011</td>
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</tr>
<tr>
<td>Kenya</td>
<td>P106200</td>
<td>Northern Corridor Transport Improvement Project (Additional Financing)</td>
<td>Cargo Handling at Nairobi Airport, Kenya Airways Privatization</td>
<td>253</td>
<td>IDA Credit</td>
<td>Active</td>
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<tr>
<td>Kenya</td>
<td>P124109</td>
<td>Kenya Transport Sector Support Project</td>
<td>Inst. Strengthening and Capacity Building</td>
<td>300</td>
<td>IDA credit</td>
<td>Active</td>
</tr>
<tr>
<td>Liberia</td>
<td>P101456</td>
<td>Infrastructure Rehabilitation Project</td>
<td>Supply and installation of airport equipment</td>
<td>8.5</td>
<td>Special Finance</td>
<td>Closed</td>
</tr>
<tr>
<td>Madagascar</td>
<td>P082806</td>
<td>Transport Infrastructure Investment Project</td>
<td>Airport Safety and Security Improvements, TA to the Establishment of PPPs in the Airport Sector</td>
<td>150</td>
<td>IDA credit</td>
<td>Active</td>
</tr>
<tr>
<td>Mauritania</td>
<td>P089672</td>
<td>Transport Sector Inst. Dev. And Technical Assistance Project</td>
<td>Airport Master Plan, institution capacity plan</td>
<td>4.5</td>
<td>IDA credit</td>
<td>Active</td>
</tr>
<tr>
<td>Nigeria</td>
<td>P100785</td>
<td>West and Central Africa Air Transport Safety &amp; Security Project (Phase II)</td>
<td>Inst. Strengthening, Safety and Security Improvements at Main Airports</td>
<td>46.65</td>
<td>IDA credit</td>
<td>Active</td>
</tr>
<tr>
<td>Country</td>
<td>Project ID Code</td>
<td>Project Full Name</td>
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<td>WGB Commitment (Million US$)</td>
<td>Product Line</td>
<td>Status as of end-June 2011</td>
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</tr>
<tr>
<td>Sierra Leone</td>
<td>P078389</td>
<td>Infrastructure Development Project</td>
<td>Infrastructure Rehabilitation at Freetown Airport</td>
<td>44</td>
<td>13.8</td>
<td>IDA credit</td>
</tr>
<tr>
<td>Tanzania</td>
<td>P055120</td>
<td>Transport Sector Support Project</td>
<td>Rehabilitation and extension of regional airports</td>
<td>270</td>
<td>69.2</td>
<td>IDA credit</td>
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<tr>
<td>Tanzania</td>
<td>P126206</td>
<td>Transport Sector Support Project</td>
<td>Rehabilitation and extension of the taxi ways and apron at the Zanzibar airport</td>
<td>59</td>
<td>57.23</td>
<td>IDA credit</td>
</tr>
<tr>
<td>Tanzania</td>
<td>P103633</td>
<td>Second Central Transport Corridor</td>
<td>Zanzibar Airport improvement</td>
<td>190</td>
<td>17.1</td>
<td>IDA credit</td>
</tr>
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</table>
## MIDDLE EAST AND NORTH AFRICA (MNA)

<table>
<thead>
<tr>
<th>Country</th>
<th>Project ID Code</th>
<th>Project Full Name</th>
<th>Description (Aviation Component)</th>
<th>WGB Commitment (Million US$)</th>
<th>Product Line</th>
<th>Status as of end-June 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egypt</td>
<td>P101201</td>
<td>Cairo Airport Development Project TB-2</td>
<td>Rehabilitation and expansion of Terminal Building 2</td>
<td>280</td>
<td>IBRD loan</td>
<td>Active</td>
</tr>
</tbody>
</table>

## LATIN AMERICA AND CARIBBEAN REGION (LAC)

<table>
<thead>
<tr>
<th>Country</th>
<th>Project ID Code</th>
<th>Project Full Name</th>
<th>Description (Aviation Component)</th>
<th>WGB Commitment (Million US$)</th>
<th>Product Line</th>
<th>Status as of end-June 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolivia</td>
<td>P122007</td>
<td>National Roads and Airport Infrastructure Project</td>
<td>Regional integration strengthening and airport infrastructure development</td>
<td>109.5</td>
<td>IDA credit</td>
<td>Active</td>
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<tr>
<td>Grenada, St. Vincent &amp; Grenadines</td>
<td>P117871</td>
<td>Regional Disaster Vulnerability Reduction APL1</td>
<td>Improvement of emergency response capability</td>
<td>20.92</td>
<td>IDA loan</td>
<td>Active</td>
</tr>
<tr>
<td>Haiti</td>
<td>P120895</td>
<td>Infrastructure and Institutions Emergency Recovery Project</td>
<td>Repair of Port-au-Prince airport’s departure terminal</td>
<td>65</td>
<td>IDA grant</td>
<td>Active</td>
</tr>
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</table>
### EAST ASIA AND PACIFIC (EAP)

<table>
<thead>
<tr>
<th>Country</th>
<th>Project ID Code</th>
<th>Project Full Name</th>
<th>Description (Aviation Component)</th>
<th>WGB Commitment (Million US$)</th>
<th>Product Line</th>
<th>Status as of end-June 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tonga</td>
<td>P120908</td>
<td>Transport Sector Consolidation Project (Additional Financing)</td>
<td>Airport safety and security improvement</td>
<td>1.47</td>
<td>Trust Fund</td>
<td>Dropped</td>
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<tr>
<td>Tonga</td>
<td>P096931</td>
<td>Transport Sector Consolidation Project</td>
<td>Technical Assistance to CAA</td>
<td>5.4</td>
<td>IDA grant</td>
<td>Active</td>
</tr>
<tr>
<td>Tonga</td>
<td>P118646</td>
<td>Transport Sector Consolidation Project (Additional Financing)</td>
<td>Construction of a fire station and passenger screening facilities at Fua’amotu international airport</td>
<td>8.6</td>
<td>IDA grant</td>
<td>Dropped</td>
</tr>
<tr>
<td>Tonga</td>
<td>P128939</td>
<td>Pacific Aviation Investment Program</td>
<td>Infrastructure Investment, Sector Reform and Training, Strengthening Airport Operations and Management Capacity</td>
<td>125</td>
<td>IDA grant</td>
<td>Pipeline</td>
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### SOUTH ASIA REGION (SAR)

<table>
<thead>
<tr>
<th>Country</th>
<th>Project ID Code</th>
<th>Project Full Name</th>
<th>Description (Aviation Component)</th>
<th>WGB Commitment (Million US$)</th>
<th>Product Line</th>
<th>Status as of end-June 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pakistan</td>
<td>P101684</td>
<td>Trade and Transport Facilitation II</td>
<td>Restructuring and modernization</td>
<td>25</td>
<td>IDA credit</td>
<td>Active</td>
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<tr>
<td>Pakistan</td>
<td>P101683</td>
<td>National Trade Corridor Improvement Program</td>
<td>To be defined</td>
<td>200</td>
<td>IDA Credit</td>
<td>Dropped</td>
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</table>

### EUROPE AND CENTRAL ASIA (ECA)

<table>
<thead>
<tr>
<th>Country</th>
<th>Project ID Code</th>
<th>Project Full Name</th>
<th>Description (Aviation Component)</th>
<th>WGB Commitment (Million US$)</th>
<th>Product Line</th>
<th>Status as of end-June 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia</td>
<td>P111493</td>
<td>FFS Transport Pulkovo Airport Expansion PPP ST Petersburg Part 2</td>
<td>Concession of the Pulkovo Airport</td>
<td>0.292</td>
<td>TA(Non-lending)</td>
<td>Closed</td>
</tr>
<tr>
<td>Russia</td>
<td>P122190</td>
<td>FFS Transport Pulkovo Airport Expansion PPP ST Petersburg Part 3</td>
<td>Concession of the Pulkovo Airport</td>
<td>0.048</td>
<td>TA(Non-lending)</td>
<td>Closed</td>
</tr>
<tr>
<td>Tajikistan</td>
<td>P117692</td>
<td>Programmatic Development Policy Grant 4</td>
<td>Support to a Strategic Set of Policy Reforms</td>
<td>25.4</td>
<td>IDA grant</td>
<td>Closed</td>
</tr>
</tbody>
</table>
Implementation of the Air Transport Safety and Security Project in West and Central Africa continued in FY11. The project’s objective is to (i) improve the Civil Aviation Authority's (CAA) compliance with International Civil Aviation Organization (ICAO) safety standards; (ii) increase CAA's compliance with ICAO’s security standard; and (iii) enhance the main international airports' compliance with ICAO’s security standards.

The main outcome targeted for participating countries is to reach full compliance with ICAO safety and security standards, for their civil aviation authorities and major international airports. The activities and investments in each country range from capacity building to procurement of safety and security equipment. Given the small size of the air transport industry and the limited resources in each country, these goals can only be achieved through regional cooperation. This has been achieved with the establishment of Regional Aviation Safety Oversight Agencies (RASOAs). Furthermore the project team is monitoring progress under ICAO’s Cooperative Development of Operational Safety and Continued Airworthiness Program (COSCAP) with sub-regional organizations (the UEMOA countries, the Banjul Accord countries, that is, Non-UEMOA countries within ECOWAS, and the CEMAC countries).

