



AIR TRANSPORT

ANNUAL REPORT 2019

Transport Global Practice







**END EXTREME
POVERTY WITHIN A
GENERATION AND
BOOST SHARED
PROSPERITY**

THE WORLD BANK MISSION



TABLE OF CONTENTS

FOREWORD	1
ABBREVIATIONS	3
ACKNOWLEDGEMENTS	4
OVERVIEW	5
PORTFOLIO	7
IBRD & IDA PROJECTS	9
IFC PROJECTS	55
MIGA PROJECTS	67
KNOWLEDGE	69
INTERNAL SERVICES	73
EXTERNAL RELATIONS	75
COMMUNITY SERVICE	80
OUTLOOK	81

FINANCING SAFE, AFFORDABLE, AND SUSTAINABLE AIR TRANSPORT WITH PRIVATE SECTOR PARTICIPATION

Air Transportation has become the global transport infrastructure, which plays a key role for economic development in all markets. Never before has the economy at large benefitted from a global network on multi-modal supply chains, which allows many developing and emerging countries to benefit by participating in manufacturing, trade or tourism. Markets have opened up, and liberalization in trade and services has supported the expansion of the global airline industry. As such, air transportation experienced a decadelong period of high growth, especially in emerging markets where many travelers boarded an aircraft for the first time.

However, growth in passenger traffic has started to slow. In 2019, global airline passenger demand grew 4.2%, which was below a long-term growth rate of around 5.5%. It was the weakest figure for revenue passenger-kilometer (RPK) growth since 2009, and a decline from 7.3% in 2018. Nonetheless, it significantly outpaced growth of global GDP, which is remarkable as air transportation typically follows the growth of the global economy. Airline passenger capacity has increased by 3.4% in 2019, which resulted in a rise of load factor by 0.7% to a new record high of 82.6%. Regionally, the strongest growth rates were seen in Africa and Asia-Pacific at 4.9% and 4.8% respectively, while Europe and Latin America both had growth rates of 4.2% and North America's was 4.1%. The Middle East saw growth of only 2.4%.

The strongest region, in terms of financial performance of its airlines, was North America where net post-tax profits were the highest at USD16.5 billion. This represents a net profit of USD16.0 per passenger, which is nearly twice the level of six years earlier. Net margins were forecasted at 6.0% for 2020, representing a slight decline from 2019 levels stemming from the decline in yields with rising capacity. In Europe, breakeven load factors remain quite high at 70.4%. This was caused by low yields due to the highly competitive open aviation market, and high regulatory costs. Nevertheless, given lower fuel cost and cancelled expansion strategies of some leading carriers, net profits were forecasted to be USD7.9 billion in 2020, representing USD 6.4 per passenger and a margin of 3.6%.

Airlines in Asia-Pacific suffered due to the weakness in world trade and cargo. Some modest recovery in world trade was expected for 2020 which would have improved profits in the region. The average profit per passenger was expected to increase to USD3.3 and net profits to increase to USD6.0 billion with a net margins of 2.2%. Middle Eastern airlines were in a process of restructuring, which resulted in a slowdown in capacity growth. The Middle Eastern airlines losses in 2019 amounted to USD1.5 billion, but a reduction to USD 1 billion was expected for 2020. Latin American airlines were on a path of recovery, but still losing USD 400 million in 2019. Nevertheless, improvements were implemented and airlines in Latin America were expecting a small profit of USD100 million in 2020. Africa, finally, remained as in the past 5 years the weakest region in terms of airline profitability. After losing USD400 million in 2018, the performance of African carriers improved only slightly. In average, African carriers continued to suffer from a very low load factor in 2019, which was expected to improve slightly to 58.8% in 2020.

The industry forecast for 2020, which was issued in late 2019, expected an overall improvement in global economic growth during 2020 and stable fuel prices. This should have resulted in a 4.1% growth of RPK globally, and a slight improvement of the airlines' financial performance to net profits of USD29.3 billion with an operating margin of 5.5%.

COVID will have a significant impact on international trade (13% decline) [...] global revenues of the airline industry will shrink by 50.4% in 2020

However, the unexpected grounding of most of the world's airlines in early 2020 due to the outbreak of the COVID-19 pandemic, which will have a severe impact on the global economy, completely changed the outlook. At the time of preparing this report, the global GDP was expected to contract by 5.0% in 2020, as COVID will have a significant impact on international trade (13% decline). It is estimated that global revenues of the airline industry will therefore shrink by 50.4% in 2020, which will result in the worst year in history for airlines with a net financial loss of USD84.3 billion.

The 15th edition of the World Bank Group (WBG) Air Transport Annual Report, which is published with a three month delay due to COVID-19, summarizes the support that is given to emerging and developing countries for the development of air transportation. However, while many current or planned projects continue to be implemented, numerous WBG client countries are facing unprecedented challenges in the new economic reality. In many markets where air transportation played a pivotal role for trade and tourism, the sustainable restoration of air services became a new national priority. The WBG is responding with support to client countries by adhering to the past principles of facilitating the development of safe, sustainable, and affordable air transportation services. For this, the so called "Cascade Approach" continues to be applied, which aims at countries maximizing the development resources by drawing on private financing and sustainable private sector solutions. As such, the WBG only provides financing for those areas where private sector engagement is not optimal or not available.

This Air Transport Annual Report summarizes the current portfolio of the air transport practice at the WBG, and highlights some of the projects in more detail. Given that no new major infrastructure projects have been initiated, the overall portfolio continued, as anticipated, to decrease by about 5% to USD 928 million. However, given that several new projects are in preparation in the Caribbean and in the Pacific, and given strong demand for technical assistance, the portfolio is expected to increase again in the coming years.

In these, especially for the air transport sector, challenging times, the World Bank Group remains actively engaged around the world in supporting its development, by addressing policy and regulation, safety, infrastructure rehabilitation, institutional strengthening, and capacity building in client countries.

We look forward to continuing addressing the new challenges and opportunities of the sector in 2020 with the aim at helping to achieve safe, affordable, and sustainable air transportation for all.



Dr. Charles E. Schlumberger
Lead Air Transport Specialist
The World Bank

ABBREVIATIONS

ACI	Airports Council International
ADS-B/C	Automatic Dependent Surveillance – Broadcast/Contract
AGL	Aeronautical Ground Lights
ASK	Available Seat Kilometer
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
CAGR	Compound Annual Growth Rate
DME	Distance Measuring Equipment
GNSS	Global Navigation Satellite System
EASA	European Aviation Safety Agency
EC	European Commission
ESW	Economic Sector Work
FAA	Federal Aviation Administration (United States)
FTK	Freight Tone Kilometers
FY 2019	Fiscal Year 2019 (01 July 2018 to 30 June 2019)
GDP	Gross Domestic Product
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)
ICSID	International Centre for Settlement of Investment Disputes
IDA	International Development Association (WBG)
IFC	International Finance Corporation (WBG)
ILS	Instrument Landing System
IOSA	IATA Operational Safety Audit
LCC	Low-Cost Carrier
MIGA	Multilateral Investment Guarantee Agency (WBG)
PASO	Pacific Aviation Safety Office
PDO	Project Development Objectives
PPPA	Public Private Partnership Agreement
PPP	Public-Private Partnership
RPK	Revenue Passenger Kilometer
SARP	Standards and Recommended Practices
SOE	State Owned Enterprises
TA	Technical Assistance
UN	United Nations
USD	United States Dollar
DOT	Department of Transportation (US)
USOAP	Universal Safety and Security Oversight Audits Program (ICAO)
VOR	VHF Omni-Directional Radio Range
VSAT	Very Small Aperture Terminal
WB(G)	World Bank (Group)

This report benefited from the contributions of a number of staff members from across the World Bank Group.

We would like to thank Nicolas De Leon, Maria Lopez Conde, Alexandre Leigh, Susan Vasquez, Moritz Nikolaus Nebe, Pierre Graftieux, Sevara Melibaeva, Erik von Uexkull, and Edward Anderson for their input to this report.

We would also like to thank Guangzhe Chen, Global and Regional Director, and Franz R. Drees-Gross, Regional Director of the Transport Global Practice for their continued guidance and support, as well as Virginia Maria Henriquez Fernandez for the research and preparation of this report.

The Mission

The World Bank Group (WBG) is a vital source of financial and technical assistance to developing countries around the world through the provision of low-interest loans, grants, credits, guarantees and advisory services. The World Bank Group aims to achieve two major goals by 2030:

- ◆ End extreme poverty by decreasing the percentage of people living on less than USD1.25 a day to no more than 3 percent.
- ◆ Promote shared prosperity by boosting the income of the bottom 40 percent of the population in every country.

The World Bank Group aims to tackle these challenges through financing, cutting-edge solutions, cross-sectorial knowledge, and partnerships with relevant public and private sector actors, as well as civil society. The organization's investments span across a number of sectors including education, health, public administration, private sector development, agriculture, and transport and digital development.

The Institutions and New Structure

The International Development Association (IDA) is the part of the World Bank that helps the world's poorest countries by providing interest-free loans, or credits, and grants. The World Bank's original lending arm is the International Bank for Reconstruction and Development (IBRD), which lends to governments of middle-income and creditworthy low-income countries. The International Finance Corporation (IFC) provides loans, equity, and advisory services to stimulate private sector investment in developing countries. The Multilateral Investment Guarantee Agency (MIGA) provides political risk insurance or guarantees to facilitate foreign direct investment in developing countries. The International Centre for Settlement of Investment Disputes (ICSID) is also a part of the WBG, but will not be covered in this report.

The WBG has recently undergone major institutional change, and Transport and Digital Development is now a Global Prac-

tice. The Bank's new nimble structure with Global Practices and Cross-Cutting Solution Areas is designed to strengthen collaboration and improve knowledge sharing across the institution. These changes are intended to improve operational efficiency, financial sustainability, and ultimately work toward meeting the twin goals of ending extreme poverty and boosting shared prosperity.

Enhancing Mobility and Connectivity

Transport is a critical driver of economic and social development. Transport infrastructure connects people to jobs, education, and health services; it enables the supply of goods and services around the world; and allows people to interact and generate the knowledge and solutions that foster long-term growth. The World Bank's transport investments have facilitated more efficient trade and enhanced human development through greater mobility.

As a multi-sectorial institution, the World Bank Group is uniquely positioned to support large-scale transformational projects and deliver innovative cross-cutting solutions for greater connectivity. The World Bank's strategy in the transport sector, adopted in 2008, envisioned mobility solutions for developing countries that would be safer, cleaner and more affordable. These three principles guide the Bank's infrastructure investments and policy work. The WBG is the largest provider of development finance for transport globally, with an active portfolio of around USD 48.2 billion.

Air transport plays an important role in fostering development, particularly in facilitating economic integration, generating trade, promoting tourism, and creating employment opportunities. It facilitates integration into the global economy and provides vital connectivity on a national, regional, and international scale. However, in many countries air transport equipment and infrastructure, regulatory frameworks, and safety and security oversight systems are inefficient or inadequate.

In view of these challenges and to assist clients in establishing a safe, secure, cost efficient, accessible and reliable air transport network, the Bank is mandated to undertake the following major activities:

- ◆ Operational work through projects and technical assistance.
- ◆ Economic sector work, research, and knowledge dissemination on air transport related issues.
- ◆ External relations and collaboration with partner organizations.
- ◆ Internal services (such as the airline advisory service for WBG staff travel).

Portfolio and Project Highlights

In Fiscal Year 2019 (FY2019), WBG's Air Transport Portfolio amounted to USD 928 million, a decrease of 5.26 percent from FY2018, which was due to the completion and closing of larger airport infrastructure projects. The Air Transport segment represents 2.22 percent of the WBG's USD 41.8 billion transport portfolio. The WBG's FY2019 transport portfolio consisted approximately 13.60 percent of the WBG's active portfolio of USD 307.4 billion (excluding MIGA).

The Air Transport portfolio includes 36 lending and non-lending projects or project components through the International Bank for Reconstruction and Development (IBRD) and International Development Association (IDA), as well as the International Finance Corporation (IFC)'s Investment portfolio. In addition, IFC is supporting 27 Advisory Mandates and MIGA is providing three Guarantees for the Air Transport Sector.

Project highlights in FY 2019 include the privatization of 51% of Cabo Verde Airlines, achieved under the ongoing Cabo Verde Transport Sector Reform Project, which provided technical assistance for the transaction. In addition, airport infrastructure works for the Goma Airport Safety Improvement Project in the Democratic Republic of Congo have picked up and advanced.

The Tonga Transport Sector Consolidation Project has closed with a satisfactory outcome rating based on its achievements, which include attaining the ICAO certification for the Fua'amotu International Airport. It is also worthy to highlight the successful completion of the first aviation Reimburse-

ment Advisory Services in Central Asia, which supported Uzbekistan in the establishment of aviation sector policy and improvement of institutional, financing, and organizational structure of the sector.

Three new aviation investment operations were approved including the Central Asia Regional Links Program - Phase 3 Project in Kyrgyz Republic, which will support the strengthening of the aviation sector's safety and service provision to help the Civil Aviation Agency comply with ICAO's international standards and recommended practices, as well as to overcome the current blacklist of Kyrgyz carriers by the EU.