The Bank’s project is structured as a horizontal Adaptable Program Loan (APL) enabling any Western or Central African country not included in the initial phase to join during subsequent phases, under the same eligibility criteria. Included in phase I are Burkina Faso, Cameroon, Guinea and Mali, with an overall allocation of US$35.67 million. Phase II-A of the Program was initiated in FY08, including Nigeria’s participation in the program for an amount of US$46.65 million. In FY09 and FY10, Benin and Senegal joined the Program under Phase II-B, and were allocated a total amount of US$16.57 million.

All the participating countries in Phase I of the Project (APL1) achieved or even surpassed the project’s most significant monitoring indicators (compliance with ICAO safety and security standards; number of technical staff trained) through sustained training of technical staff in air transport safety and security issues, institutional reforms and regulatory framework updates. Despite its political crisis, Guinea’s situation has also improved: they completed the study to create an autonomous CAA and are implementing a plan to complete their institutional reform. The country has also made noticeable progress in their compliance with ICAO safety and security standards through an update of their regulatory framework, and training of their technical staff. The APL1’s closing date has just been extended from end December 2011 to end June, 2013, to allow the full completion of on-going and a few scheduled activities, to ensure that the project’s implementation is fully satisfactory.

The second phase of the project, APL2-A, helped Nigeria dramatically improve its safety standard. Nigeria, as the only country in the region, has received a US Federal Aviation Administration (FAA) International Aviation Safety Assessments (IASA) Category 1 rating in August 2010. This means that the
The Nigerian Civil Aviation Authority, is capable of enforcing international air safety standards set by ICAO for aircrafts operation and maintenance, and that the country has the laws and regulations necessary to oversee air carriers in accordance with minimum international standards. As a result, Nigeria’s registered carriers, such as Arik Air, can now offer direct flights to the USA for the first time in nearly 30 years.

Despite procurement issues, the Benin component of APL2-B has shown very positive progress with regards to the project development objectives indicators. Indeed, an audit carried out by EASA between February 14 and 18th 2011 confirmed the positive status of Key Performance Indicators (KPIs) for Safety and Security. Compliance with ICAO safety and security standards has improved from 37.33% to 65% and from 55% to 69% respectively.

As for Senegal, the ICAO audits that were scheduled to take place in the second semester 2011 have been postponed to the first semester of 2012 because of delays in the adoption of the national civil aviation code. Although the internal audit carried out by the CAA concluded that compliance with ICAO's standards is 85% and 89% for safety and security respectively, significant security issues still persist. Based on the project team’s findings after a tour along the airport fence, some sections of wall have fallen apart rendering the CAA’s internal security rating with regards to the airport component invalid. The Government will have to tackle these issues urgently as they could jeopardizes progress made so far towards achievement of the project development objectives.

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Tanzania - Transport Sector Support Project (P055120)

The Transport Sector Support Project (TSSP) in Tanzania, approved for a credit of US$270 million on May 27 2010, continued in FY11. The project supports the Transport Sector Investment Program (TSIP) through the rehabilitation and preparation of designs for part of the paved national road network, and the rehabilitation and/or upgrading of regional airports.

The work contracts regarding the aviation component of the project, which includes the paving and rehabilitation of the runway at Kigoma airport, the rehabilitation of the main runway at Tabora airport, as well as the extension, rehabilitation and paving of the runway and the replacement of the apron, terminal and car parking at Bukoba airport, are still waiting to be signed off and the commencement date for the works contracts has not yet been established.

With additional funding (AF) of US$59 million approved on 30 of June 2011, the project development objectives were revised and the scope of the aviation component expanded. The AF will now finance the works and the associated supervision services to rehabilitate, expand and/or extend the existing taxiways and apron of Zanzibar Airport. The Revolutionary Government of Zanzibar (GoZ) has also secured a loan from the China Exim Bank to finance a new terminal building.

Air traffic at Zanzibar airport is expected to grow from today’s 0.5 million passengers to 1.3 million by 2030. This increasing traffic coupled with the deteriorated condition of the taxiways and apron makes their rehabilitation and expansion very urgent.

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Kenya – Northern Corridor Transport Improvement Project (P082615, P106200)

This Bank project in Kenya, which began in 2003, represents the first major air transport infrastructure and regulatory capacity building project in Africa. So far, solid progress was achieved in implementing the various components of the project, which is divided into two main parts: (i) support to the Kenya Airports Authority (KAA) for airport infrastructure improvements and enhancing security at Kenyan airports, and (ii) support to the Kenya Civil Aviation Authority (KCAA) for regulatory capacity building and specific investments in navigation aids and training equipment. In order to deal with the high growth in passenger flows resulting from a sudden economic upturn, an additional credit of US$253 was approved in April 2009. The credit supports the financing of a new passenger terminal at Kenyatta International Airport (JKIA).

In the course of FY11 works have continued. The apron and the taxiways at JKIA have been expanded increasing the capacity of aircraft parking space by 50. The construction of Unit 4 (Terminal 4) has commenced, though major stakeholder have requested that this terminal be converted exclusively for international use due to high traffic growth prospects. Moreover bids for the renovation and modification of Units 1, 2, and 3 were scheduled for FY12.

Security equipment including a security fence and screening equipment as well as fire tenders have been procured and staff has been trained on security management. This has resulted in JKIA obtaining security clearance from the US Transport Security Administration and represents another milestone towards FAA IASA Category 1 Certification. Nevertheless, although remarkable improvements have been made in recruiting key professional staff, staffing levels remain inadequate and a number of the inspectors in place still lack the skills necessary to provide safety surveillance required by ICAO.

The government of Kenya has also endorsed the restructuring of KCAA and both KAA and KCAA have been given financial autonomy and now retain the revenues generated. As part of the restructuring KCAA has been raising pay packages to attract and retain qualified and experienced flight safety operations staff. Furthermore KAA has taken over the responsibility of screening passengers and baggage from the Kenyan police. The next step will be the separation of the service provision from its regulatory function.

In addition the expansion of a new airport at Kisumu was completed and bids for the supply of fencing materials for Kisumu airport have been invited. The same will be done for Wilson airport in FY12.

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Kenya – Northern Corridor Transport Improvement Project (P082615, P106200)
**Tanzania – Second Central Transport Corridor Project (P103633)**

The Second Central Transport Corridor Project (CTCP2) in Tanzania was approved on May 27, 2008 for a credit of US$190 million. The project supports the Tanzania National Strategy for Growth and Poverty Reduction (MKUKUTA) through the establishment of the Bus rapid Transit (BRT) system in Dar es Salaam and Rehabilitation and Extension of Zanzibar airport runway.

Under the project, the Zanzibar airport runway was rehabilitated and extended from 2462 meters by 560 meters to 3022 meters long. The pavement of the existing 18/36 runway with 2462 meters length and 45 meters width was fully rehabilitated. The 560 meters extension was constructed with 45 meters width. Other works included runway marking, construction of perimeter access road, repair and provision of new aeronautical ground lights (AGL), and provision of new filter drainage system on each side of the runway for the full length.

The works contract was implemented from April 2009 to July 2010 within the 15 months contract duration and official handing over date was August 3, 2010.

The Credit also financed the detailed design for rehabilitation and extension of Zanzibar airport taxiways and apron (US$331,716.19) which was completed in October 2010. The works are being financed through the additional financing credit to IDA’s Transport Sector Support project (TSSP) with an allocation of US$57.23 million for works and supervision.

The project has enabled the number of commercial regular flights to Zanzibar Island to increase, and the safety and customer satisfaction have improved.

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**Sierra Leone - Infrastructure Development Project (P078389)**

The Infrastructure Development Project seeks to rehabilitate selected priority roads, port, and airport facilities in Sierra Leone, while also supporting regulatory and institutional reforms to ensure effective management of the country’s road, port, and airport sectors.

The project’s aviation component concerns Freetown International Airport’s infrastructure and its management. It includes the rehabilitation and strengthening of the runway, with upgrading of turning loops and taxiway entrances to safely accommodate modern aircraft-works. These improvements have been completed in FY11.

The rehabilitation and expansion of the terminal building including the installation and upgrading of water and electricity facilities required for security, sanitation, firefighting and rescue operations are being financed by the government. This arose as the bids were much higher than budgeted, prompting the government’s decision to fund both the water and power provision.

The navigation installation and tower equipment are in the process of being installed and operational training for airport employees is ongoing. In order to increase efficiency and competitiveness of the Sierra Leone Airports Authority, baggage handling has been outsourced last year and is functioning well. Skyhandling Partners, a large French handling company, are now even considering computerizing the cargo tracking.

TWITR provided technical advice throughout the preparation of design and bidding documents for the airport infrastructure rehabilitation. Civil works are under way and goods are now being procured.

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Democratic Republic of Congo - Multimodal Transport Project (P092537)

The Bank’s Board approved the Multimodal Transport Project in the Democratic Republic of Congo (DRC) on 29 June 2010. The project is financed by an IDA grant of US$255 million and includes components for railways, ports, and aviation. The overall objective of the project is to improve transport connectivity in DRC, and to support national economic integration. In addition, it seeks to restore and develop the national railway system, supporting state owned enterprises in the transport sector, and implementing a sector wide governance plan.

The aviation sector is currently supported by a grant of US$10 million. The funds finance (i) the procurement and installation of ADS-B surveillance equipment by the National Airways Management Agency (RVA), (ii) a new category II ILS/VOR/DME system for the capital’s international airport Kinshasa/N’Djili (FIH), (iii) two studies on the development of airports in the country (one on freight development at FIH, and one on secondary airports), and (iv) training for RVA personnel in air traffic control, and airport rescue and fire fighting services.

Based on the Bank’s aviation component in DRC which includes a SOE reform component, the African Development Bank (ADB) prepared an airport/air transport project of US$180 million, which provides complementary investment to the RVA modernization plan.

Some successes can already be reported. A decrease of Air Traffic System incidences, enabled by training provided by ADB has been observed. The continuance of this positive trend is expected to be seen in the coming years.

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Mauritania - Transport Sector Institutional Development and Technical Assistance Project (P089672)

Implementation of the Transport Sector Institutional Development and Technical Assistance Project continued in FY11. The Project’s prime objective is to improve land, maritime and air transport sector management. Technical assistance will be provided to the Government of Mauritania for the implementation of institutional reforms, sector capacity strengthening and promotion of PPP for the development of transport infrastructure.

The aviation component of the project is specifically concerned with institutional support and capacity-building for the air transport subsector. In the course of the fiscal year 2011 the new (revised) Civil Aviation Code has been approved and enforced for both the legislative and regulatory parts. The preparation of the Mauritanian Airports Master Plan and Nouakchott Airport Development Plan are currently under way and are expected to be approved by mid 2012.

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MIDDLE EAST AND NORTH AFRICA (MNA)

Egypt – Cairo Airport Development Project – TB2 (P101201)

The objective of the Cairo Airport Development Project - Terminal Building 2 (TB2) is to support the Government of Egypt’s effort to (i) enhance the quality of air transport services in Egypt by increasing traffic-handling capacities at Cairo International Airport (CAI), and (ii) strengthening Egypt’s air transport in the context of international competition.

CAI is the largest airport in Egypt and the second-largest in Africa, after Johannesburg in South Africa. It is used by 58 passenger airlines, including various charter operators, and 10 cargo operators. It has a total capacity of 21 million passengers per annum (mppa) spread over three terminal buildings. Air traffic has grown in recent years, and this is expected to continue. CAI is a geospatially well-defined facility, and is recognized as having a significant local impact, with an important role in the country’s economic development. Nevertheless, like any major airport that acts as a regional hub, it is also exposed to international competition.

CAI is a critical link in the chain of services required and developed by tourism-related businesses, manufacturing industries and export-oriented specialty agriculture, contributing to their international competitiveness. As competition among alternative routings intensifies, efficiency, that is, quality of service vs. connection costs, of connecting airports is critical to the competitiveness of carriers based at or serving such airports.

The project implementation moved ahead swiftly in FY2011. The Egyptian Holding Company for Airports and Air Navigation (EHCAAN) published the bidding documents for the TB2 works contract —first component of the project-- in September 2010 and received bids from five international contractors in March 2011 before the submission deadline. The contracts should be signed by the end of 2011.

Significant progress was also made in FY2011 on technical assistance, the second component of the project. EHCAAN awarded contracts for three of the five studies to international consulting firms, which delivered several intermediate reports, and it launched procurement for the two remaining studies.

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The National Roads and Airport Infrastructure Project was approved by the Bank on the 5th of May 2011 and is expected to be effective in early January 2012. One of the components of the project is the improvement of the airport in Rurrenabaque. The overall investment for the airport is estimated at US$6.0 million, of which US$2.08 million correspond to investment related to safety and security.

The airport handles about 31,000 passengers annually, nearly solely through flights from La Paz. The project aims, through better infrastructure and key equipment, to enhance the safety and security of the airport and improve conditions for operational reliability. This will allow flight operation under conditions which now prohibit landings and departures.

The project specifically supports Phase 2 of the Rurrenabaque Airport Improvement Program, through the carrying out of the necessary civil works and supervision activities for the construction of a new taxiway, apron, control tower, operations building, rescue and fire fighting buildings, an access road, and a passenger terminal; and the acquisition and installation of aviation control, rescue and firefighting equipment. Furthermore support will be provided for the carrying out of the necessary audits under the Project.

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Grenada’s Maurice Bishop International Airport (MBIA) is the gateway to provide emergency relief locally as well as regionally. It is the alternate airport for Trinidad and Tobago, Barbados, and St. Vincent and the Grenadines, and provides air traffic support in emergency situations to the island of Saint Vincent. The continued operation of the airport is therefore critical to the region as well as to Grenada.

The airport authority has identified critical investments that are required both to maintain an adequate emergency response capability and to comply with operational standards as required by the International Civil Aviation Organization (ICAO). Aging emergency response equipment and deficiencies in operational equipment have been cited during recent ICAO airport certification inspections and must be addressed to maintain the operational certification. Absent investment in these purchases, Grenada and the region risk a downgrading of its airport certification. A downgrade in operational certification would prohibit most commercial aircraft from using the facility, crippling communications and tourism activities.

The equipment identified under the project addresses the major deficiencies noted, allowing the airport to comply with ICAO requirements, and improving operational resilience and response capacity to disaster impacts.

As part of this project a variety of equipment will be purchased mitigating the risk of natural disasters. The equipment is anticipated to be fully operational by 2014.

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Haiti - Infrastructure and Institutions Emergency Recovery (P120895)

As one of the poorest countries in the Western Hemisphere, Haiti has demonstrated high vulnerability to a significant number of economic and social crises, as well as to several exogenous shocks over the past decades. The country’s situation changed dramatically on 12 January 2010, when Haiti was struck by a catastrophic earthquake. The epicenter was located 25 km west of the capital and over 52 aftershocks followed. Over 200,000 lives have been lost, and about three million people directly affected. Over 250,000 buildings collapsed or were severely damaged, crippling the country’s fragile, but slowing emerging economy, as well as severely damaging most of its key infrastructure.

Immediate relief efforts following the earthquake were mounted by the international community. The World Bank announced support of US$100 million on 13 January 2010, and sent two missions to Haiti in the following weeks. In April 2010, TWITR (CES) participated in an identification missions to review Haiti’s air transport sector. The country’s air transport sector has proven to be a key element for conducting the humanitarian relief efforts. The capital’s airport, Port-au-Prince (PAP), was the only operational entry point to deploy relief personnel, equipment and materials. While the runway and apron were not affected during the quake, preexisting cracks and damages of the pavement represent a danger to aircraft. Major structural damage occurred to the terminal building, which needs reconstruction, and to the control tower, which needs to be replaced. In addition, the lighting systems and power supply are insufficient for night operations, and navigational aids (ILS/VOR) do not have a backup system. Nevertheless, airline operations were able to resume on 19 February 2010, and passengers are handled in a temporary arrival and departure hall, both of which need to be replaced with a more serviceable facility.

ICAO and the Haitian authorities estimated the overall cost to rehabilitate the country’s air transport infrastructure at US$255 million, which includes US$25 million of air navigation services, and US$230 million for the airport reconstruction. The airport component is composed of a new terminal building (estimated at US$80 million), land acquisition (estimated at US$50 million), and airport infrastructure, such as runway resurfacing, power, fencing, lighting system, crash and rescue equipment, and operational maintenance equipment (estimated at about US$100 million).

The Bank’s board approved the Haiti Infrastructure and Institutions Emergency Recovery Project on 09 March 2010, consisting of a US$65 million grant. Its objective is to support Haiti in its early recovery efforts, through selected interventions aiming at helping to rebuild key institutions and infrastructure. The project will finance the rehabilitation of key aviation infrastructure by an initial grant of US$3 million, which includes (i) reconstruction of ground - air communications tower, (ii) repair and/or replacement of two VOR (PAP, OBN), and verification of ILS (IMG), (iii) repair of runway lights at PAP, (iv) financing of associated cost for air traffic controllers training, and (v) construction of a runway end safety area on RWY10 at PAP.

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The Second Trade and Transport Facilitation Project (TTFP-2) is among the components of a World Bank package supporting a National Trade Corridor Improvement Program (NTCIP) designed by the Pakistani government to address the country’s transport and logistics issues. The package includes targeted investment lending for key reforms, and to respond to needs for improvement of infrastructure and its operation. The NTCIP’s development objectives are to reduce the cost of trade and transport logistics, and to raise service quality to international standards. This will reduce the cost of doing business in Pakistan, enhance export competitiveness and accelerate industrialization. The TTFP-2 will help by providing the analytical underpinning necessary to implement the reform agenda, and by preparing investments that are an integral component of the NTCIP.

To address the identified development issues, a civil aviation component for the National Trade and Transport Facilitation Project was prepared, which will include development of Air Transport Master Plan for Pakistan and an air safety improvement component. The component aims to improve operational safety by financing several GNSS-based instrument approaches, and by assessing the regulatory oversight by the CAA in view of the upcoming ICAO audit in July 2011.

In the course of FY11 a mock audit exercise was completed. The gap analysis determined that the CAA’s lack of compliance of 38% was higher than the global average but below the regional average. The CAA, with the help of a consultant, was able to lower this to around 25%, and with further efforts non compliance was estimated to be at 18% at the actual ICAO Audit.

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EAST ASIA AND PACIFIC

Tonga – Transport Consolidation Project (P096931)

The World Bank continues to work through the implementation of various project components as part of the Transport Consolidation Sector Project based in Tonga.

During FY11 progress the project has shown significant progress. There have been two major milestones completed in the 10/11 financial year. Firstly the rescue fire team has seen the introduction of the Responder Rescue Fire tender, which was commissioned in December 2010 in Tonga. This vehicle is a category 8 tender which now brings Fua’amotu International Airport up to international standards.

The team undertook extensive testing and commissioning in early November in Auckland, New Zealand prior to shipping it to Tonga. Also to support the new fire tender, additional personal fire fighting protective clothing was supplied under a separate agreement as part of the extended project.