Finally, an air transport team carried out assessments in Haiti, St. Lucia and Dominica for a potential Caribbean Regional Air Transport Connectivity Project to address the devastation caused by the hurricane season of 2018. The objective of the assessments was to discuss and identify investment and development needs in the Air Transport Sector of the three countries, as well as on regional aspects that needed to be addressed to facilitate air services. Potential projects were identified and outlined in three draft Project Concept Notes.

Major active projects financed by the International Finance Corporation (IFC) include Queen Alia Airport in Jordan, the Zagreb Airport in Croatia, the Enfidha Airport construction in Tunisia, as well as Belgrade Airport in Serbia. In addition, the IFC investment portfolio also includes Lima Airport in Peru and the 14 Regional Airports in Greece.

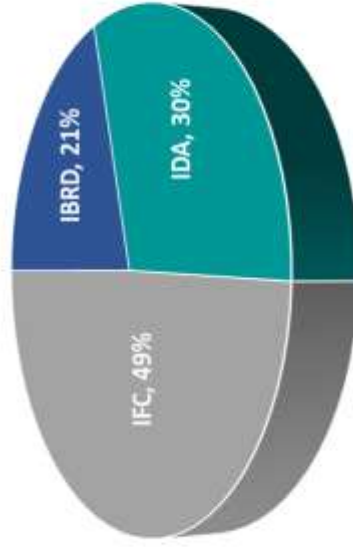
In addition, IFC is active through the provision of Advisory Services for Kingston Airport (Jamaica), the Saudi Airports (26 in total), Sofia Airport (Bulgaria), Podgorica and Tivat (Montenegro), Beirut Airport (Lebanon) and Clark Airport (Philippines). MIGA has been involved in the air transport sector in the past through the issuance of guarantees for three airport projects in Ecuador, Peru and Madagascar.

Research and External Relations

World Bank staff members continue to represent the organization externally at various air transport conferences and events, notably the ACI-WBG Aviation Symposium in London, UK. Research and knowledge dissemination also continue to constitute critical functions of the WBG's Air Transport Community of Practice (ATCOP). Looking forward, the practice maintains its strong commitment to addressing the challenges of its client countries.

PORTFOLIO

USD928M FY19 WBG AIR TRANSPORT PORTFOLIO



TEN YEAR TREND - AIR TRANSPORT PORTFOLIO (US\$ Millions)											
	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19
IBRD	407	282	285	277	325	329	325	325	325	92	44
IDA	283	287	334	336	447	457	507	420	341	311	309
IFC	650	679	686	633	593	647	535	496	596	576	575
Growth	7%	-7%	5%	-5%	10%	5%	-5%	-9%	-17%	-4%	0
Total	1340	1247	1305	1246	1365	1433	1367	1241	1029	979	928

The WBG is a vital source of financial and technical assistance to developing countries through low-interest loans, credits, and grants. In Fiscal Year 2019, the World Bank's Air Transport Portfolio was around USD 928 million. This included a total of 36 lending and non-lending projects or project components through the International Bank for Reconstruction and Development (IBRD) and International Development Association (IDA), as well as the International Finance Corporation (IFC)'s Investment portfolio. In addition, IFC is supporting 27 Advisory Mandates and MIGA is providing 3 Guarantees for the Air Transport Sector.

Active Portfolio	IBRD			IDA			IFC			TOTAL		
	FY19	FY18	Change	FY19	FY18	Change	FY19	FY18	Change	FY19	FY18	Change
<i>(in millions USD)</i>												
WB Group Total Active Portfolio	124,639	125,921	-1.02%	123,911	115,975	6.84%	58,847	57,173	2.93%	307,397	299,069	2.78%
WB Group Active Portfolio-Transport	25,019	27,032	-7.45%	14,453	18,416	-21.52%	2,349	2,801	-16.13%	41,821	48,249	-13.32%
Transport % of Total Active Portfolio	20.07%	21.47%	-6.49%	11.66%	15.88%	-1.17%	3.99%	4.90%	-18.52%	13.60%	16.13%	-15.67%
Air Transport Active Projects	44.16	92.42	-52.22%	308.58	310.92	-0.75%	574.97	575.86	-0.16%	927.71	979.20	-5.26%
% of Total Active Portfolio	0.04%	0.07%	-51.73%	0.25%	0.27%	-7.11%	0.98%	1.01%	-3.00%	0.30%	0.33%	-188.85%
% of Total Transport Portfolio	0.18%	0.34%	-48.37%	2.14%	1.69%	26.46%	24.47%	20.56%	19.05%	2.22%	2.03%	39.47%

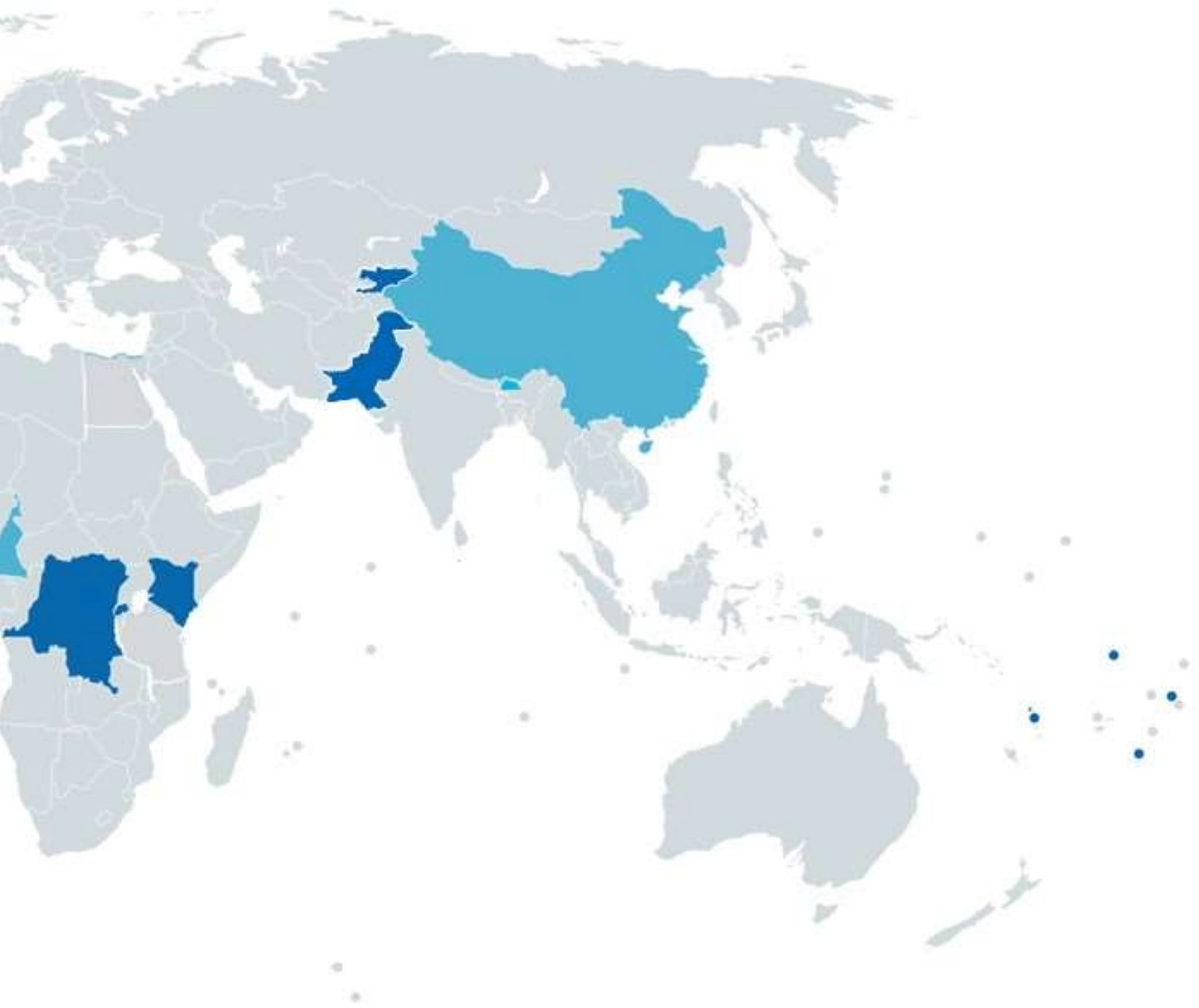
Note: Excluding the Multilateral Investment Guarantee Agency (MIGA)

Active Air Transport Projects in FY19: IBRD and IDA invest in a number of air transport projects worldwide focusing on regulatory reform, capacity building and infrastructure investments, as well as technical assistance and analytic/advisory services.



World Bank Commitment (Lending)

- IBRD
- IDA



IBRD AND IDA LENDING PROJECTS

Region	Country	Project Code	Project Name	Description of Aviation Component	WBG Commitment (USD M)		Type	Status as of End of FY2019
					Total (USD M)	Aviation Component		
Africa	Burkina Faso	P120960	BF Donsin Transport Infrastructure Project	Technical assistance for new Ouagadougou Airport	85.0	1.7	IDA Credit	Closed
Africa	Cabo Verde	P126516	Cabo Verde - Transport Sector Reform	Institutional capacity building, technical assistance, and support of national airline	46.0	5.06	IDA Credit	Active
Africa	Cameroon	P150999	CMR Transport Sector Development Project	To improve safety and security at Cameroon's four international airports	192.0	44.16	IBRD	Active
Africa	Democratic Republic of Congo	P153085	DRC-Goma Airport Project	Improve the safety, security, and operations of Goma International Airport through infra-structure investments and capacity building	52.0	45.24	IDA Grant	Active
Africa	Democratic Republic of Congo	P159217	DRC Hydromet	Institutional and regulatory strengthening, capacity building and implementation support, as well as modernization of equipment, facilities and infrastructure for basic observation and meteorological forecasting	8.0	0.87	IBRD	Active
Africa	Kenya	P124109	Transport Sector Support Project	Enhance aviation security and safety, and improve institutional capacity	503.5	45.32	IDA Credit	Active
Africa	Rwanda	P151083	Great Lakes Trade Facilitation Project	Rehabilitation of Kamembe International Airport by Lake Kivu in Southwestern Rwanda	79	14.2	IDA Credit	Active
East Asia Pacific	China	P123729	Shangrao Sanqingshan Airport Project	Improve airline connectivity and environmental sustainability of development and operation of the Shangrao Sanqingshan Airport	50.0	48	IBRD	Closed

Region	Country	Project Code	Project Name	Description of Aviation Component	WBG Commitment (USD M)		Type	Status as of End of FY2019
					Total (USD M)	Aviation Component		
East Asia Pacific	Kiribati	P128938	Kiribati Pacific Aviation Investment	Infrastructure investment, sector reform and training, and strengthening airport operations and management capacity	30.0	25.51	IDA Grant	Closed
East Asia Pacific	Samoa	P143408	Samoa Aviation Investment Project	Improve operational safety and oversight	41.6	38.3	IDA Grant	Active
East Asia Pacific	Solomon Islands	P166622	Solomon Islands Roads and Aviation Project	Improve operational safety and oversight of air transport and associated infrastructure	51.0	36.2	IDA Grant	Active
East Asia Pacific	Tonga	P096931	Tonga Transport Sector Consolidation	Improve safety and security compliance; provide technical assistance to CAA	9.4	4.25	IDA Grant	Closed
East Asia Pacific	Tonga	P128939	Tonga Pacific Aviation Investment	Infrastructure investment, sector reform and training, and strengthening airport operations and management capacity	34.5	26.53	IDA Grant	Active
East Asia Pacific	Tonga	P161539	Tonga Climate Resilient Transport Project	Aviation sector infrastructure rehabilitation at Salote Pilolevu Airport, Ha'apai.	26.0	3.0	IDA Grant	Active
East Asia Pacific	Tuvalu	P128940	Tuvalu Pacific Aviation Investment	Infrastructure investment, sector reform and training	29.5	25.7	IDA Grant	Active
East Asia Pacific	Vanuatu	P154149	Vanuatu Aviation Investment Project	physical works for Bauerfield International Airport runway rehabilitation and apron pavement improvements	73.6	67.71	IDA Credit	Active

IBRD AND IDA LENDING PROJECTS (continued)

Region	Country	Project Code	Project Name	Description of Aviation Component	WBG Commitment (USD M)		Type	Status as of End of FY2019
					Total (USD M)	Aviation Component		
East Asia Pacific	Pacific Islands	P145057	Pacific Aviation Safety Office Reform	Strengthen the Pacific Aviation Safety Office's technical and coordination capacity	5.7	0.65	IDA Grant	Active
Europe and Central Asia	Kyrgyz Republic	P159220	Central Asia Regional Links Program - Phase 3	Strengthening safety and service provision of the aviation sector	54.46	4.5	IDA Grant and IDA Credit	Active
Latin America and the Caribbean	Bolivia	P122007	BO National Roads & Airport Infrastructure	Infrastructure development; improve safety, security and operational reliability of the Rurrenabaque Airport	109.5	5.48	IDA Credit	Active
Latin America and the Caribbean	Eastern Caribbean Sub-Region	P117871	60 Regional Disaster Vuln Reduct. Projects	Regional Platforms for Hazard and Risk Evaluation, and Applications for Improved Decision Making	20.9	5.01	IDA Credit	Active
South Asia	Bhutan	P154477	Hydromet Serv & Dis Resilience Regional	The financing of aviation meteorology equipment, hardware and software to enhance aviation safety at Paro International Airport	3.8	0.8	IBRD	Active
South Asia	Pakistan	P163924	Pakistan Hydromet & DRM Services Project	Upgrading of the monitoring and forecasting system at airports to improve aviation services, and the installation of an Aircraft Meteorological Data Relay system at 10 international airports.	188.0	11.28	IDA Grant	Active