In conjunction with the project, Tonga Airports Ltd (TAL) also completed and funded rescue fire training for its team to support the introduction of the new equipment, the training was in country and undertaken by a qualified overseas trainer in mid-2011.

The second major project completed in June 2011 was the A3 Strategic Infrastructure Plan. This project was undertaken over a six month period and looked at the current status of infrastructure at Fua’amotu and Vava’u airport which included physical layout, runways, facilities and utilities. As part of the project the team worked closely with TAL Management staff to understand current operations, any issues that may impact the plan and the future requirements from a regulatory, infrastructure and customer perspective.

The project looked at historical data relating to passenger numbers and took a 20 year view of three different business case scenarios based around future passenger and aircraft movements, using this information and detail from the airlines on potential changes to aircraft operating types, the Bank will able to settle on an infrastructure plan for both airports and potential options for funding the work.

Planning for a new rescue fire station and international terminal upgrades for Fua’amotu also progressed over the 10/11 financial year; the upgrade work will focus on supporting requirements to support safety, security and environmental initiatives. TAL is working on the final plans for the submission to the WB.

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RUSSIA AND CENTRAL ASIA (ECA)

Russia - Technical Assistance to Pulkovo Airport (P111493)

With six million residents, St. Petersburg is Russia’s second largest city, and of significant economic, political and cultural importance. Pulkovo International Airport is however only the country’s fourth-largest airport. The City of St Petersburg has recognized that Pulkovo needs to grow but is unfortunately constrained by the positioning of its two terminals and airside facilities.

An airport master plan was commissioned in 2005 and completed in 2007; it outlined the expansion and development required to keep pace with traffic forecasts. The municipal government decided that the development of the airport, including a new combined international and domestic terminal, should be undertaken via a Public Private Partnership (PPP).

The World Bank (a joint effort of ECA Sustainable Development Sector Unit – ECSSD, and the Finance Economics and Urban Department - FEU) was designated to act as strategic adviser to the City of St. Petersburg on the concession of the Pulkovo Airport (see IFC Project highlights, p.24). A concession agreement was signed in October 2009, and operational responsibility transferred to a private operator in April 2010 with financial effectiveness in July. During the first phase of the concession, the concessionaire committed to Euro 1.2 billion of investments over four years for rehabilitation and expansion of the airport.

The new terminal will be located directly to the north of the existing Terminal 1 and will contain 18 gates. With a slight delay construction started in Spring 2011 and is well underway (see p.24 for more details on construction).

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IFC PROJECTS OVERVIEW

The IFC, which provides financing to private sector companies, has traditionally financed air carriers and airport infrastructure projects. It has several projects at the proposal stage, or in active status.
<table>
<thead>
<tr>
<th>Country</th>
<th>Project No.</th>
<th>Description</th>
<th>Amount</th>
<th>IFC’s Exposure as of June 30 2011. ²</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>27048</td>
<td>AKFED Aviation; General purpose loan to a regional alliance of African Airlines</td>
<td>US$25 million</td>
<td>US$25 million</td>
<td>A Loan</td>
</tr>
<tr>
<td>Brazil</td>
<td>24609</td>
<td>GOL airline: financing for spare parts</td>
<td>US$50 million</td>
<td>US$25 million</td>
<td>Corp. Loan</td>
</tr>
<tr>
<td>Brazil</td>
<td>24384</td>
<td>TAM Airlines: pre-delivery payments for the purchase of Airbus A-320 family aircraft; corporate loan to support ongoing operations</td>
<td>US$50 million</td>
<td>US$2.8 million</td>
<td>Rev. Credit and Corp. Loan</td>
</tr>
<tr>
<td>Cambodia</td>
<td>25332</td>
<td>Cambodia Airports II: privatization of Phnom Penh International Airport – required capital and investments for expansion</td>
<td>Up to US$17.5 million</td>
<td>US$6.4 million</td>
<td>IFC A Loan up to US$7.5 million, IFC standby up to US$10 million</td>
</tr>
<tr>
<td>Cambodia</td>
<td>21363</td>
<td>Cambodia Airports: privatization of Phnom Penh International Airport</td>
<td>US$10 million</td>
<td>US$5.7 million</td>
<td>A Loan</td>
</tr>
<tr>
<td>Colombia</td>
<td>25899</td>
<td>Avianca: Financing of fleet renewal program</td>
<td>US$50 million</td>
<td>US$50 million</td>
<td>A &amp; C Loans</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>27883</td>
<td>Punta Cana Airport</td>
<td>US$20 million</td>
<td>US$20 million</td>
<td>A Loan</td>
</tr>
<tr>
<td>Georgia</td>
<td>24628</td>
<td>Tbilisi Airport: privatization</td>
<td>US$27 million</td>
<td>US$18.4 million</td>
<td>A Loan</td>
</tr>
<tr>
<td>Jamaica</td>
<td>11353</td>
<td>MBJ Phase 1 – New landside terminal renovation of existing terminal for Sangster International Airport</td>
<td>US$45 million; US$20 million for IFC’s own account</td>
<td>US$15.3 million for IFC’s own account</td>
<td>A &amp; B Loans Cross currency swaps</td>
</tr>
<tr>
<td>Jamaica</td>
<td>24306</td>
<td>MBJ Phase II - Expansion and redevelopment of Sangster International Airport</td>
<td>US$42 million; US$20 million for IFC’s own account</td>
<td>US$18.8 million for IFC’s own account</td>
<td>A &amp; B loans</td>
</tr>
</tbody>
</table>

² Exposure is defined as outstanding balance plus committed but undisbursed amounts if any.
<table>
<thead>
<tr>
<th>Country</th>
<th>Project No.</th>
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<th>Amount</th>
<th>IFC’s Exposure as of June 30 2011</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jamaica</td>
<td>26202</td>
<td>MBJ (CUTE): financing for new Common Use Terminal Equipment (CUTE) and Baggage Handling and Screening (BHS) systems for Sangster Intl Airport</td>
<td>US$5 million</td>
<td>US$1.8 million</td>
<td>A Loan</td>
</tr>
<tr>
<td>Jordan</td>
<td>26182</td>
<td>Rehabilitation both airside and landside of Queen Alia International Airport</td>
<td>US$295 million; US$127 million for IFC’s own account</td>
<td>US$159.2 million</td>
<td>A, B, C Loans and risk management products, IFC A Loan US$80 million, Syndicated B loan US$175 million, IFC C US$40 million; Cross Currency Swaps</td>
</tr>
<tr>
<td>Kenya</td>
<td>27688</td>
<td>DAC Aviation: purchase of small aircraft for humanitarian relief efforts</td>
<td>US$7 million</td>
<td>Nil</td>
<td>A loan</td>
</tr>
<tr>
<td>Mexico</td>
<td>24672</td>
<td>Vuela: Pre-delivery financing of up to 20 A-319 aircraft for Volaris airline</td>
<td>US$40 million</td>
<td>US$40 million</td>
<td>Rev. Credit</td>
</tr>
<tr>
<td>Nepal</td>
<td>27247</td>
<td>Buddha Air: purchase of small aircraft and long term working capital requirements</td>
<td>US$10 million</td>
<td>US$8.7 million</td>
<td>A loan</td>
</tr>
<tr>
<td>Peru</td>
<td>24489</td>
<td>Lima Airports Partnership: Financial Restructuring and assistance in conjunction with Fraport.</td>
<td>US$20 million</td>
<td>US$20 million</td>
<td>Equity</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>24127</td>
<td>Air Transport Systems: Purchase of small aircraft for air taxi operation</td>
<td>US$15 million</td>
<td>US$1.2 million</td>
<td>C Loan</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>28218</td>
<td>Pulkovo airport</td>
<td>US$236 million; US$101.3 million for IFC’s own account</td>
<td>US$101.3 million</td>
<td>A &amp; B Loans</td>
</tr>
<tr>
<td>Tunisia</td>
<td>26913 28076</td>
<td>TAV Tunisia: construction of a new airport in Enfidha, with an initial capacity of 7 million passengers a year, and rehabilitation of the airport in Monastir</td>
<td>US$253 million; US$184 million for IFC’s own account</td>
<td>US$177.5 million</td>
<td>IFC A Loan, Subordinated Loan, Syndicated B Loan, Equity</td>
</tr>
</tbody>
</table>

3 Exposure is defined as outstanding balance plus committed but undisbursed amounts if any.
IFC PROJECT HIGHLIGHTS

Pulkovo Airport – Russia (P28218)

Pulkovo Airport in St. Petersburg is the city’s only civil airport and served 6.8 million passengers in 2009 – a number that is expected to increase considerably in the future. A concession to operate the existing airport facilities and to construct a new terminal was awarded to Northern Capital Gateway (the “Project Company”) under the terms of a Public Private Partnership Agreement (“PPPA”) signed on 30 October 2009. The EUR€170 million IFC financing (EUR€70 million of IFC’s own account) is being used for the construction of the new terminal and associated facilities, as well as refurbishment of existing infrastructure and buildings at the airport.

Infrastructure works progressed successfully in FY11. The next project stage of airport re-construction will be the building of a centralized passenger terminal, which will increase carrying capacity significantly. This will be necessary as passenger figures have increased by 14% in the first half of 2011 in comparison to the same period in 2010. The re-construction project also includes the use of high international standards of safety and technical equipment of the airport, modern check-in procedures, customs legalization and passport control. With the introduction of the new terminal in 2013, Pulkovo airport will become one of the leading modern air transport nodes in Northern Europe and is anticipated to handle 17 million passengers by 2025.

Dominican Republic – Punta Cana Airport (P27883)

The Punta Cana International Airport, which serves the increasingly popular tourist resorts of the region, has become the country’s busiest and fastest growing airport.

As a result, investments of US$61.9 million have been required by its private owner and operator, Corporación Aeroportuaria del Este, S.A. (“CAE”) to expand the airport’s capacity and manage increasing demand. The investment will be used for: (i) construction of a new runway and taxiway suitable for larger aircraft, (ii) expansion of the existing passenger terminal, (iii) installation of additional safety equipment and, (iv) repair of the existing runway. IFC with a US$20 million senior loan, together with Banco BHD with a US$10 million parallel senior loan, are supporting the CAE 2009-2010 capital expansion program.

The financing of IFC is expected to benefit the Dominican economy and help develop its tourism industry, a key earner of foreign exchange for the country. At the end of the fiscal year 2011 the airport’s expansion was close to completion including a new Terminal Approach Radar Control (TRACON) facility and a new Automated Weather Observation Station (AWOS). This new facility also provides a back-up to the National Radar System located in Santo Domingo.
Africa – AKFED Aviation (P27048)

The Aviation division of the Aga Khan Fund for Economic Development’s (AKFED) is dedicated to provide worker training, investment knowledge and general management guidance, to strengthen existing airline companies and provide them with efficient equipment and resources. The objective of the fund has been to implement a turnaround and growth strategy for three African airlines carriers namely: Air Burkina, Air Mali, and Air Uganda (together, the "Celestair Airlines"). The project consists of three components: i) a US$62 million investment program including acquisition of aircraft and spare parts, refurbishment cost, a hangar in Ouagadougou and crew training costs; ii) consolidation of various overhead and common functions of the airlines; and iii) funding of start-up and expansion expenses until the airlines’ turnaround. IFC provided an A loan of US$25 million, which will help AKFED’s airlines to overhaul their route network, finance a new fleet and consolidate their commercial, procurement, administrative and financial functions. This will stimulate demand through improved frequencies, increase market shares and revenue growth, and will implement cost reduction initiatives improving their competitive position.

By supporting this project, IFC aims to help fill a serious void in regional air transport services in West and Central Africa and reinforce these services in East Africa, while catalyzing further progress with the much needed consolidation and co-operation in the region’s air transport industry.

Colombia – Avianca Airline Fleet Renewal (P25899)

Avianca, the oldest existing airline in the Americas, provides services to regions to which land connections are complicated as a result of difficult topography and large distances. Due to its important role in the development of industry and tourism in Colombia the airline has undertaken an investment plan to replace its older MD-83 and B757/767 aircraft with new and more fuel-efficient aircraft types, such as A319/320/330 and B78. This will help the airline to compete more effectively and deliver better services to customers. IFC responded to the carrier’s request to support Avianca’s fleet renewal program with a US$50 million financing facility. In FY10/11, the airline made the decision to retire the Fokker 100 aircrafts and replace them with 10 Airbus A318 leased from GECAS from 2011-2018. The aircraft were delivered during January to February 2011.

Jamaica – Montego Bay Airport Common Use Terminal Equipment (P26202)

Montego Bay’s Sangster International Airport, operated by MBJ Airports Limited, serves the North-West coast of Jamaica, where most resorts are located. As it is the island’s main gateway for tourism traffic, expansion and upgrading works, financed by IFC, had already been approved in 2002. Currently a second component is being financed by an A-loan of US$5 million, which will provide the airport with new Common Use Terminal Equipment, which increases the flexibility of the check-in system, and improves the interface between ground handling services, airline passenger handling, and the airport operator. The project also comprises a new baggage handling and screening system.
**Tunisia – TAV SA (P26913)**

Tunisia's existing airports have recorded strong traffic growth in recent years, and some face severe congestion. More growth is expected as a result of planned tourism and manufacturing developments, and of the outcome of the negotiations for an open skies agreement with the European Union.

In 2007, the Government of Tunisia granted a concession to TAV, a Turkish company specializing in airport operation and management, to operate the existing Monastir Airport, and to build, finance, and operate a new airport at Enfidha, with an initial annual capacity of seven million, and ample space for future expansion. The total project cost is estimated at 565 million EUR (about US$700 million, which makes it one of the largest private sector investments in Tunisia), financed through a 30% equity contribution from the sponsor, and 70% through debt. IFC’s investment, approved in FY08, was for a financing package of EUR€398 million, including direct long-term senior and subordinated loans of €135 million and a EUR€263 million syndicated loan, underwritten by ABN, Société Générale, and Standard Bank. In FY 09, IFC provided EUR€30 million in equity as substitution for part of the original IFC A loan exposure.

Building works on the new airport at Enfidha finished in 2009 and operations commenced in December of that year. The airport will be mostly used by European airlines bringing travelers to Tunisian holiday resorts. Due to recent political turmoil in the country, traffic has slowed down but is expected to pick up again once political stability returns.

**Cambodia - Phnom Penh International Airport (P25332)**

Phnom Penh Pochentong International Airport (PPIA) and Siem Reap International Airport (SRIA) as well as the smaller Sihanoukville Airport are important cornerstones of Cambodia’s tourism development. In 2004, the IFC had already provided a loan of US$10 million to the airports’ consignee Société Concessionnaire de l’Aéroport (SCA) to support capital expenditures at PPIA and SRIA.

A new project was initiated in 2006, consisting of a terminal extension at Phnom Penh, and infrastructure upgrading at Sihanoukville and Siem Reap, for a total cost of US$40 million. During FY 2007, the IFC provided a US$7.5 million A-loan, and US$10 million in a standby loan. In the following year the IFC investment programme was being implemented and is still ongoing as of June 2011. These investments will be crucial as passenger traffic at Siem Reap Airport is expected to climb to 4 million by 2014.

**Nepal – Buddha Air Private Ltd (P27247)**

Buddha Air Private Limited (BAPL) started operations in Nepal in 1997. The company focuses on scheduled passenger flights between the capital, Kathmandu and the regional airports as well as mountain flights. Due to capacity restrictions and increased demand the airline was required to extend its fleet by purchasing ATR42-300s, and constructing an aircraft hangar. In FY09, IFC approved a US$10 million corporate loan to the project.

During FY11 Buddha Air has further expanded its network to include international destinations such as Lucknow and Paro as well additional local destinations. To support this expansion the company has grown its fleet with the purchase of an additional ATR 72-500 in 2011.
Jordan – Queen Alia International Airport (P26182)

During an IFC advisory mandate in FY07 the concession of Queen Alia International Airport (QAIA) in Amman was awarded to the Airport International Group P.S.C (AIG). AIG has sought financing from the IFC and the Islamic Development Bank (IDB) to rehabilitate existing facilities, build a new passenger terminal and demolish the existing terminal at QAIA once the new terminal is fully operational. Construction of the new terminal is expected to be completed in Spring 2012. Significant progress has been made in various areas of the project throughout FY11. Major construction milestones in 2010 include progress on the installation of domes, roofing systems and Piers Link bridges, delivery of the major equipment such as Passenger Boarding Bridges, elevators and escalators, the installation of the Baggage Handling System and curtain walling, the completion of the elevated via duct road, and the commencement of the main car parking towards the end of the year. QAIA has welcomed a multitude of new carriers, routes and additional flight frequencies over the last three years, from a broad range of scheduled air carriers including low-cost airline EasyJet.

The project is being financed by a combination of internal cash flow generation (US$134 million), equity (US$161 million), senior debt (US$347 million), and a subordinated loan (US$40 million). The senior debt is provided by both the IFC and the IDB, while the subordinated loan is financed only by IFC. The proposed investment by the IFC was approved in FY08.

Georgia – Tbilisi International Airport (P24628)

Anticipated continued traffic growth at Tbilisi International Airport (TIA) has created the need for substantial upgrading and expansion of the airport’s facilities. This will allow the airport to operate at international standards of safety and efficiency and will support Georgia’s continued economic progress. The project is expected to cost US$76.5 million. This includes US$51.5 million for the construction of a new international terminal and car park, widening of the runway, extension of the apron and taxiways, and upgrade of emergency response services at TIA. It also includes US$4 million for acquisition of ground handling equipment at Tbilisi Airport, and US$15 million for the construction works and modernization of equipment and systems at Batumi International Airport, which will be invested in addition to working capital requirements, insurance, and financing costs.

The IFC signed a loan in May 2006 for a proposed investment consisting of an A loan to TIA’s concessionaire TAV Urban Georgia LLC of up to US$27 million for IFC’s own account. The European Bank for Reconstruction and Development provided a parallel loan of the same amount along with the IFC. During FY08, the reconstruction project was finished including the new international terminal, car park, improvements to the apron, taxiway and runway and acquisition of ground handling equipment. The capacity of the new terminal building is 2.8 million passengers per year.
Kenya - DAC Aviation (P27688)

Poor and unsafe road networks and highly inadequate rail transport systems have made it difficult for humanitarian aid organizations to get aid effectively to those who need it. In conflict-ridden regions such as Eastern DRC and DRC/Southern Sudan, organizations like WFP and ECHO have resorted to using air transportation for the movement of people and sometimes cargo in the region. Even though roads may exist in some areas, air transportation provides safety and efficiency, as well as quick response capabilities to these organizations in emergency situations.