IBRD AND IDA NON-LENDING PROJECTS

Region	Country	Project Code	Project Name	Description of Aviation Component/ Activities	Aviation Component	Type	Status as of End of FY2019
Africa	Zimbabwe	P157125	Transport Sector Support to ZIMREF Capital Budget TA	Support to civil aviation restructuring by conducting a detailed restructuring study to inform decisions on financial risks, organizational structure, and future investments in aviation sub-sector.	20%	AA	Active
Africa	Western Africa	P161128	Air Transport Policy Reforms West Africa	Enable future, technical reforms by helping to improve the political economy environment for a transformation of the air transport sector in West Africa. In particular, enhancing the understanding of market mechanisms in the air transport sector, and how a conducive enabling environment for air transport operations can attract higher levels of regional and international private investments to the sector.	100%	AA	Closed
Africa	Namibia	P168420	Transport Sector PPP SOE Reform	During the earlier Bank support (P165419 Transport Sector PPP Support) for the assessment of the viability of PPP-options for two discrete Transport Sector activities, the operations of the new container terminal in the Port of Walvis Bay as well as the expansion of the landside and airside facilities at the Hosea Kutako International Airport, Government was made aware of the restructuring required for the two affected SOEs, Namport Holdings and Namibia Airport Company, to accommodate the impact of the respective PPPs. Government's Ministry of Public enterprises will in future be the shareholder for both these SOEs and indicated that they would need assistance in structuring and implementing such reform, firstly on these two SOEs, but also on the wider group of SOEs whose ownership would be transferred to the Ministry.	50%	AA	Closed

IBRD AND IDA NON-LENDING PROJECTS (continued)

Region	Country	Project Code	Project Name	Description of Aviation Component/ Activities	Aviation Component	Type	Status as of End of FY2019
AFR	Zambia	P170276	Transport Sector PPP-support	The Bank is providing support to review potential options to use PPP-based transactions to develop/operate/maintain several infrastructure investments in the Transport Sector. These include: (i) operation and maintenance of Kenneth Kaunda International Airport; (ii) upgrading, operation and maintenance of the Lusaka East ring road; (iii) operation and maintenance of Simon Mwansa Kapwepwe International Airport; (iv) development of a Warehousing, Transportation and Logistics Park in Lusaka; (v) upgrading, operation and maintenance of the Solwezi-Kipushi Road; and (vi) upgrading, operation and maintenance of the Chingola-Solwezi Road. Some of these activities will change as more information becomes available.	50%	AA	Active
East Asia Pacific	Vietnam	P164148	Connecting Vietnam for Growth and Shared Prosperity (Vietnam Development Report)	Preparation of Vietnam Development Report 2019, aiming at obtaining the analytical foundation to inform policy options and investment strategies to lower transport and trade costs, improve access to markets and opportunities, and maximize the benefits of domestic and international connectivity.	20%	AA	Closed
Middle East and North Africa	Yemen, Republic of	P165203	Yemen Post-Conflict Multimodal Transport Review and Strategy Note	Undertaking of multimodal transport sector Advisory Services to support Yemen's post-conflict economic recovery plans to assess the state of the transport sector infrastructure stock, institutional arrangements, condition as well as service delivery (roads, ports and airports).	33%	AA	Closed

Region	Country	Project Code	Project Name	Description of Aviation Component/ Activities	Aviation Component	Type	Status as of End of FY2019
Middle East and North Africa	Djibouti	P165946	Djibouti Transport Technical Assistance	The development objective is to support the Government of Djibouti's efforts to improve the performance of the Transport sector in the country. The activity will achieve this by developing a Transport Sector Development Plan / White Paper to identify (i) key reforms for the sector to increase its efficiency and (ii) a pipeline of potential Public-Private Partnership projects. The activity will be undertaken in the following three phases: (i) doing an overall transport sector diagnostic (existing transport infrastructure assessment, Djibouti's competitiveness assessment, institutional assessment, revenue analysis, and identifying the existing bottlenecks); (ii) identifying the gaps in the existing institutions and infrastructure, the needed reforms to optimize the utilization of existing infrastructure, future investment needs, and potential for private sector participation in the transport sector; and (iii) focusing on one or several sub-sectors (such as roads and urban transport) to improve their competitiveness and financing.	16%	AA	Active
Middle East and North Africa	Bahrain	P172994	Bahrain Aviation Sector Policy, Regulatory and Institutional Reforms	This RAS will develop and support implementation of regulatory, institutional and legal framework needed to reform the aviation sector and to establish the foundation for private sector participation. There will be four main tasks, each having several sub-tasks as following. This methodology assumes no changes in competitive positions, i.e. no market entries or exits by competing airlines: (i) review of air transport infrastructure; (ii) development of an institutional and policy framework; (iii) Develop PPP capacities for the aviation sector; (iv) market and traffic Forecast. The final report will include a road map for the subject sector reforms and where/how the World Bank can be of support.	100%	AA	Active

IBRD AND IDA NON-LENDING PROJECTS (continued)

Region	Country	Project Code	Project Name	Description of Aviation Component/ Activities	Aviation Component	Type	Status as of End of FY2019
East Asia Pacific	Indonesia	P165320	Bali Sustainable Transport and Connectivity Initiative	Review of the key transport infrastructure project proposals for Bali to assist in the prioritization of high priority, high-impact, no-regret investments for financing. One of these high priority investments that will likely be assessed in more detail include the second airport in the North of Bali.	16%	AA	Closed
Europe and Central Asia	Europe and Central Asia	P165756	Greener Transport Connectivity for the Six Eastern Partnership Countries	This project has three main activities. The first activity involves developing a connectivity model with geospatial representation based on the basic transport model prepared for the EaP Transport Panel Secretariat (P162871). Using this model/tool, the second activity assesses the impact in terms of connectivity and environment of green transport policy measures, including (i) identification of a prioritized investments plan to remove key bottlenecks, (ii) use of market instruments to internalize external effects of enhanced connectivity, (iii) impact of road safety measures on green transport, (iv) development of freight hubs and directions towards the physical internet, and (v) transit facilitation measures. Finally, the third activity will assess the use of both traditional and innovative instruments to finance the implementation of these measures.	25%	AA	Active
Europe and Central Asia	Tajikistan	P166816	Tajikistan Aviation Sector Reform and Private Sector Participation	This activity is based on the Bank's dialogue with the government and preliminary independent assessment of the aviation sector. As a follow up, the government has requested to continue its collaboration in the aviation sector in order to jointly develop a detailed plan of actions to reform the sector and assess opportunities to leverage the private sector and encourage greater private sector involvement in aviation, thereby enhancing synergies between the public and private sector. Key issues expected to be addressed are (i) institutional set up in the civil aviation sector, (ii) governance and regulation of infrastructure service providers, and (iii) competitiveness and efficiency of state-	100%	AA	Dropped

Region	Country	Project Code	Project Name	Description of Aviation Component/ Activities	Aviation Component	Type	Status as of End of FY2019
Europe and Central Asia	Uzbekistan	P168040	Support to Uzbekistan Aviation Sector Reforms	The World Bank will provide a comprehensive advisory service to the GoU to support the aviation sector modernization program in Uzbekistan. This support will develop recommendations for establishing an aviation sector policy and improving the institutional, financing, and organizational structure of the sector.	50%	AA	Closed
Europe and Central Asia	Uzbekistan	P168374	Uzbekistan Transport and Logistics Strategy	The World Bank is supporting the development of a high-level Transport and Logistics Policy that would provide a vision to policymakers and serve as an input for the preparation of a full-fledged Transport and Logistics Strategy by (i) laying out the higher-level objectives, vision and priority directions for the development of the sector, (ii) defining the key aspects for institutional reforms, (iii) identifying logistics and transport gaps and barriers, and (iv) presenting options for introduction of innovative financings mechanisms/PPP options in transport and logistics sectors. The ASA is covering railway, roads, aviation, and freight transport and logistics services. To achieve its objectives, the ASA includes the following activities: (ii) assessment of the current and projected needs in the transport and logistics sector; (ii) assessment of the institutional and policy framework in the transport and logistics sector; and (iii) assessment of innovative financing	25%	AA	Active

IBRD AND IDA NON-LENDING PROJECTS (continued)

Region	Country	Project Code	Project Name	Description of Aviation Component/ Activities	Aviation Component	Type	Status as of End of FY2019
Europe and Central Asia	Uzbekistan	P171027	PPPs and Sustainable Financing in Transport Sector	The proposed ASA will continue the dialogue with the GoU on developing sustainable financing mechanisms and attracting private sector for financing various investments in the transport and logistics sectors. This will entail the following: (i) provision of policy advice to the GoU on advancing the PPP agenda in transport and logistics sectors; (ii) support to the GoU institutions in identifying and building a pipeline of bankable projects in the sector; (iii) provision of just-in-time policy and technical advice on leveraging private sector participation in financing transport investments, including non-traditional sources of financing, to maximize the value-for-money; and (iv) assistance in developing a PPP investment program for transport projects with the greatest potential in maximizing financing for development (MFD). The activity will result in identification and generation of specific MFD-type projects that can be supported through lending or guarantees financed by the World Bank Group (WBG) and/or other financiers to leverage private sector investments in	25%	AA	Active
Europe and Central Asia	Uzbekistan	P171028	Support to Aviation Sector Reforms Phase 2	The additional support under the RAS Phase 2 will assist in the implementation of the ongoing sector restructuring by: (i) advancing institutional reforms initiated under the Presidential Decree No. 5584 on aviation (dated November 27, 2018); (ii) strengthening capacities in the sector, including that of the policy-making and regulatory oversight; (iii) formulating a National Aviation Policy; (iv) improving the sector's ability to meet the growing air transport demand; (v) enhancing the performance and sustainability of SOEs in aviation sector in the context of the current unbundling efforts; and (vi) facilitating private sector investment in	50%	AA	Active

IBRD AND IDA PIPELINE PROJECTS

Region	Country	Project Code	Project Name	Description of Aviation Component	WBG Commitment (USD M)		Type	Status as of End of FY2019
					Total (USD M)	Aviation Component		
Africa	Tanzania	P165660	Tanzania Development Corridors Transport Project	Finance the upgrading and rehabilitation of three priority regional airports out of the eleven airports.	550.0	84	IDA	Pipeline FY2022
East Asia Pacific	Pacific Islands	P166574	Sustainability of Aviation in the Pacific Island Countries	Pacific Aviation Infrastructure Maintenance Support and technical assistance for regulatory reform. It would finance a performance-based contract to engage the private sector in providing long-term maintenance to aviation infrastructure investments, improve the reliability of airport infrastructure and reduce downtime associated with unplanned outages. It will cover 12 airports within Kiribati, Samoa, Tonga, Tuvalu, Vanuatu, and Solomon Islands.	21.0	21	IDA	Dropped
Middle East and North Africa	Lebanon	P167765	Civil Aviation Reforms and Airport Expansion	The Project will finance three main components: (i) civil aviation reforms and strategy; (ii) government contribution to the terminal expansion as needed (CAPEX, guarantees); and (iii) improving	200.0	200	IBRD Loan	Dropped
Africa	Kenya	P167734	Kenya Aviation Systems Improvement Project	Improvement of aviation safety, security and strengthening of air transport institutions. This will be achieved through the installation of an integrated security systems at major airports; automation of regulatory functions at KCAA; installation of air navigation system; construction of an air accident investigation workshop at JKIA and strengthening the capacity of KCAA, KAA	100.0	100	IDA	Pipeline FY2021

Region	Country	Project Code	Project Name	Description of Aviation Component	WBG Commitment (USD M)		Type	Status as of End of FY2019
					Total (USD M)	Aviation Component		
East Asia Pacific	Vanuatu	P169297	Additional Financing II for Vanuatu Aviation Investment Project	Cover cost overruns from the project to ensure the completion of activities and improvement of operational safety and oversight of international air transport and associated infrastructure in Vanuatu.	5.0	5.0	IDA	Dropped
East Asia Pacific	Kiribati	P165838	Kiribati Outer Islands Transport Infrastructure Investment Project	The project identifies the need to complete the implementation of the roads and airfields upgrading in the outer islands, to improve the inter-island transport system, and to promote training opportunities. Potential technical assistance that countries may consider include tools that enable stakeholders to identify vulnerabilities and design and evaluate appropriate interventions to make roads, airports, and ports more resilient; airports and roads.	21.00	7.00	IDA	Pipeline FY2020
Latin America and the Caribbean	St Maarten	P167974	Sint Maarten Airport Terminal Reconstruction Project	Support the reconstruction of the Princess Juliana International Airport terminal facilities to restore airport function and to improve its resilience to hurricanes.	72.00	72.00	IDA	Pipeline FY2020
Latin America and the Caribbean	St. Lucia	P170860	Caribbean Regional Air Transport Connectivity Project - St. Lucia	Improve operational safety and navigation efficiency of air transport and enhance resilience of Saint Lucia's airport infrastructure to natural disasters.	45.00	45.00	IDA	Pipeline FY2020
Latin America and the Caribbean	Haiti	P170907	Caribbean Regional Air Transport Connectivity Project - Haiti	Improve operational safety and navigation efficiency of air transport in the Recipient's territory and increase the climate and disaster resilience of associated infrastructure at the Recipient's international airports	84.00	84.00	IDA	Pipeline FY2020
Latin America and the Caribbean	Dominica	P171224	Dominica - Caribbean Regional Air Transport Connectivity Project	Improve operational safety and resilience readiness to natural disasters of air transportation and strengthen the capacity of key agencies in air transportation operations and airport investment planning in Dominica	13.00	13.00	IDA	Pipeline FY2020



AFRICA

Project Highlights



Burkina Faso Donsin Transport Infrastructure Project (P120960)

The Bank approved a USD 85 million IDA credit in FY13 to the Republic of Burkina Faso, with the objective to improve road access to the Donsin area to facilitate its development as a transport hub for greater Ouagadougou. The Project Closed on 30 April 2019.

It is worthy of noting that Burkina Faso has two international airports (Ouagadougou and Bobo-Dioulasso) and a network of small domestic airfields spread throughout the country. It has one international airline (Air Burkina) which was partly privatized in 2001 and uses Ouagadougou as its home base and hub. The International Finance Corporation (IFC) was involved in the privatization of Air Burkina. The international airport at Ouagadougou handles about 98 percent of all scheduled commercial air traffic in Burkina Faso, and ten airlines currently provide scheduled services at the airport with Air Burkina and Air France handling about 60 percent of all scheduled passenger traffic.

The Project Development Objective was to improve road access to the Donsin area to facilitate its development as a transport hub for greater Ouagadougou. The Bank's support contributed to the achievement of the above project PDO by supporting Burkina Faso in: (i) Improving road infrastructure to better connect Ouagadougou to the Donsin area; (ii) Providing the Donsin Airport Project Management Entity (Maîtrise d'Ouvrage de l'Aéroport de Donsin, MOAD) Technical Assistance (TA) to enhance its capability to manage the implementation of the project; and (iii)

Providing MOAD with TA to identify a private operator for the existing and future Ouagadougou international airports.

At Project Closing, the TA effectively supported MOAD in the development and adoption of a PPP framework to operate the existing and future Ouagadougou-Donsin international airport. However, no agreement for the selection of a concessionaire had been reached and discussions with potential investors were still ongoing by the end of FY19.

Contact person are Aguiratou Savadogo-Tinto at asavadogotinto@worldbank.org and Anca Cristina Dumitrescu at adumitrescu@worldbank.org

CABO VERDE Cabo Verde Transport Sector Reform Project (P126516)

The Bank approved a USD 19 million IDA Credit for the Cabo Verde Transport Sector Reform Project (TSRP) in FY13 as well as an IDA Credit Additional Financing (AF) for USD 27 million in FY17. The Project's Development Objective (PDO) is to improve efficiency and management of the national road assets and to lay the groundwork for transport sector State Owned Enterprise (SOE) reform. Under its fourth component (Inter-island Transport Strategy), the project is supporting the improvement of the inter-island sea and air transport services quality as well as the management of ports and airports, and the efficiency of transport SOEs. Among the concerned transport sector SOEs is TACV, the national airline



company, which is structurally in deficit. Making the right decision on TACV requires strong political will and leadership given the sensitivity of the company in Cabo Verde.

The AF is financing the costs associated with the scaling up of the original Project by supporting the implementation of additional activities, which are aligned with the original PDO, including the extension of the project closing date from 30 June 2019 to 31 December 2020. The AF seeks to enhance the achievements of the parent Project by (a) undertaking additional road rehabilitation and Performance-Based Maintenance Contracts; (b) scaling up the provision for emergency road repairs; and (c) continuing the reform of SOEs in the transport sector.

In 2017, a decree for the privatization law of the national airline company, TACV, renamed as Cabo Verde Airlines was adopted and published. As of the end of FY19, the project had financed technical assistance and two activities (an asset valuation study and debt restructuring) for the privatization of the airline. On 1 March 2019, the Government privatized the national airline, Cabo Verde Airlines, by selling 51% of the capital to its strategic partner Icelandair. This privatization was prepared with the support of the TSRP through several technical assistance as well as through the Budget Support Project (USD 40m) approved in June 2019. Regarding the remaining 49% of the capital, 10% will be sold to company employees and Cape Verdean emigrants, and 39% will be sold to institutional investors on the stock market. The sale of this 49% is expected to be concluded by the end of 2019 calendar year. Moreover, the sale of 5% of the shares to CVA employees has already been launched and will be concluded on 1 August 2019. This sale will be followed by the sale of 5% of CVA shares to Cape Verdean emigrants in August 2019, then by the sale of 39% between October and November 2019. The World Bank remains at the disposal of the Government to assist it in this important task which should make it possible to limit the financial exposure of the State.

Contact persons are Vincent Vesin at vvesin@worldbank.org and Shruti Vijayakumar at svijayakumar@worldbank.org

CAMEROON

CMR Transport Sector Development Project (P150999)

In FY17, the Board of the World Bank approved a USD 192 million IBRD credit for the Cameroon Transport Sector Development Project, whose development objectives are to: (a) strengthen transport

planning; (b) improve transport efficiency and safety on the Babadjou-Bamenda section of the Yaounde - Bamenda transport corridor (about 364 km); and (c) enhance safety and security at selected airports. More specifically, it will support the design and implementation of the Transport Priority Investment Program (TPIP), which is a key output of the integrated intermodal transport strategy (IITS) currently being prepared under the World Bank-financed Cameroon Multimodal Transport Project (P143801). The TPIP is expected to help the Government of Cameroon move from its current ad-hoc approach to transport investment financing by providing a holistic platform on which to base investment and financing decisions.

The Project's third component, Air Transport Safety and Security Improvement, focuses primarily on facilitating International Civil Aviation Organization's (ICAO) effective implementation rating of Aerodrome and Ground Assistance at project airports (Yaoundé, Douala, Garoua and Maroua), as well as the ICAO's rating of Cameroon's security oversight system. It has the following subcomponents: (a) Strengthening of airport safety and security infrastructure; (b) Strengthening air transport safety and security oversight; and (c) Strengthening of planning capacity in air transport. As of the end of FY19, the implementation of the aviation project component was satisfactory.

Contact persons are Mustapha Benmaamar at mabenmaamar@worldbank.org and Papa Mamadou Fall at pfall@worldbank.org

DEMOCRATIC REPUBLIC OF CONGO

Goma Airport Safety Improvement Project (P153085)

In FY15, the World Bank's Board approved a USD 52 million IDA grant to help improve the safety, security, and operations of Goma International Airport, the main international gateway of Eastern Democratic Republic of Congo (DRC) and rehabilitate the damaged infrastructure. The airport is a vital link to connecting the area to the rest of the country and supporting ongoing peace consolidation efforts. In addition to decades of conflict, the most significant damage to the airport's sole runway and taxiway resulted from the 2002 Mount Nyiragongo volcano eruption.

The lava flow from the volcano buried more than one third of the 3,000-meter runway and isolated the terminal and apron, constraining humanitarian aid flows, UN operations, and passenger and cargo transport. There have been seven recorded air crashes since 2002 at the airport with dozens of fatalities, many of them attributed to the condition of the airport.

The project seeks to restore the airport's runway original length, rehabilitate the apron, existing passenger and cargo terminals, and electrical system, as well as supply a new low-cost control tower and navigational equipment to upgrade air navigation. The project also includes the construction of the airport's security fence and support airport rescue and firefighting ser-

close monitoring of implementation progress is paramount.

Contact persons are *Tojoarofenitra Ramanankirahina* at tramanankirahina@worldbank.org and *Bertram Boie* at bboie@worldbank.org



vices.

The project is supporting the valorization of the large quantity of lava rock removed from the airport through labor intensive activities targeted to communities living close to the airport. The project will also complement a Japan-GFDRR grant supporting the monitoring of volcano risks and strengthening preparedness of the airport and surrounding communities. The significance of the project is evident – DRC's landmass is almost as large as the whole of Western Europe. therefore transport remains key to increasing agriculture, improving trade, supporting mining growth, overcoming the economic and social barriers that isolate communities, and providing security throughout the country.

By the end of FY19, the contracts for the resumption of works covering the runway and drainage had been signed after the closing of the two previous contracts. The other main works contracts (power plant, control tower, fencing walls) were also signed. This constitutes a major advance and testifies to the Project Implementation Unit's efforts to improve the project performance. The construction timeline for these infrastructures, including the Tarmac, leaves little room for a slippage in the execution schedule. Hence,

DEMOCRATIC REPUBLIC OF CONGO Strengthening Hydro-Meteorological and Climate Services (P159217)

In FY17, The Bank approved a USD 8 million IBRD loan for a Global Environment Project for the Democratic Republic of Congo (DRC), with the objective to improve the quality and strengthen the country's Hydro-Meteorological (Hydromet) and Climate Services.

Understanding hydromet and climate risks would help assess social and economic impacts and develop adequate policy responses to support the country's sustained development. A number of economic sectors in the DRC could specifically benefit from more accurate, relevant and timely hydromet information, warning and services. Such are the cases of airfreight and aviation. Meteorological assistance to aviation is made in relation with DRC's air navigation service provider, Régies des Voies Aériennes S.A. (RVA). RVA is a private company owned by the State that has to comply with the ICAO regulations and

benefits from air traffic levies collected from airlines for airport and enroute services. The meteorological infrastructures of the international airport of N'djili Kinshasa as well as of the other airports in the country belong to National Agency for Meteorology and Remote Sensing (MettelSat). At present, the meteorological services to aviation are provided by RVA in N'djili, which is the largest airport in DRC, and in three other international airports. RVA has hired about 50 meteorologists based in Kinshasa, and is in the process of training and recruiting 20 new meteorologists. MettelSat owns and operates presently 22 observing stations on airports, but most of the data are not available and no forecasts for aviation are issued.

Under Component A (Institutional and regulatory strengthening, capacity building and implementation support), the project will be investing in the human and institutional resources that can implement and sustain hydromet observation and forecasting, including the carrying out of an Institutional diagnosis with a comparative review of the roles and mandates of the different government agencies involved, such as RVA and MettelSat, to identify the main actions required to increase cooperation and avoid overlap between agencies, ensuring an efficient development of hydrometeorology in DRC. Under Component B (Modernization of equipment, facilities and infrastructure for basic observation and forecasting), the project is supporting the reinforcement and rebuilding of the basic networks for observation and forecasting, as well as in infrastructure needed for provision of services by MettelSat.

The project was officially launched at a ceremony held on 6 March 2019, with the participation of the Ministry of Transport, World Meteorological Organization (WMO), the World Bank and other stakeholders. The first lot of logistical equipment for MettelSat



has been delivered and the studies to rehabilitate the headquarters in Kinshasa have been finalized and the bidding process was launched. Studies to rehabilitate satellite offices are ongoing. The analysis of technical needs for hydromet equipment has also been finalized (including for the Early Warning System implementation), and the bidding documents are being prepared. Elaboration of a quality management system for aviation meteorology is progressing, to allow the DRC to meet the ICAO requirements.

Contact persons are *Christian Vang Eghoff* at ceghoff@worldbank.org and *Sylvie Debomy* at sdebomy@worldbank.org



KENYA TRANSPORT SECTOR SUPPORT PROJECT (P124109)

A USD 300 million IDA Credit for the Transport Sector Support Project in Kenya was approved in 2011 as well as an Additional Financing (AF) of USD 203.5 million in FY 2014. The project's objectives are to: (a) increase the efficiency of road transport along the Northern Corridor and the Tanzania-Kenya-South Sudan road corridor; (b) enhance aviation safety and security to meet international standards; (c) improve the institutional arrangements and capacity in the

transport sector; (d) restore the capacity of the international passenger terminal destroyed in a fire at Jomo Kenyatta International Airport (JKIA); and (e) strengthen the capacity of Kenya Airports Authority (KAA) in disaster preparedness and responsiveness at Kenyan airports.

The aviation component of the project entails providing support to the Kenya Civil Aviation Authority (KCAA) in regulatory capacity building and through specific investments in navigation aids and training equipment. In addition, support to KAA will include provision of a new baggage-handling system at JKIA, and capacity building and training of manpower in safety, security, and airports management.

Following the fire at the JKIA in August 2013 that destroyed the only international arrival building, the Bank provided an AF of USD 203.5 million to help finance activities to restore the capacity of the international passenger terminal destroyed in a fire at JKIA, strengthen KAA in disaster preparedness and responsiveness at Kenyan airports, and fill any unanticipated financing gaps. Most of the emergency activities at JKIA following the fire incident have either been completed or are nearing completion.