The DAC Group (“DAC” or the “Group”) provides air charter services for the World Food Program (“WFP”) in Sudan and for the European Commission Humanitarian Aid Office (“ECHO”) in the Democratic Republic of Congo (“DRC”) in support of the humanitarian relief operations of these organizations. Trident Enterprises Ltd. (“TEL”), a subsidiary of DAC, is the asset holding company of the Group. TEL leases aircraft to a sister company of the Group, CMC Aviation (“CMC”) which has hangars and facilities at Nairobi’s Wilson Airport. Increased demand for passenger capacity by WFP has created an opportunity to purchase one 76-seater Bombardier Dash 8 Q400 aircraft to the Nairobi-based fleet.

The project has a high development impact as it supports a private airline company in Kenya, an IDA country which services humanitarian relief organizations in other IDA countries where they are critically needed. The greatest impact of the project is that it allows some of the world’s leading humanitarian organizations deliver aid where it is most needed.

Mexico - Compañía de Aviación (P24672)

Volaris is the third-largest, fastest-growing Mexican airline and part of the commercial brand of the Mexican group Concesionaria Vuela Compañía de Aviación S.A. de C.V. The IFC investment in this airline includes an US$30 million IFC revolving credit line for the financing of pre-delivery payments of 16 Airbus A319 aircraft and a US$10 million loan to Controladora Vuela Compañía de Aviación, S.A de C.V. (Controladora). Concesionaria Vuela Compañía de Aviación, S.A de C.V. acted as the guarantor.

The company focuses mainly on domestic transport but has evolved from its initial five routes to serve 24 domestic destinations as well as seven international destinations. The company has expanded rapidly, and as of June 2011 operates a fleet of 33 Airbus 320 and has 30 of Airbus’ new fuel efficient A320 Neo on order. Volaris’ discounted fares have stimulated demand and make air transportation accessible for a larger share of the Mexican population, while promoting connectivity and economic growth. Volaris also established an alliance with Southwest Airlines. The alliance began in April 2009 with Southwest Airlines distributing Volaris flights through the southwest.com website. However, beginning in the fourth quarter of 2010 an even more integrated connecting product between the two carriers was initiated, which enables Volaris Customers to travel to a wide range of destinations in the United States and Mexico.

Contact persons for all IFC air transport investment projects are Ravinder Bugga at rbugga@ifc.org and Harsh Gupta hgupta@ifc.org
IFC ADVISORY SERVICES (CASDR)

Air Transport Advisory Mandates

The Infrastructure Advisory Services Department of the IFC provides advisory assistance to governments on structuring and implementing (tendering) Public-Private-Partnerships (PPPs) in infrastructure. IFC has undertaken more than 100 advisory transactions in over 67 countries over the last 20 years. IFC/World Bank’s reputation for competence, transparency, and fairness allows it to play the role of neutral partner to balance each party’s interest, thus reassuring foreign investors, local partners, other creditors, and government authorities.

The two main domains in air transportation advisory services are private sector participation in airports and air carriers.

1) IFC Public-Private Partnerships (PPP) Advisory Mandates in Airports

Only 2% of the world’s 10,000 commercial airports are managed or owned by private sector entities. However, as passengers carried by air transport has exceeded two billion since 2005, and that same year, 40% of all merchandise and goods (in value) were air freighted – Public-Private-Partnerships (PPPs) in airport infrastructure will grow to meet investment and required service standards. Airport PPPs are useful approaches to meet both private and public sector objectives.

Of the various airport PPP models available, experience shows that concessions and full divestiture are most effective:

- Concession Contracts (BOT, BOO, BOOT, BTO, etc.): State retains ownership of airport but transfers investment as well as operations and management responsibilities to the private sector
- Full Divestiture: Ownership, operations, and investment responsibilities are fully transferred to the private sector
- In certain cases, a blend of first-phase BOT followed by public offering can maximize benefits

2) IFC Public-Private Partnerships (PPP) Advisory Mandates in Airlines

As the airline industry has proceeded along this privatization path over the last 20 years, IFC has participated in nearly a dozen airline transactions. Unfortunately, many have proved to be difficult projects due to important sector-specific structural reasons:

- Fixed-cost structure: Airlines tend to build up a legacy-costs base (staff and fleet) that is difficult for a new owner to manage. In addition, fuel costs are beyond management’s control. During the recent oil price spike, they accounted for as much as 30% of the cost base.
- Price-sensitive product: Demand for travel is highly elastic, especially in tourist markets. In recessions, people forgo vacations for other consumer goods. Conversely, price reductions increase passenger numbers dramatically.
- Complicated demand chain: Customers often purchase tickets through travel agents, frequently in a package with hotel accommodations. Since airlines rely on these other actors for their sales, if there are bottlenecks elsewhere the aviation sector suffers.
- Overregulation: Bilateral agreements between governments, still prevalent in many parts of the world, prevent competition from functioning normally. Open skies are being adopted, but not in all countries.
### Selected IFC Advisory Mandates in Airports

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Country</th>
<th>Year</th>
<th>Mandate / Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Madinah Airport</td>
<td>Saudi Arabia</td>
<td>2011-ongoing</td>
<td>Successfully awarded to TAV / Saudi Oger / Al Rajhi, and Financial Close Ongoing</td>
</tr>
<tr>
<td>Vanuatu Airport</td>
<td>Vanuatu</td>
<td>2011-ongoing</td>
<td>Initial Due Diligence Ongoing</td>
</tr>
<tr>
<td>Jamaica Airports</td>
<td>Jamaica</td>
<td>2011-ongoing</td>
<td>Initial Due Diligence Ongoing</td>
</tr>
<tr>
<td>Dili Airport</td>
<td>East Timor</td>
<td>2011-ongoing</td>
<td>Initial Due Diligence Ongoing</td>
</tr>
<tr>
<td>Maldives Airports</td>
<td>Maldives</td>
<td>2010</td>
<td>Successfully awarded to GMR-MAHB</td>
</tr>
<tr>
<td>Queen Alia Airport</td>
<td>Jordan</td>
<td>2007</td>
<td>Successfully awarded to Aéroports de Paris consortium</td>
</tr>
<tr>
<td>Hajj Terminal</td>
<td>Saudi Arabia</td>
<td>2007</td>
<td>Successfully awarded to Saudi Bin Laden Group</td>
</tr>
<tr>
<td>Nigeria Airports</td>
<td>Nigeria</td>
<td>2006</td>
<td>Awarded to Abuja Gateway Consortium (Airport Authority + equity partners)</td>
</tr>
</tbody>
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### Selected IFC Advisory Mandates in Airlines

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Country</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Air Jamaica</td>
<td>Jamaica</td>
<td>2009</td>
<td>Awarded to Caribbean Airlines</td>
</tr>
<tr>
<td>Drukair</td>
<td>Buthan</td>
<td>2008</td>
<td>Strategic analysis</td>
</tr>
<tr>
<td>JAT</td>
<td>Yugoslavia</td>
<td>2006</td>
<td>Strategic analysis</td>
</tr>
<tr>
<td>Polynesian Airlines</td>
<td>Samoa</td>
<td>2005</td>
<td>49% sold to Virgin Blue</td>
</tr>
<tr>
<td>Cameroon Airlines</td>
<td>Cameroon</td>
<td>2005</td>
<td>Awarded but Cancelled by Government</td>
</tr>
<tr>
<td>Air Tanzania</td>
<td>Tanzania</td>
<td>2002</td>
<td>49% sold to SAA</td>
</tr>
<tr>
<td>Kenya Airways</td>
<td>Kenya</td>
<td>1996</td>
<td>76% sold to KLM, financial investors</td>
</tr>
</tbody>
</table>
3) IFC Air Transportation Experience

When undertaking a transaction advisory mandate, IFC provides a one-stop solution to governments covering all aspects of the proposed transaction. One of the distinguishing features of IFC’s value addition is its ability to balance private and public sector interests and take into account sustainable long-term economic and social effects.

IFC Advisory Projects: Example of Madinah International Airport, Saudi Arabia

This project consisted of a 25-year concession for the rehabilitation, expansion, development, operation and maintenance of the Madinah Airport in Saudi Arabia. In April 2009, the General Authority of Civil Aviation of the Kingdom of Saudi Arabia (GACA) recruited IFC as the Lead Transaction Advisor to assist with the implementation of the PPP. This is the third IFC led project for GACA, and is a landmark transaction being the first full airport PPP ever carried out in the Gulf Cooperation Council region (GCC).

IFC acted as an honest broker, ensuring transparency in the bidding process, and coordinating the entire transaction as Lead Advisor. In addition, based on our successful experience in Saudi Arabia and the airports sector more generally, IFC was in a strong position to understand investor appetite for this Project, and structure the transaction in an optimum manner.

Bids were received from four international consortia, and following a detailed technical evaluation, three bids were allowed to proceed to the financial round. The TIBAH Consortium (led by TAV Airports Holding of Turkey, and in partnership with Saudi Oger and Al Rajhi Holdings of Saudi Arabia) emerged as the successful bidder with the highest annual gross revenue share to GACA. The Project was successfully awarded in October 2011, and is expected to close during the course of 2012, a process that IFC is also coordinating with GACA.

The Project mobilized private sector investment of $1.4 billion and the consortium will build a modern terminal capable of handling 8 million passengers annually by 2015, double the airport’s current capacity. By 2034, it will have been expanded over phases to accommodate 16 million passengers, mainly religious pilgrims from developing countries. It will also incorporate an eco-friendly passenger terminal building and operational techniques leading it to obtain a stamp of approval from LEED, an internationally-recognized green building certification system; this would be a first within the region. Finally, the Project will provide direct employment through construction and airport operations, and indirect employment through increases in tourism and the development of knowledge-based industries in the area.