At the end of FY19, slow progress on the activities under the original credit (USD 15 million) was noted. The activities affected included reconstruction of the runway at Moi International Airport (MIA), Mombasa (the

French Development Agency is financing the works and IDA, the associated consultancy services), augmenting power and water supply at MIA. IDA proceeds would be used to finance the associated supervision consultancy service contract for reconstruction of the runway at MIA only until 31 December 2018 with the understanding that the expenditures beyond this date will be borne by KAA. A decision has been made to reallocate the unutilized funds to other activities under the project. Notwithstanding the abovementioned, achievement of development objectives was on track, with the following results:

- Aviation safety and security now meets international standards enhanced: Kenya and JKIA now meet aviation security and service level standards set by the ICAO, Federal Transportation Administration (FAA), and Transportation Security Administration of the USA, allowing flights originating from JKIA to travel to and from the USA. Kenya Airways commenced direct flights to New York, USA on 28 October 2018.
- JKIA was selected as the fifth best airport in Africa in 2017, and Most Improved Airport in Africa in 2016 by Airports Council International.
- The East Africa School of Aviation has been accredited as one of the few centers of excellence in the world by ICAO.
- Purchase and installation of air navigation equipment has contributed to enhancing safety in Kenya's airspace.



- Kenya Civil Aviation Authority restructured through internal separation of the regulatory responsibilities from service provision functions undertaken.
- Conflict of interest scenario in the aviation sub-sector where the regulator, KCAA was housed by the operator, KAA resolved. A new office block for KCAA was financed under the project as part of financing reforms in the aviation sub-sector.
- The capacity of the international passenger terminal destroyed in a fire at JKIA restored. Interim and permanent international passenger arrivals facilities were constructed at JKIA leading to rapid and full restoration of operations at the airport.
- Strengthened the capacity of KAA in disaster preparedness and responsiveness at Kenyan airports: Emergency response has been strengthened at major airports with the development of disaster response systems and purchase of firefighting equipment.

In addition, major contracts related to aviation activities have been completed, including: (i) an interim international passenger arrival facility (Terminal T1-E) at Jomo Kenyatta Internal Airport (JKIA); (ii) permanent arrival facility for Terminal 1-A and associated supply and install contracts; (iii) supply of fire-fighting engines for KAA; (iv) an integrated security system for T1-A at JKIA; (v) information technology system for JKIA; (vi) supply and installation of a baggage handling system at T1-A and T1-E international arrivals; (vii) installation of air navigation equipment; (viii) construction of head-quarter complex for KCAA including an access road; (ix) augmenting water supply to Jomo Kenyatta International Airport, Nairobi Kisumu International Airport, and Moi International Airport in Mombasa; and (x) construction of access road to East Africa School of Aviation (EASA).

Contact persons are *Josphat O. Sasia* at Jsasia@worldbank.org, *Akiko Kishiue* at akishiue@worldbank.org and *Susan Apudo Owuor* at sowuor@worldbank.org

RWANDA GREAT LAKES TRADE FACILITATION PROJECT (P151083)

In FY 2016, a USD 79 million IDA Credit for the Rwanda Great Lakes Trade Facilitation Project. The Project Development Objective (PDO) of this project is to facilitate cross-border trade by increasing the capacity for commerce and reducing the costs faced by traders, especially small-scale and women traders, at targeted locations in the borderlands.

The Great Lakes Trade Facilitation Project includes improvements in border crossing management for

Rwanda, Congo DRC, Uganda, and COMESA. As part of the package, Kamembe International Airport by Lake Kivu in Southwestern Rwanda is being rehabilitated with an investment of USD 14.2 million. The airport is seen as a strategic gateway for trade, since neighboring Bukavu, only 7 km away from the airport and across the border with Congo DRC, has a population of over 1 million and no convenient airport access. The airport is seen as an important gateway for trade in the region, as the main passengers on flights from the airport are Congolese heading, via Kigali, to major trade centers such as Dubai.

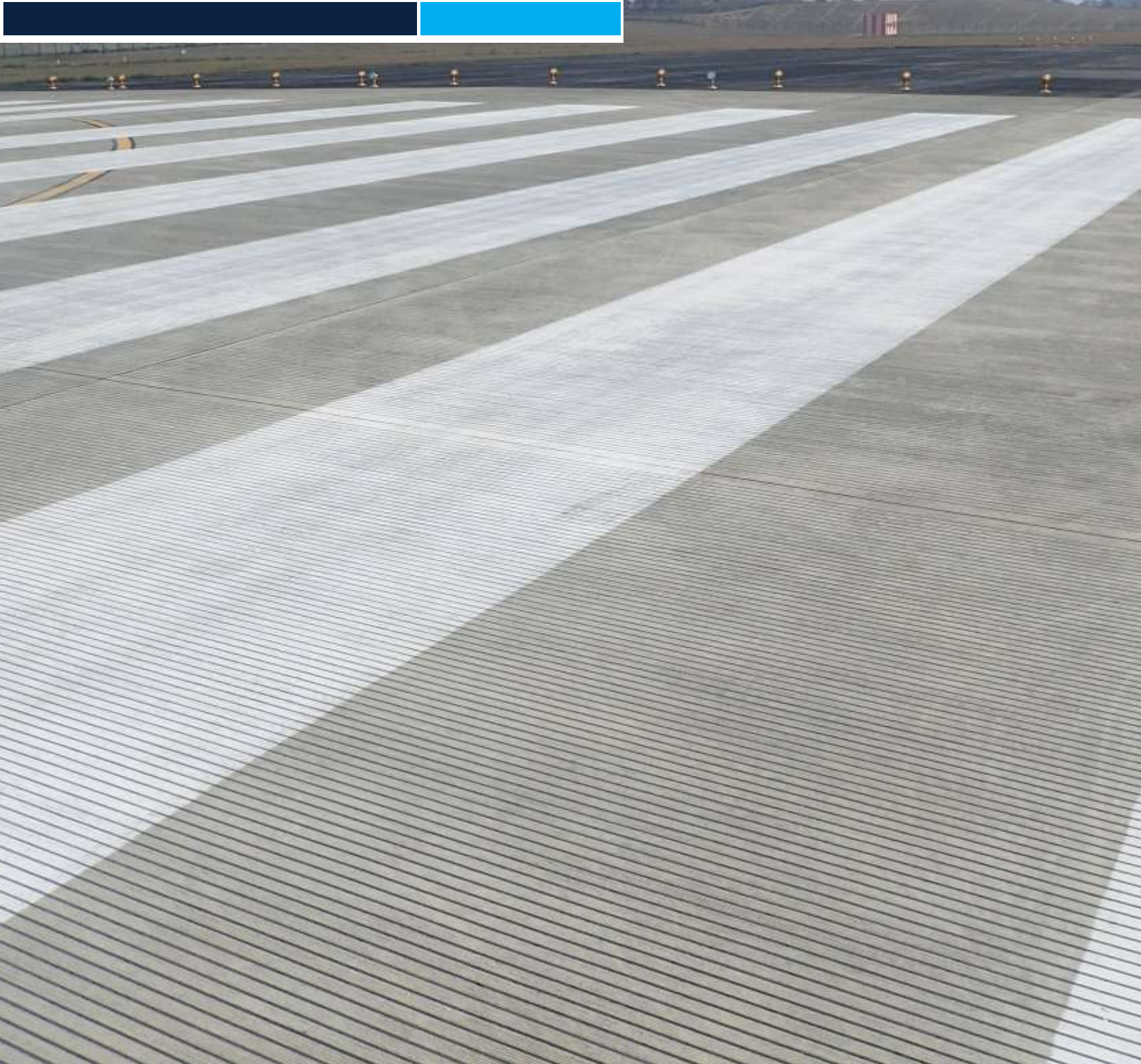


As of the end of FY 2019, implementation Progress of the project in Rwanda counted with a disbursement rate of 26% and was expected to further increase to over 60% by end of the calendar year, with the ongoing construction of the Nyamasheke cross-border market and commencement of works contracts for two of the four works packages at Kamembe airport. Remaining challenges included retendering of two airport packages and expediting procurement of works at Rusizi border post and Bugarama border market. The government has also been slow in hiring staff for the PIU, although this in part is due to an unprecedented number of applicants. It was expected that these staff be in position in early FY2020.

Contact persons are *Shiho Nagaki* at snagaki@worldbank.org and *Charles Kunaka* at ckunaka@worldbank.org

EAST ASIA & PACIFIC

Project Highlights



CHINA SHANGRAO SANQINGSHAN AIRPORT PROJECT (P123729)

A USD 50 million IBRD commitment for the Shangrao Sanqingshan Airport Project was approved in May 2013 and closed on 31 December of 2018. The project's development objective (PDO) was to improve airline connectivity in the northeastern Jiangxi province, as well as demonstrate the environmental sustainability of the development and operation of the Shangrao Sanqingshan Airport. The PDO was achieved through: (i) reducing the travel time between Shangrao and major destinations; and (ii) recognizing Shangrao Airport as "Green Airport" through established process. The overall outcome of the project was rated as Satisfactory.

The first component of the project covered the airport infrastructure development and included the construction and installation of the following: (a) airfield, runway, taxiway; (b) terminal building; (c) air traffic control; (d) freight facility; (e) supporting infrastructure facility, including fuel storage farm, water supply, water supply, power supply, fire stations, heating, storm/water management, parking, fence; (f) environmental management plan; (g) land acquisition and rehabilitation; (h) auxiliary facility; (i) service vehicles; and (j) storm water reuse system and ground aircraft auxiliary power unit. The airport received construction completion acceptance on 29 December 2016 and overall acceptance by the Air Traffic Management regional bureau of Civil Aviation Administration of China in March 2017. Shangrao Municipal Government (SMG) adopted a PPP approach for airport operations and management, based on similar airport experiences in China. SMG signed an operation concession agreement with Jiangxi Airport Group, which established a subsidiary of Shangrao Airport Operation Company to take over the operations of the airport.

The airport became operational on 28 May 2017, with the Chengdu-Shangrao route being made operational by Sichuan Airlines. Since then, five commercial airlines have gradually opened airline routes, connecting eight destinations by the loan closing date: Beijing, Shenzhen, Qingdao, Huizhou, Chengdu, Zhoushan, Kunming and Harbin. The airport has reduced the travel time between Shangrao and major cities by 57%, and it is expected to handle about 750,000 passengers by 2025. It is worthy of noting that after project closing four additional cities (Sanya, Jinan, Guiyang and Ningbo) were connected to Shangrao when two new routes were opened in early April 2019.

The second project component financed consultancy services, studies and training, including advisory services to support the Project Management Office (PMO) and Shangrao Sanqingshan Airport Company Limited (SSAC) on project coordination and monitoring activi-

ties. Other activities included consultancy services to develop airport operation model for SSAC and compliance with regulations and international practices.

The airport was designed, constructed and operated as a "Green Airport", which focused on the following aspects: (i) Energy efficient architecture and airport layout design; (ii) Ground Aircraft Auxiliary Power Unit; (iii) Energy efficient equipment and infrastructure; (iv) Storm Water Reuse System; and (v) Ground Source Heat Pump (GSHP) system. The PMO prepared the "Shangrao Sangqingshan Green Airport Design Guidelines", which listed the requirements for the general plan, deck bridge facilities, comprehensive rainwater and sewage utilization system, sound insulation and noise reduction to ensure that the "Green Airport" concept was fully incorporated in the airport design. The airport was awarded the 'EDGE'6 (Excellence in Design for Greater Efficiencies) green building certificate on 21 January 2019. According to the 'EDGE' evaluation, the Shangrao Sanqingshan airport achieved 24% energy saving (427 Mwh/ year), 42% water saving (36,392 m3/year), 38% building materials embodied energy saving (15,662 GJ), and 24% operational CO2 saving (306t/ year).

Contact person is Weimin Zhou at wzhou4@worldbank.org

KIRIBATI PACIFIC AVIATION INVESTMENT PROJECT (P128938)

In FY 2012, a USD 22.91 million IDA Grant was approved by the Bank Board for Kiribati's Aviation Investment Project. An Additional Grant Financing (AF) of USD 7.1 million was approved in FY 2017 to cover funding shortfalls. The project closed in 30 June 2019. The project development objective (PDO) was to improve operational safety and oversight of international air transport and associated infrastructure. The Achievement of the PDO was measured through four indicators: (i) ICAO certification of safety and security at project airports; (ii) state requirements for safety and security reaches global ICAO average; (iii) modernization of air traffic management; and, (iv) implementation of a regional safety and security levy for departing international passengers. The overall efficacy of the is rated as Substantial. As described above, the project largely met its objectives, with some minor shortcomings.

Two of the four PDO indicators have been fully achieved while the remaining two PDO indicators are delayed but are very likely to be achieved. This is an excellent outcome given the challenges of operating in a remote and fragile PIC such as Kiribati.

Under its first component, the project supported In-



ternational Airport Infrastructure Investments notably: (i) replacement of the terminal at Cassidy (CXI) Airport and improvements to the terminal at Bonriki (TRW) Airport; (ii) construction of fire tender vehicle shelter and maintenance equipment building at Cassidy Airport; (iii) installation of new navigation aids, automatic weather monitoring, safety and security equipment at the CXI and TRW airports; (iv) upgrading of the CXI airport runway lights; (v) provision of air traffic control and fire safety equipment; (vi) enhancing the power supply for CXI Airport and the surrounding village; (vii) provision of the Pacific Aviation Safety Network at CXI and TRW airports; (viii) construction of a security fence for the TRW airport; (ix) completion of the seawall being constructed at the TRW airport. The second and third components supported Aviation Sector Reform and Training and Strengthening airport operations and management capacity.

The project's objective to improve operational safety and oversight of the international air transport infrastructure was substantially achieved. Despite initial setbacks, Kiribati, with project support, improved the safety and security of critical airport infrastructure and built capacity within the

Ministry of Information, Communication, Transport and Tourism Development to provide more effective regulatory oversight. Both international terminals at TRW and CXI have been upgraded in line with ICAO standards.

Traffic growth over the project cycle indicates improved air operators' confidence in airport safety and security. Without the project, the country was at risk of seeing air services to the two airports suspended within five years due to safety concerns. International flights increased to 4-5 per week during construction and to 6 per week at project completion. In 2018, both airports cumulated a total of 167,910 passengers, which represents a total growth of 38% compared to 2017. Both airports show the ongoing trend of domestic travel surge which represents a 50% market growth, compared to 20% for international travel.

Despite substantial progress, the project experienced delays in advancing institutional reforms due to the complexities at play. ICAO is examining the implementation of the full range of safety and security oversight responsibilities within the Kiribati government system. The delays in the procure-

ment of the institutional strengthening activities, such as sector studies, hiring of the Civil Aviation Advisor and airport management contract, resulted in delays of reforms, trainings and consequently readiness for ICAO's Universal Safety Oversight Audit Program UOSAP). A recent study analyzed the gaps in the existing Kiribati aviation regulatory oversight and action plan that Kiribati would need to address before being able to respond to the ICAO Protocol Questions as satisfactory to attain certification. Two months after project closing, 42% of the ICAO USOAP Protocol Questions had been answered. ICAO will conduct the first full Universal Safety Oversight Audit Program (USOAP) audit of Kiribati in early 2020 and will give Kiribati an 'effective implementation' percentage score.

Further project results include: (i) development and adoption of key reforms, such as the separation of airport operations from civil aviation regulation, which is an ICAO requirement; (ii) development and adoption of the Air Transport Master Plan (for infrastructure) and an Aviation Sector Strategy (for operations); (iii) development of the airport certification handbook; (iv) drafting of the new Airport Act; (v) trainings to departmental staff and key management personnel on site for certification preparation and improved airport management competency

Contact person is Pierre Graftieaux at pgraffieaux@worldbank.org

SOLOMON ISLANDS SOLOMON ISLANDS ROADS AND AVIATION PROJECT (P166622)

A USD 30.5 million IDA Credit as well as an USD 20.5 million IDA Grant for the Solomon Islands Roads and Aviation Project (SIRAP) in March 2019. This will be complemented by USD 3.6 million counterpart funding from the Solomon Islands Government (SIG). The Project's Development Objective is to Improve operational safety and oversight of air transport and associated infrastructure, strengthen the sustainability and climate resilience of the Project Roads, and in the event of an Eligible Crisis or Emergency, to provide an immediate response to the Eligible Crisis or Emergency. PDO achievement Progress will be measured against the following proposed PDO-level results indicators: (i) Airport Certification according to ICAO safety and security standards at Honiara and Munda Airports; (ii) percentage of State requirements for safety and security non-compliance reach global ICAO average; (iii) percentage of modernization of air traffic main roads in very good or good condition (Percentage); (iv) Percentage of gravel roads on Malaita main roads in good or fair condi-

tion; and (v) Crisis and Emergency Risk Communication (CERC Manual) adopted by SIG with appropriate training.

Pertaining to aviation, the project will support Honiara and Munda Airports Infrastructure Investments to improve operational safety and overall infrastructure resilience to climate change at Honiara, enabling Munda airport to receive international flights with an enhanced resilience to climatic disasters, and contracts that will include surveys to identify and remove unexploded ordnance (UXO) from Second World War at both airports. In addition, the project will support aviation sector institutional strengthening for: (i) training needs analysis; (ii) airport operational training; (iii) airport regulatory training; (iv) preparation of a strategic plan for the sustainability of Solomon Airlines (i.e., airline strategy review); (v) airport master planning studies for both Honiara and Munda Airports; (vi) preparation of an aviation sector strategy; (vii) technical support to CAASI to improve safety and security oversight; and, (viii) technical support so SIACL for strengthening capabilities for airport management and operation. Finally, the project will finance preparatory activities for future Auki Gwaunaru'u Airport Infrastructure Investments. As of the end of FY2019, the Project had attained effectiveness (23 May 2019).

Contact person is Dung Anh Hoang at dhoang1@worldbank.org

TONGA TRANSPORT SECTOR CONSOLIDATION PROJECT (P096931)

A USD 5.44 million IDA Grant for the Transport Sector Support Project in Tonga was approved in FY 2009 as well as an Additional Financing (AF) of USD 4 million in FY 2016. The project closed on 31 December 2018 with a satisfactory outcome rating based on its design, implementation performance and achievements. The project's development objective (PDO) was to assist the Recipient to develop its transport sector to have: (i) stronger policy, planning and regulatory institutions and framework; (ii) improved safety and security facilities and compliance with international safety and security standards; and (iii) greater domestic capacity for road rehabilitation and maintenance.

The Project was designed around four components: (A) establishment of a sustainable transport sector policy and institutional and operational framework, (B) compliance with mandatory security and safety standards, (C) support to the transition towards sustainability in the transport sector, and (D) project implementation support. Each component has financed policy and TA activities and/or investments to im-

prove safety and security through works, goods and/or equipment.

The project's objective of developing stronger policy, planning and regulatory institutions and framework was substantially achieved. The project supported the creation of core divisions within Ministry of Infrastructure and Tourism (MOIT) to focus on policy, planning and regulation of transport sub-sectors: civil aviation, maritime and ports, land transport. The project also supported the development of an aviation sector policy and strategic plan, investment plans for all sub-sectors, and the update/development of the following transport bills including several that were approved: Civil Aviation Act (2014), Airport Authority Act (submitted to Cabinet as of November 2018), new Traffic Act and Road Bill, Amendment to Traffic Regulations Act, Amendment to Shipping Act, Amendment to Port Authority Act, Port Management Bill and Amendment to Wharves Bill.

The project's objective of improving safety and security facilities and compliance with international safety and security standards was substantially achieved. The Government of Tonga (GoT) made necessary upgrades, updates and training to Fua'amotu International Airport to effectively receive ICAO certification. Tonga's Civil Aviation Rules were adopted from the New Zealand model. Under the Civil Aviation Act

2014, the technical/regulatory rules required to complete Tonga's regulatory framework were obtained by adopting some of New Zealand's Civil Aviation Authority (NZCAA) Rules. The airport was awarded its ICAO certification on 27 August 2010 in accordance with the Transit Concept and Alternatives Review (TCAR) Parts 139 and 157. The project financed the construction of a new fire station, the expansion of the existing terminal building, works and equipment on the transit screen area as well as navigational aids, lights, fenders, safety and protection equipment. It was the first time for a country in the Pacific islands to receive ICAO certification. The airport certification manual is regularly updated, the certification itself (valid for two years) is renewed adequately, and training is undertaken as needed. In terms of capacity building, the project particularly enhanced regulatory and enforcement capabilities.

Contact persons are Julie Babinard at jbabinard@worldbank.org and Pierre Graftieaux at pgraftieaux@worldbank.org



TONGA AVIATION INVESTMENT PROJECT (P128939)

Subsequent to an original IDA Grant contribution of USD 27.21 million in 2011, the World Bank approved a USD 7.3 million Additional Finance in 2016. The project is in the eight year of implementation schedule, with a revised completion date of 31 December 2019.

The project is progressing and is on track to achieve its current development objectives. Installation of key investments such as the VSAT (satellite communication ground equipment that allows users to communicate directly via satellite), implementation of ADS-B imaging, terminal building improvements and the new control tower at TBU are underway or nearing completion. The project's closing date has been extended by twelve months to 31 December 2019 to ensure completion of the key activities remaining under the project: (i) the Air Traffic Control Tower at Fua'amotu International Airport (TBU); (ii) the TBU Terminal Building renovations; (iii) Terminal expansion in Vava'u; and (iv) construction of cargo shed in TBU. The Airport Authority Bill has been submitted by Ministry of Infrastructure to Cabinet for endorsement. Efforts must continue to meet International Civil Aviation Organization (ICAO)'s requirements to improve the Effective Implementation (EI) score from the ICAO Universal Safety Oversight Audit Programme (USOAP).

Contact persons are Julie Babinard at jbabinard@worldbank.org and Pierre Graftieaux at pgraftieaux@worldbank.org.

TONGA CLIMATE RESILIENT TRANSPORT PROJECT (P161539)



The World Bank Approved USD26 million IDA Grant for the Tonga Climate Resilient Transport Project in 29 November 2018. The Project Development Objective (PDO) is to improve the climate resilience of the Recipient's transport sector, and, in the event of an Eligible Crisis or Emergency, to provide an immediate response to the Eligible Crisis or Emergency. The achievement of the PDO will be measured through the following key PDO indicators: (i) identified planning tools being used to improve climate resilience; (ii) identified climate resilient investments constructed/rehabilitated and in use in the aviation and maritime sectors; (iii) identified enabling environment solutions implemented; (iv) length of roads constructed or rehabilitated with climate resilience measures; and (v) climate resilient routine maintenance contracts in place and being implemented.

The project will support the aviation sector infrastructure rehabilitation under its second component (Climate Resilient Infrastructure Solutions). Specifically, the project will finance: (i) feasibility studies, design and physical works of identified aviation assets to improve their resilience to climate-related hazards and/or events; (ii) urgent resurfacing of the runway and apron at Salote Pilolevu Airport, Ha'apai, including reconstruction of pavement layers at localized soft spots, subsoil drainage as needed, and full line marking.

As of the end of FY19, the project had reached effectiveness and the contracts for design and supervision of the resurfacing of the Ha'apai runway were under implementation.

Contact person is Pierre Graftieaux at pgraftieaux@worldbank.org and Sean Michaels at smichaels@worldbank.org

TUVALU AVIATION INVESTMENT PROJECT (P128940)

With IDA Grant contributions of USD 11.85 million in FY 2012, USD 6.06 million in FY 2014 and USD 2.89 million in FY 2016, the project is in the eighth year of implementation. The project development objective is to improve the safety and security of air transport and associated infrastructure. A third additional financing (AF) of USD 8.75 million was approved in FY 2018 to finance: (i) the design and construction of runway repairs and resiliency measures addressing pavement defects on Funafuti runway that have resulted from water pressure under the recently paved runway. This will include pilot testing of a number of alternative remedial options throughout the 2017-18 cyclone season which will inform the final design; (ii) emer-



gency interim maintenance and monitoring regime for pavement defects; (iii) the supervision cost for the runway civil works and construction of the flight services center and fire tender shelter—including through the defect liability period; (iv) ongoing monitoring of the impact of the civil works on the sub-runway water pressures; and, (v) a budget shortfall under the parent project due to foreign exchange fluctuations and higher than anticipated supervision costs. The project closing date has been extended to June 30, 2020.

The project is progressing well. The road civil works are completed, the fuel truck and fire tender have been delivered and are in use, and the new terminal opened in February 2018. In addition, works on the construction of the flight services center/fire tender shelter have now been completed. The Government of Tuvalu is receiving regular revenue from the Safety and Security Levy as well as the higher departure tax, both collected by Fiji Airways as part of the ticket price. Furthermore, an additional finance was approved in November 2018 which has supported Tuvalu's participation in ICAO, as well as activities related to Gender-based Violence and Violence Against Children training, prevention and support. In addition, the implementation of the Wildlife Management plan is progressing slowly.

However, there have been a number of challenges affecting the project, particularly with regards to the runway and apron resurfacing, and the navigation aids. Since completion of the works, the newly resurfaced runway has experienced a number of visible failures. A number of different potential design solutions on the runway to test the efficacy of the options

in alleviating the pressure under the runway were tested, with the outcome of the pilots used to inform the final designs, which are currently being prepared. Furthermore, there was a fire incident in the navigation aids container that resulted in damage to the equipment. The Government are currently considering options for replacing the equipment.

Contact persons are Chanin Manopiniwes at chanin@worldbank.org and Nana Soetantri at nsoetantri@worldbank.org

SAMOA AVIATION INVESTMENT PROJECT (P143408)

A USD 25 million IDA Grant for the Transport Sector Support Project in Tonga was approved in FY 2014 as well as an Additional Financing (AF) of USD 16.62 million in FY 2016. The project development objective (PDO) is to improve operational safety and oversight of international air transport and associated infrastructure. The purpose of the latest AF was to scale up apron pavement expansions and fuel hydrant extensions necessary to integrate a new terminal building which is currently under construction.

The project is on track to meet the PDO. Faleolo International Airport has maintained all regulatory compliance requirements and certifications are current. Airfield Rescue and Fire Fighting (ARFF) Category nine outcomes have been exceeded, as the two additional vehicles have enabled Samoa Airport Authority (SAA) to now meet Category 10 status. The pavement rehabilitation works have commenced, and in-

stallation of the VSAT, ADS-B ground station and aircraft avionics has been completed and are operational meeting the outcome of upgraded communications and navigation equipment. In addition, the Aviation Sector Strategy and the SAA Business Strategy and Master Plan have both now been completed. The progress towards the achievement of safety measured by USOAP ICAO global average is on-track, based on the project-financed activities, but needs a re-evaluation either by SAA or by an external expert.