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MULTILATERAL INVESTMENT GUARANTEE AGENCY

Guarantees provided by the Multilateral Investment Guarantee Agency (MIGA) cover projects in a broad range of sectors, with projects in infrastructure accounting for the largest share (41%) of the agency’s outstanding portfolio. Infrastructure development is an important priority for MIGA, given the estimated need for US$230 billion a year solely for new investment (maintenance needs are of a similar magnitude). This is to deal with the rapidly-growing urban centers and underserved rural populations in developing countries. Two recent example projects of MIGA guarantees are Jorge Chavez International Airport project in Peru and New Airport project in Quito, Ecuador.

Peru - Jorge Chavez International Airport (JCIA)

MIGA provided Fraport AG, of Germany with a guarantee for US$11.5 million, to cover its US$12.8 million counter guarantee for a performance bond posted for the privatization of Lima’s airport, Jorge Chavez International Airport (JCIA). The coverage is against the risk of expropriation (the wrongful call of the performance bond), and extends for eight years.

The Peruvian government sees airport privatization as a key factor in its effort to expand employment opportunities, and create a modern transportation facility to serve as the country's gateway to the world. It will also enhance and expand tourism, another government goal. During the first four years of the concession, the consortium is expected to invest over US$130 million in new infrastructure, including upgrades to the current terminal, construction of a new passenger concourse, expansion and addition of new aircraft aprons and taxiways, and creation of a hotel and world-class retail center within the existing airport perimeter.

Ecuador – New Airport at Quito

MIGA issued three guarantees of US$32.8 million, US$16.4 million, and US$16.4 million to the Aecon Group INC. of Canada, the HAS Development Corporation of the United States, and ADC Management Ltd. of the United Kingdom for their respective shareholder loans to Corporacion Quiport of Ecuador. In addition, MIGA also issued guarantees of US$450,000, US$225,000, and US$225,000 for the investors' respective equity investments in the project enterprise. The Aecon Group and HAS Development Corporation have coverage for a period of fourteen years for their shareholder loans while the remaining four guarantees are for a period for fifteen years. Each guarantee provides coverage against the risks of Transfer Restriction, War and Civil Disturbance, and Breach of Contract.

The project involves the construction of a new airport near Puembo, 24 km. outside the capital city of Quito. The project will be a key economic driver for sustainable economic development of the metropolitan region of Quito. The airport is expected to be operational by early 2008 to replace the existing airport in the city of Quito, which suffers from safety deficiencies as well as capacity constraints.

Contact person for all MIGA guarantees is Margaret A. Walsh at mwalsh@worldbank.org
EXTERNAL RELATIONS

International Civil Aviation Organization (ICAO)

The International Civil Aviation Organization (ICAO) is the specialized air transport agency of the United Nations. The WBG and ICAO enjoy a longstanding, strong, and cooperative relationship on various air transport issues. ICAO has provided safety and security audits and supervision services for the Bank’s projects in West and Central Africa and has assisted the Bank in identifying needs and priorities of air transport projects in various countries.

As in the previous year, the Bank participated in the High-Level Meeting of the ICAO Assembly, held on September 28-October 8, 2010 in Montreal. The Assembly was attended by a record 1,588 participants from 176 Contracting States and 40 international organizations. During the Assembly, Contracting States engaged in discussions on various issues and a new ICAO Council was elected for a three-year term.

The Bank team focused on three main topics: aviation and climate change, aviation safety, and aviation security, and followed other issues such as policy and facilitation. The Bank team also held numerous bilateral meetings with client countries and organizations, as well as partner states and organizations to discuss current and potential new projects and research.

During the Assembly, ICAO, IATA, the US Department of Transportation (US DOT), and the European Commission (EC) also signed a memorandum of understanding to create a framework and path forward to launch the Global Safety Information Exchange. IATA confirmed that the four organizations will start their cooperation by pooling and selecting the most relevant information for improving safety by risk reduction from each organization’s data collection. The Bank will continue to coordinate its air transport development efforts in the domain of safety with ICAO, IATA, the US DOT, and the EC.

In addition, the Bank maintained regular contact and meetings with ICAO officials during FY11. In July 2010 Charles E. Schlumberger accepted an invitation by ICAO to give a presentation on the Bank’s air transport project activities at the high-level meeting of COCESNA (Central American Air Traffic Control Organization) in Antigua. The meeting, which was attended by the President of ICAO, several Vice-Ministers of Transportation, and the Director Generals of Civil Aviation of the Central American States, discussed various needs and issues of the Central American air transport sector. COCESNA, which has had an excellent track and safety record over fifty years in providing air traffic control services, is considering various options for modernizing its ATC infrastructure.

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Global Aviation Strategy Summit (20-21 Sept 2010)

ICAO, the World Bank, and Routes jointly held the Global Aviation Strategy Summit (GASS) in Vancouver, Canada on September 20-21, 2010. The event, which marks the Bank’s only regular exchange with ICAO and the aviation community at large, was the sixth in an annual series of such events and the third event where Routes was associated as a partner. The GASS was co-located with the 16th World Route Development Forum at the Vancouver Convention Centre. Fundamental themes of concern to the air transport industry were addressed in sessions covering topics such as the aviation industry today, the environmental challenges and opportunities for the aviation industry, aviation as an economic development catalyst, and airports and airlines as drivers of urban renewal and economic development. The event, which was moderated by BBC reporter Aaron Heslehurst, resulted in dynamic interactions between the speakers, industry leaders, and other participants. The moderators prepared a set of conclusions for each topic which can be found at the GASS website (http://legacy.icao.int/GaSS2010/).

The Bank’s acting Director for Transport, Marc Juhel, provided an opening presentation, and Charles E. Schlumberger participated in the panels on the Environmental Challenges and Opportunities for the Industry, and on Security Issues. In addition, he moderated a session on Tourism Authorities at the third annual Tourism and Air Services Summit, which was held the day prior to the 16th World Route Development Forum at the same location.

The next GASS took place during the 17th World Route Development Forum in Berlin, Germany, on October 2-4, 2011.

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Charles E. Schlumberger and Diyun Wang participated in the ICAO/McGill Worldwide Conference on ‘Air Transport: What Route to Sustainability?’ which was held at the Hilton Bonaventure Hotel in Montreal, during the two days that preceded the ICAO Assembly.

Four fundamental themes of concern to the Assembly and global aviation were addressed: (i) the state of the aviation industry, (ii) security and facilitation, (iii) aviation and the environment, and (iv) strategies and the way forward. CES organized and moderated the panel "Protection of the Environment: Technological & Operational Solutions." Documentation and conclusions from the event can be found on the official website (http://www.icao.int/ICAO-McGill2010/Docs.htm).

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Community Service

Several World Bank staff members at the Bank are licensed and active pilots, certified by the US FAA and/or European Aviation Authorities EASA. To remain current on their pilot’s qualifications, they regularly fly and undergo required refresher training.

The most rewarding way of maintaining currency is to provide community service by providing free air transportation to people of all ages whose medical needs – evaluation, diagnosis, and treatment – can only be met by health care facilities far from their homes. In the US, the not-for-profit organization Angel Flight provides timely travel to patients who can’t withstand traveling long distances by automobile, rail, or bus, and who do not have the financial means to purchase suitable alternative transportation. In addition, transport in smaller private aircraft can better accommodate those patients whose condition could worsen if exposed to the re-circulated air on commercial flights, and who need efficient point-to-point transport.

One example of such an Angel Flight Mission was a flight from Manassas, VA, to Hartsville SC, in April 2011 to transport cancer patient Mary Williams. Ms. Williams was battling an advanced stage of cancer and needs regular treatment at a specialized clinic in Philadelphia. However, due to her personal circumstances she cannot afford the travel cost from her home in South Carolina to the treatment center in Pennsylvania. Angel Flight coordinated her trip between two volunteer aircraft free of charge.

The second flight was conducted by Charles E. Schlumberger who bore all cost for the mission. The Bank’s contribution, in accordance to Staff Manual 9.10, consisted of one day administrative leave to carry out this rewarding community service.

For more information visit www.angelflighteast.org

Contact person is Charles E. Schlumberger at cschlumberger@worldbank.org
INTERNAL DISSEMINATION

Air Transport Brown Bag Luncheon – Sustainable Airship Logistics for the Developing World

An Air Transport BBL was organized by TWITR on the topic of airship logistics on Wednesday 14 July 2010. Guest speaker Mike Voorhees from Skylight Aeronautics delivered a presentation on airships and talked about recent developments and innovations including the environmental benefits of this technology.

The presentation highlighted that recent innovations in airship design have led to the development of high-performance, rigid airships for inter and intra-continental cargo and passenger transport, each capable of payloads between 500 and 1000 metric tons. Airships could potentially provide transoceanic service at speeds and prices comparable to trucking, with energy consumption and carbon emissions lower than shipping for markets that have no such mid-range option. Both fuel consumption and greenhouse gas emissions could be reduced more than 90% compared to jet transportation, and by 75% compared to trucking, while transport times are reduced on average by 62% compared to container ships. Importantly, little to no infrastructure will be required, allowing remote and isolated communities to access global markets without the need for lengthy, environmentally damaging, and costly transportation infrastructure upgrading projects.

Air Transport Brown Bag Luncheon – Over-the-Horizon: ADS-B for Global Air Traffic Control

Efficient and safe air transport services have become a basic ingredient for economic development around the world. However, the industry has come under increased scrutiny given its growing environmental impact, especially fostering the effect of climate change by its CO2 emissions.