A second additional financing (AF2) of USD 2.2 million from IDA, including a nine-month extension of the project closing date, was approved by the Bank in May 2019. The AF2 will cover the financing gap and cost overruns and will help ensure that the project meets its PDO. It aims to build upon the progress achieved to date and complete a number of activities, by supporting the cost increases related to existing contract variations and providing additional funds for on-going and planned activities.

Contact persons are *Noroarisoa Rabefaniraka* at nrabefaniraka@worldbank.org and *Nana Soetantri* at nsoetantri@worldbank.org

VANUATU AVIATION INVESTMENT PROJECT (P154149)

A USD 5.44 million IDA Credit for the Vanuatu Aviation Investment Project was approved by the Bank in FY 2015 as well as an Additional Financing of USD14.1 million in FY 2017. The project development objective (PDO) is to improve operational safety and oversight of international air transport and associated infrastructure in Vanuatu.

As of the end of FY 2019, The project was in the fourth year of a five-year implementation period and was making moderately satisfactory progress towards achieving the PDO. Runway rehabilitation works at Santo (Pekoa) and Tanna (Whitegrass) airports have been substantially completed, while the major works at Bauerfield Airport was expected to be completed by early July 2019. The bidding document for modernization of air navigation aids and communications has been finalized but financing sources have not yet been confirmed for bidding to proceed. Technical Assistance for the Airports Vanuatu Limited Master Plan and Aviation Sector Strategy have been completed and endorsed by the Government. Collection of the safety and security levy continues to be in effect. Airfield Rescue and Fire Fighting (ARFF) Category 8 outcomes will be attained.

Contact person is *Dung Anh Hoang* at

dhoang1@worldbank.org and *Pierre Graftieux* at pgraffieux@worldbank.org

PACIFIC ISLANDS PACIFIC AVIATION SAFETY OFFICE REFORM PROJECT (P145057)

A USD 2.15 million IDA Grant for the Pacific Aviation Safety Office Reform (PASO) was approved by the Bank in FY 2014 as well as an Additional Financing (AF) of USD 0.95 million in FY 2017 and a second AF (AF2) of USD 13.55 million in FY 2018, with an extended closing date of December 2021. The project development objective (PDO) is to strengthen the coordination capacity of the Pacific Aviation Safety Office to deliver regional aviation safety and security oversight, and technical and advisory services to the Pacific Island Countries.

The objective of the AF2 for the PASO Project is to strengthen the coordination capacity of the Pacific Aviation Safety Office to deliver regional aviation safety and security oversight, and technical and advisory services to the Pacific Island Countries. The original project design was completed in 2013 within a six-month preparation horizon. Upon recognition that PASO's short-term cash flow forecast and forthcoming liabilities projecting an impending insolvency, Member States requested IDA support to an agreed reform agenda. Appraisal estimates for the recommended activity interventions defined in the 2013 Business Plan were not sufficiently robust. There was also a fiduciary risk associated with the PASO's ongoing fiscal performance issues. For this reason, the original project size was limited to approximately USD 2.15 million equivalent. During implementation, it became clear that funding resources were not sufficient to meet the project's investment expectations related to capacity development for the inspectorate pool, as well as the envisaged IT business transformation.

The AF2 will allow PASO to progress towards the successful completion of the reform activities, thereby ensuring the continued effective and efficient delivery of safety and security oversight functions to its Pacific State members. The most important outcome of the AF, along with its three-year closing date extension will be ensuring that PASO is increasingly more financially viable. Specifically, the AF2 will finance the implementation of a new funding modality, Capacity Development for the Regional Inspectorate Program, Quality Management Systems, Regional Aviation Infrastructure

Further to the approval of AF2 and a three-year closing date extension to 31 December 2021, PASO is continuing its reform activities. Its Management Team (comprised of a General Manager, an Operations Manager, and a Corporate Services Manager) is now operational; the PASO Council has endorsed the rec-

ommendation of the Financial Management and Sustainability Analysis to implementing a new 'total cost model'; PASO services (support from its pool of inspectors who provide expert advice to regulatory authorities, with the technical specialists on the registry implementing State's agreed annual work plans; level of oversight days conducted; expansion of advisory services related to addressing gaps in States' regulatory frameworks) are increasingly requested, reflecting the improved level of confidence in PASO inspectorate knowledge and skills.

Contact person is *Noroarisoa Rabefaniraka* at nrabefaniraka@worldbank.org and *Dung Anh Hoang* at dhoang1@worldbank.org



EUROPE AND CENTRAL ASIA

Project Highlights



**KYRGYZ REPUBLIC
CENTRAL ASIA REGIONAL LINKS
PROGRAM - PHASE 3 (P159220)**

In October 2018, the World Bank approved a USD27.50 million IDA Grant and a USD27.50 million Credit (totaling USD55 million IDA) for the Central Asia Regional Links Program - Phase 3 (CARs-3). The Project Development Objective (PDO) is to increase regional connectivity and support sustainable tourism development in Issyk-Kul Oblast. The achievement of the PDO will be measured through the following key PDO indicators: (i) number of vehicles passing through Kyrgyz-Kazakh Karkyra border crossing point; (ii) compliance with aviation safety standards measured by Universal Safety Oversight Audit Program reaching global ICAO average; and (iv) satisfaction with sustainable tourism development.

The Project will support the strengthening of the aviation sector's safety and service provision under its second component. Addressing aviation safety and service provision would help the Civil Aviation Agency (CAA) to reach ICAO's international safety standards and recommended practices, as well as to overcome the current blacklist of Kyrgyz carriers by

the EU, enhance local carriers' growth opportunities and ultimately increase the country's level of connectivity, a result that would benefit both local residents and international visitors. Activities financed under this component include, inter alia: (i) review of the Aviation State Safety Program to identify CAA's institutional and capacity challenges for compliance with ICAO standards and recommended practices; (ii) provision of technical assistance in drafting aviation bylaws; (iii) training safety inspectors and other staff of CAA with the aim to solve key deficiencies flagged in the last USOAP Audit that contributed to the issuance of a Significant Safety Concern (SSC) by ICAO and ultimately to EU's blacklisting of Kyrgyz carriers; (iii) provision of software and equipment to upgrade CAA's record-keeping capabilities; and (iv) review of the educational program of the Kyrgyz Aviation Institute (KAI), capacity building, and acquisition of testing software for aviation personnel and a flight training device, and repair of the Aviation Institute's Facilities. As of the end of FY2019, the project had not reached effectiveness yet.

Contact person is Muhammad Zulfiqar Ahmed at zulfiqar@worldbank.org



LATIN AMERICA & CARIBBEAN

Project Highlights



BOLIVIA NATIONAL ROADS AND AIRPORT INFRASTRUCTURE PROJECT (P122007)

A USD 109.5 million IDA Credit for the Bolivia National Roads & Airport Infrastructure Project was approved by the Bank in FY 2011. The project closing date has been extended to August 2022. The Project Development Objective (PDO) is to improve the year-round circulation along the San Buenaventura-Ixiamas national road and improve the safety, security and operational reliability of the Rurrenabaque Airport. In terms of aviation activities, the project is supporting the construction of a new taxiway, apron, control tower, operations building, rescue and firefighting buildings, an access road, a passenger terminal, and the acquisition and installation of aviation control, rescue and firefighting equipment.



The Project has had a long history characterized by its ups and downs. However, events in FY18 signified an inflection point with a turnaround in performance. For instance, the contracting of both civil construction works and supervision services for the Rurrenabaque Airport improvements had been completed.

As of the end of FY 2019, the Project had had challenges in its implementation, especially with the contractor's abandonment of works on the San Buenaventura-Ixiamas road. Both the Government and the Bank had been working to address any outstanding issues. There had been progress in resolving challenging project issues during the previous six months, and the Project closing date was extended to 7 August 2022. At the same time, works at Rurrenabaque airport were progressing.

Contact person is Stephen Muzira at smuzira@worldbank.org

EASTERN CARIBBEAN SUB-REGION NATIONAL DISASTER VULNERABILITY REDUCTION APL1 - GRENADA AND ST. VINCENT AND THE GRENADINES (P117871)

The Regional Disaster Vulnerability Reduction Program (RDVRP) aims at measurably reducing vulnerability to natural hazards and climate change impacts in the Eastern Caribbean Sub-region. The objective of the Project in Grenada is to measurably reduce vulnerability to natural hazards and climate change impacts in Grenada and in the Eastern Caribbean Sub-region. The objective of the Project in Saint Vincent and the Grenadines is to measurably reduce vulnerability to natural hazards and climate change impacts in Saint Vincent and the Grenadines and in the Eastern Caribbean Sub-region. For these two particular projects, the Bank has approved a USD20.9 million IDA Credit. The achievement of the Program Development Objectives (PDO) of the RDVRP would be measured using the following key indicators: (a) Reduced risk of OECS population to failure of public buildings and infrastructure due to natural hazards or climate change impacts; and (b) Increased capacity of OECS Governments to identify and monitor climate risk and impacts.

Grenada is taking the lead on piloting integrated approaches to urban flood mitigation. Saint Vincent and the Grenadines would take the lead on piloting integrated approaches to watershed management and coastal protection. In collaboration with other countries from the region and the support of regional technical agencies, the respective Ministries of Works have taken the lead on organizing the Eastern Caribbean regional knowledge sharing and learning process to develop and apply construction standards and methods in the selected areas. Furthermore, for Grenada the program has envisioned to support necessary investments at its international airport to ensure continued operations in accordance with international aviation regulations. The airport functions as an important regional infrastructure site in the region's emergency response capacity.

In the event of disaster, Grenada's Maurice Bishop International Airport (MBIA) is the gateway to provide emergency relief locally as well as regionally. MBIA is the alternate airport for Trinidad and Tobago, Barbados, and St. Vincent and the Grenadines. MBIA would also be able to provide air traffic support in emergency situations to the island of Saint Vincent. MBIA should be ready to provide to Grenada and the region, as needed, airport facilities and space for an emergency or disaster staging area. 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).

Under component 2 (Regional Platforms for Hazard and Risk Evaluation, and Applications for Improved Decision Making), the project is supporting the reduction of risk for regional interconnectivity and carrying out related supporting studies, including improving the international airport to maintain an adequate emergency response capability and to comply with the international operational standards, through the provision of works, technical advisory services, training, and acquisition of goods. By the end of FY 2018, critical building blocks to Grenada's technical and institutional capacity to manage climate resilience in forest, engineering, physical planning, disaster management and water resource management has been completed, including: development of a national geodetic network, LiDAR topographic and bathymetric survey, development of safety plans for schools, installation of fire alarm systems, delivery of custom built fire trucks, custom built rescue boats, the purchasing of tractors and other equipment for the International airport.

The Project has been extended to December 2020 to allow for full achievement of its project development objectives (PDO). In Grenada, the project has largely met its development objectives with full achievement of most of the PDO-level and intermediate results objectives. Works at Holy Cross RC School have been completed and the contract has been signed for the hydrometeorological network upgrade. Over the next six months the procurement processes for the St Johns River flood mitigation works are expected as well as the tender processes for firms to

undertake a national soil survey and a national forest inventory.

In St. Vincent and the Grenadines, there are advancements in project implementation and overall execution of works is generally good quality reaching a satisfactory completion in line with the objectives of the Project. Since the last ISR, the following contracts have been awarded (a) construction of Bequia satellite warehouse; (b) slope stabilization and road rehabilitation at Belle Isle, Grand Sable and Longline; (c) reconstruction of the Chateaubelair Jetty; (d) river protection works at Arnos Vale/Warrowwarrow river, Fenton, Dauphine and Green Hill; and (e) Kingstown Government School. Over the next six months it is expected that contracts will be awarded for all civil works under the Project including, the coastal defense works and the river strengthening works at Buccament. The Project's technical capacity has been strengthened with the recruitment of additional project engineers and Procurement/Contract Management specialist. In addition, the Bank will provide more hands-on support to ensure that critical milestones are met.

Contact person is Keren Carla Charles at kcharles1@worldbank.org





SOUTH ASIA

Project Highlights

BHUTAN HYDROMET SERVICES & DISASTER RESILIENCE REGIONAL (P154477)

In FY17, The Bank approved a USD 3.8 million IDA Grant to The Royal Government of Bhutan for a Hydro-Meteorological (Hydromet) Services and Disaster Improvement Regional Project. The project development objective (PDO) is to strengthen Bhutan's capacity for hydromet services and disaster preparedness.