One of the low hanging fruits of reducing CO2 emissions are measures achieving fuel efficiency in flight operations. More direct routings or continuous descent approaches are two examples of effectively introducing such measures. In terms of safety, air transportation has reached a remarkable record. Nevertheless, air traffic surveillance in developing countries is generally very modest as many States cannot afford radar coverage for effective surveillance. As a result, many emerging are still controlled by "procedural air traffic control", which is inefficient and less accurate.

New surveillance technologies, so called Automatic Dependence Surveillance System Broadcast (ADS-B), are currently deployed in the US and some other areas around the world. These new, innovative technologies provide very accurate surveillance capability at a fraction of the cost of traditional radar systems (compare it with the introduction of cell phones, substituting land lines). TWITR organized a second BBL on the topic of ADS- B Air Traffic control on Wednesday 11 May 2011. Skip Nelson of ADS-B Technologies presented some recent installations in China, the experiences in Alaska, and developments on long -haul oceanic routes that greatly improve efficiency.

The Bank is currently preparing a few air transport infrastructure projects with components for the introduction of ADS-B.
RESEARCH AND INTERNAL SERVICES

Air Transport and Energy Efficiency

In July of 2008, the price for crude oil reached an historical high level of 147 dollars per barrel. As a consequence, many air carriers that didn’t hedge their fuel purchases suffered substantial losses. Despite the fact that the price of oil has substantially declined to a level of about 50 percent, many airlines are concerned about future price spikes that might occur when global demand for crude oil is restored. Increasingly, the industry worried about energy security, which is understood as the reliable and adequate supply of energy at reasonable prices.

Prior to this unprecedented price spike of crude oil, the International Civil Aviation Organization (ICAO) emphasized at its 36th Session of the Assembly in 2007, a proactive approach relating to alternative fuels, by recognizing “the importance of research and development in fuel efficiency and alternative fuels for aviation that will enable international air transport operations with a lower environmental impact”. Two years later, in Summer of 2009, the industry announced at the Annual General Meeting the International Air Transport Association (IATA) that the air transport industry would aim for “carbon neutral growth” from 2020, with a net reduction in emissions of 50 percent by 2050 compared to 2005 emissions. This objective should be reached by a steady increase in fuel efficiency, which will be achieved with several measures that among others include the application of biofuels in jet engines. Achieving ‘CNG 2005’ throughout 2020 to 2030, without biofuels, would require fuel efficiency to improve 43 percent in 2020 over 2005. With biofuels (17 billion liters, 6 percent of fuel use by 2020) the fuel efficiency required to hit ‘CNG 2005’ would be substantially less, because of lower emissions from fuel burn.

Behind this background, oil security and climate change, the international airline community has also begun to push the research and development of alternative fuels for air transportation, which includes the certification and production biofuels. However, while the Bank has done some research on biofuels, this ESW focuses on measures of improving energy efficiency of the air transport industry.


In FY11 Jean Francois Arvis, Senior Transport Economist at the World Bank and Ben Shepard, Principal at Developing Trade Consultants Ltd. produced an Air Connectivity Index. The authors constructed a new measure of connectivity in the global air transport network covering 211 countries and territories for the year 2007. The research is grounded in network analysis methods, and is based on a gravity-like model that is familiar from the international trade and regional science literatures. It is a global measure of connectivity, in the sense that it captures the full range of interactions among all network nodes, even when there is no direct flight connection between them.

The results show that the United States, Canada, and Germany are the best connected among the countries assessed. The United States’ score in particular was found to be more than two-thirds higher than the next placed country’s. Connectivity overall follows a power law distribution that is fully consistent with the hub-and-spoke nature of the global air transport network. The measure of connectivity is closely correlated with important economic variables, such as the degree of liberalization of air transport markets, and the extent of participation in international production networks. This research provides a strong basis for future research in areas such as air and maritime transport, as well as international trade.
### Air Carrier Advisory System for World Bank Staff Air Travel

The Bank has been developing an evaluation tool for assessment of the risks associated with air travel by Bank staff since FY 2008. The air carrier advisory system developed by the Bank’s General Service Department and TWITR was tested during FY10, and is ready for launch in FY11. The advisory service is based on the following criteria with three categories of airlines:

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<th>Category</th>
<th>Description</th>
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<td>1</td>
<td>All airlines that are <em>industry certified</em> by having passed an <a href="https://www.iata.org/iosa/home.aspx">IATA IOSA audit</a>, unless subsequent safety experience indicates a safety problem.</td>
<td>Good to fly. The Bank has no objection to using these airlines.</td>
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<tr>
<td>2</td>
<td>All airlines that though they are not <em>industry certified</em> are either licensed by a country with an <a href="https://www.faa.gov/airports_aeronautical/aeronautical_certifications/iasa_certifications/index.cfm">FAA IASA rating of Category 1</a>, or are known to the Bank as safe carriers.</td>
<td>Good to fly. The Bank has no objection to using these airlines.</td>
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| 3 | All airlines that are not in (1) or (2) above, or are on any blacklists, or are deemed to be unsafe for other reasons. | **3a.** Airlines that do not qualify for category 1 or 2, but there is no information known about them that would increase the risk factor.  
**3b.** Airlines that have 1 of the 4 risk criteria listed below, or some other safety factor that has been raised by the Bank’s air transport specialist. Check to see if there are any viable and safer transport alternatives before selecting this airline for mission travel.  
**3c.** Airlines with significantly elevated risk and 2 or more of the 4 risk criteria listed below, or some other safety factor that has been raised by the Bank’s air transport specialist. Use only for essential missions and only if no viable and safer transport alternatives are available. |

**Risk Criteria:**

- Serious accident in the last 3 years (defined as any incident that results in injury or death of a passenger or substantial damage to the aircraft)
- Registered in a country with poor oversight (based solely on ICAO safety audit)
- A flag of convenience airline (an airline that is registered and maintained in a country other than where it operates)
- Use of aircraft over 20 years old

Overall there were 169,567 flights booked by American Express for Bank Staff in FY 2011. Most of the flights booked by Bank staff are with airlines that considered to be *Good to fly*. Less than one percent (1,232 flights) of the flights were on airlines considered Category 3. (There may have been many more, as the data did not capture trip arranged in the regions.) Travelers should be aware that surface transportation may be impossible or may represent more risk than air travel in some client countries. TWITR will continue to provide ongoing assessments and safety advice for air travel of Bank staff.

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Financing of Air Transport-related Projects

Air Transportation will remain a vital infrastructure for global economic development. Despite new challenges, aviation is expected to continue to grow at a higher rate than GDP in most countries. Developing and emerging nations in particular will see an increased demand for air transport services in the years ahead. At the same time, meeting global standards on reliability, safety, security, and sustainability will be an essential condition for successful development of the air transport sector.

Air transport infrastructure around the world must be modernized to incorporate technological and environmental standards that are required for sustainable development. Modern air traffic control systems that allow more direct routings, green airport concepts aiming at reaching carbon neutrality, or the continued replacement of older aircraft with modern, more fuel-efficient types, are measures that need to be financed. However, given the limitations of public funding in many developing countries, such financing should be provided in cooperation with the private sector, for example through public-private partnerships.

The WBG will continue to address these development issues by providing financing for sustainable air transport projects. In addition to financing infrastructure, technical and policy improvements will be further implemented. In terms of policy, the Bank will continue to foster liberalization and regional integration of air transport services, especially in countries that do not have a sufficiently large market to operate a national carrier. Finally, regulatory oversight to enforce compliance with international safety and security standards remains a priority in many client countries.

The IFC will continue to fund the private sector of the air transport industry, as long as projects meet commercial criteria. Given that many emerging markets experience continued strong demand for air transport services, a few new IFC air transport projects are expected in FY12.

Research and Publications

The Bank, as a leading development institution, will continue to maintain high standards in its specialized technical sectors by maintaining research, conducting high-level technical exchanges, and fostering specific industry contacts. The Bank will publish a report on air transportation, environmental challenges, and issues about energy efficiency during FY12 in a research project called *Air Transport and Energy Efficiency*. Furthermore, a new study on the role and opportunities of low-cost carriers in developing countries will be launched in FY12.

In addition, several economic and policy research pieces on air transport services and trade development will be carried out and published.
About the World Bank Group

The World Bank is a vital source of financial and technical assistance to developing countries around the world. Our mission is to fight poverty with passion and professionalism for lasting results and to help people help themselves and their environment by providing resources, sharing knowledge, building capacity and forging partnerships in the public and private sectors.

We are not a bank in the common sense; we are made up of two unique development institutions owned by 187 member countries: the International Bank for Reconstruction and Development (IBRD) and the International Development Association (IDA).

Each institution plays a different but collaborative role in advancing the vision of inclusive and sustainable globalization. The IBRD aims to reduce poverty in middle-income and creditworthy poorer countries, while IDA focuses on the world’s poorest countries.

Their work is complemented by that of the International Finance Corporation (IFC), Multilateral Investment Guarantee Agency (MIGA) and the International Centre for the Settlement of Investment Disputes (ICSID).

Together, we provide low-interest loans, interest-free credits and grants to developing countries for a wide array of purposes that include investments in education, health, public administration, infrastructure, financial and private sector development, agriculture and environmental and natural resource management.

The World Bank, established in 1944, is headquartered in Washington, D.C. We have more than 10,000 employees in more than 100 offices worldwide.