The project includes an Aviation Meteorology enhancement sub-component, which is funding targeted aviation meteorology equipment, hardware and software to enhance aviation safety at Paro International Airport (PIA) and Bumthang Domestic Airport. As a land locked country, air transport is the only mode of transportation for Bhutan to connect to other countries except for India which is connected by road. Aviation is also the key to promoting tourism which is the second driver of economic growth after hydropower for Bhutan. However, PIA—the only international airport in Bhutan is identified as one of the top ten dangerous airports for aircraft landings in the world. Nestled in the Himalayan Mountains, it has a runway elevation of 2.2 Km above sea level, surrounded by peaks as high as 5.5 Km. The unforgiving terrain and weather is so severe that flights are allowed only under Visual Flight Rules (VFR), and are restricted to daylight hours. There are only a small number of pilots (about 25) qualified to land at PIA. The airport is currently equipped with an Automated Weather Observing System (AWOS), which provides conditions along the runway of wind speed, direction, runway visibility, temperature and relative humidity. However, this system is aging being 14 years old and needs to be urgently replaced. The airport also needs urgent improvements in monitoring variability of wind speed (a key indicator for turbulence) and visibility when approaching or departing the airport. This sub-component is supporting: (i) the procurement of one wind profiler system and a ceilometer for Paro International Airport and one ceilometer for Bumthang Domestic Airport; and (ii) the procurement of an AWOS at Paro airport.

By the end of FY 2019, The progress of the project was satisfactory across the components, having completed critical procurement packages for strengthening aviation meteorology, operationalization of Smart Met system for enhancing weather forecasting and enhancement of emergency communications. However, due to delays in finalizing procurement of an appropriate design consultancy with adequate skills and within the available budget for design and drawings of the National Emergency Operation Center (NEOC), the construction of the NEOC had

been delayed. The estimated time required for approval, contracting of a construction contractor, construction of the building and equipping is between 18 to 24 months. Therefore, a restructuring of the project was approved on 28 June 2019 extending the project closing date from 30 June 2020 to 31 December 2021.

Contact person are Dechen Tshering at dtshering@worldbank.org and Arati Belle at abelle@worldbank.org



PAKISTAN HYDROMET & DRM SERVICES PROJECT (P163924)

In May 2018, The Bank approved a USD 188 million IDA Grant to the Government of Pakistan for Hydro-Meteorological and Disaster Risk Management Services (DRM) Project (PHDSP), whose development objective (PDO) is to strengthen Pakistan's public sector delivery of reliable and timely hydro-meteorological and disaster risk management services. The project has three main components. The first component (Hydro-meteorological and Climate Services) includes four sub-components: (i) Institutional Strengthening and Capacity Building; (ii) Modernization of the Observation Infrastructure, Data Management, and Forecasting Systems; (iii) Enhancing Pakistan Meteorological Department (PMD) Service Delivery and Building Partnerships with the Private Sector; and (iv) Project Management, Systems Integration, and Monitoring and Implementation Support of PMD. The second component, DRM, consists of three subcomponents: (i) Legal Policy and Institutional Strengthening; (ii) Infrastructure for Resilience; and (iii) Project Management, Monitoring, and Implementation Support of National Disaster Management Authority (NDMA). The third component (Contingent Emergency Response Component (CERC)) will support preparedness for a rapid response to climate

and natural disasters, emergency, and/or catastrophic event as needed.

Under Sub-component 1.3 (Enhancing PMD Service Delivery and Building Partnerships with the Private Sector), the project will support strengthening services for aviation (USD1.0 million). This activity will include the upgrade of the monitoring and forecasting system at airports to improve aviation services, and the installation of an Aircraft Meteorological Data Relay system at 10 international airports.

The project has not yet been signed by the Government, given that its approval from the Executive Committee of the National Economic Council (ECNEC) is required. The Bank team has been following up with the Implementing Agencies as well as with the Economic Affairs Division (EAD). The Bank team confirmed with PMD and development partners that project activities remained relevant and un-financed. However, it's important to note that several preparatory steps have been discussed with Project Directors of both implementing agencies including preparation of TORs / documents for various activities and positions under the project which would be

advertised once the project is signed and becomes effective. The contract for the System Integrator (SI) was advertised prior to approval by the Pakistan Met Department, however this could not be finalized and the time for short listing of interested firms was extended.

Contact person are Ahsan Tehsin atehsin@worldbank.org and Takeaki Sato at tsato@worldbank.org



IBRD/IDA: AIR TRANSPORT ADVISORY



BOLIVIA

In February 2019, a Bank air transport team visited Bolivia to participate in an implementation support mission of the National Roads and Airport Infrastructure Project, with the purpose of addressing technical and regulatory issues of the Rurrenabaque Airport improvement component. Main findings include:

- The terminal building is under construction. Several changes of design have been done, some improve energy efficiency by allowing the entry of natural light and by creating a natural airflow. The size and capacity, according to the Administración de Aeropuertos y Servicios Auxiliares a la Navegación Aérea, AASANA, is deemed to cope with current traffic and anticipated growth, including the introduction of larger single aisle aircraft (B737, A320).
- The shed for fire tenders is under construction. It will be able to hold two large fire trucks and has several rooms for supplies and crew. The mission underscored the importance to procure all necessary equipment, including respiratory equipment and its compressor to refill air bottles. The mission also saw the new fire tender, which was delivered to La Paz, but could not yet reach Rurrenabaque due to closed roads after landslides. One issue that needs to be resolved is the fact that the airport firefighters are also assigned to intervene for any fire in the city. This could potentially pose a conflict if a fire in the town prevents them to attend the airport.
- The control tower and technical bloc are planned, and the technical bloc under construction. The mission noted that only relatively shallow probe drilling of 3 meters, while the tower's fundament below the surface is 5.15 meters. It is strongly recommended to conduct deeper probe drilling to assure that the soil that constitutes the fundament for the 20-meter-high tower is adequate. Another issue to verify is that the location of the air traffic controller permits a visual line to the entire runway and both thresholds. This could be done by a crane with a video camera mounted or a drone.
- The Runway was resurfaced and repaired about three years ago. It is in good condition, and has, according to AASANA a pavement classification number (PCN) of 37. The runway length is 1,500 meters, and there is room for a 500-meter extension.

sion with a runway end safety area (RESA) on each end. However, the runway is only 30 meters wide with shoulders of 1.5 meters. The dimensions and the PCN are adequate for the current aircraft (CRJ Series Bombardier Aircraft), but for larger aircraft type A320/B737 major investments are needed to widen and prolonged the runway and raise the PCN. Finally, the mission recommends considering the installation of runway lights, in combination with precision approach lighting. This would allow night operations in case of emergencies or operational necessities.

- Access to the airport is poorly managed, as persons and occasionally livestock enter and cross the runway. The mission reminds that airport is obligated to implement the security standards of Annex 17 of the Chicago Convention (ICAO-SARP), even as a domestic airport. In fact, it seems that a fully ICAO-SARP compliant fence was built years ago and still exists, albeit with many holes and vegetation covering the fence and preventing access for patrolling the airport. The mission recommends that the fence would be inspected, and a plan for repair and removal of vegetation was prepared.
- The current instrument approach to Rurrenabaque is an RNAV/GPS non-precision approach. This approach has a minimum decision height (the distance to the ground where the pilot needs to see

the runway or go-around) of 655 ft / 200 meters, which is relatively high. AASANA recommends installing a D-VOR as an additional instrument approach. The World Bank Air Transport team disagrees with this suggestion. First, the D-VOR is a non-precision approach, which has similar or even higher minima than the RNAV/GPS approach. In other words, the additional equipment would not allow aircraft to land in poor weather if the RNAV/GPS approach had too high minima. Second, a D-VOR is often installed when it can serve as both, an airway waypoint and a non-precision approach. This is not the case, as no airway passes overhead the airport. Third, it is argued that the D-VOR would allow an aircraft to approach the airport from a large distance. However, this can also be achieved by RNAV/GPS. If indeed the RNAV/GPS approach results in many missed approaches, then the airport should be equipped with an instrument landing system (ILS), which is a precision approach that allows a minimum decision height of 200 ft / 60 meters. For the way forward, the mission suggest that an inquiry is done on how many flights per year cannot land due to poor weather conditions. Should this figure be below 5%, the mission recommends not to install any additional instrument approach for the time being. Should it be higher, and ILS would be the appropriate equipment. Nevertheless, it is recommended to install an approach lighting system including



a precision approach indicator (PAPI).

- The initial cost of this project component was appraised at USD 5 million. However, given some additional works, the GoB will request additional financing of about USD 8 million. Nevertheless, There is some doubt that USD 13 million are sufficient for (i) new terminal building, (ii) new tarmac (90 x 90 meters) and taxiway to the runway, (iii) new control tower and technical building, (iv) new fire tender, and (v) maybe new instrument approach and runway lighting. Based on similar projects in other parts the Bank financed, the estimated costs are typically twice or more the mentioned USD 13 million.

HAITI, ST. LUCIA AND DOMINICA

Between April and May of 2019, Bank air transport missions visited Haiti, St. Lucia, and Dominica to carry out identification missions for a Caribbean Regional Air Transport Connectivity Project. The objective was to discuss and identify investment and development needs in the Air Transport Sector of the three countries, as well as on regional aspects that needed to be addressed to facilitate air services. The following potential projects were identified and outlined in three draft Project Concept Notes.

Republic of Haiti: An air transport development project concept was identified, which would aim at enhancing Haiti's international airports' air transport capability and improving the country's main airport's (PAP) resilience to climate change and natural disasters. The project would include four components: (i) Improvement of aircraft operations safety at Port au Prince and Cap-Haitien; (ii) Elimination of key airfield infrastructure deficiencies at PAP; (iii) TA & Capacity Building; and (iv) Project Management and Implementation Support & Technical Assistance.

Saint Lucia: An air transport development project concept was identified, which would support targeted and integrated investments to address the most critical safety and resilient deficiencies observed at St. Lucia's airports with a particular focus on the airfield and aircraft operations. The project would include three components: (i) Improvement of runway resilience and operational safety at the National Airport; (ii) Improvement of St. Lucia's air traffic safety and efficiency; (iii) Capacity Building and Project Management; and (iv) Project Management and implementation support.

Commonwealth of Dominica: An air transport development project concept was identified, which would enhance Dominica's civil aviation safety and airport infrastructure resilience to natural disasters and support sound decision making related to the planned new airport. The project would include two components: (i) Im-

provement of safety and resilience at the two existing airports; and (ii) Technical Assistance.

LEBANON

In May 2019, a Bank air transport mission visited Beirut, Lebanon, to participate in the Civil Aviation Reforms and Airport Expansion Project (ID P170710) identification mission in order to provide technical input for the preparation of the Project Concept Note. The mission met with representatives of the High Council for Privatization and PPP, the Ministry of Public Works & Transport, and of the Directorate of Civil Aviation of Lebanon to discuss aspects of a Public Private Partnership for the *Beirut Rafic Hariri International Airport* (BEY). While IFC had prepared an analysis for a PPP in the context of an advisory mandate, the Bank concentrates on public aspects when dealing with large airport renovation projects in form of a PPP.



The air transport team presented a short outline on *Civil Aviation Reforms and Governance of Oversight* in the context of Lebanon. The team also presented *Civil Aviation Reforms – Best Practices* via videoconference after the mission. The team finally prepared a Project Concept Note (PCN) for a Lebanese Civil Aviation Reforms and Airport Expansion Project (P170710). The IBRD financed project would support 1) key reforms in the sector; 2) public sector contributions to the airport expansion as needed; and iii) access infrastructure to the airport. The following components were proposed: (i) Component 1, Institutional Reforms and Capacity Building, to finance measures – including consultancy services, operational costs, and equipment – to strengthen the capacity of existing agencies and/or new regulatory agencies to plan, regulate and manage the civil aviation sector; (ii) Component 2, Public Sector Contributions to the Airport Expansion PPP, as the Airport capacity is primarily constrained by the capacity of

its terminal, while the runway capacity is largely adequate, the expansion will aim at rehabilitating the existing terminal and on building new terminal within the airport perimeter, hence this component would finance all required public sector contributions to make the planned PPP feasible/bankable, as well as any emergency and/or intermediary investments deemed necessary; (iii) Component 3, Access Infrastructure to the Airport, to finance the expansion of access roads and other infrastructure required to improve access to the airport

A PCN review meeting took place on 30 May 2019. Discussion with the client about *Civil Aviation Reforms Best Practices* will follow as soon as feasible.

PAKISTAN

In February 2019, a Bank air transport team visited Pakistan to discuss policy reform measures for aviation, which could serve in a policy-based Bank operation for the Government of Pakistan (GoP):

- The objective of discussing policy measures that would help developing the aviation sector in Pakistan was to prepare triggers, which could be included in a WB policy guarantee operation. The Bank is currently preparing such a project and needs to inquire which policy measures are the most suitable to stimulate Pakistan's aviation sector.
- One of the first findings was that Pakistan's air transportation seems to suffer of high taxes and fees (30-40% of ticket price). Next, on international

routes, the nation's main carrier Pakistan International Airlines (PIA) is ill-equipped to compete with major competitors of the Gulf states (e.g. Emirates). PIA has continuously lost market share on the international segment, and it has accumulated high debt after decades of losses. Their fleet reduced from about 50 aircraft a decade ago, to about 24 – 26 aircraft (real number could not be determined). Nevertheless, there seems to be recent improvements in operations and service, but the carrier remains cashflow negative and depends on financing by third parties.

In terms of aviation policy, the GoP had released a National Aviation Policy 2015. This policy clearly calls for liberalization of market access. Currently, Pakistan's bilateral air service agreements generally do not provide an Open Skies regime, where frequencies, capacity etc., are fully liberalized, but there are reportedly quite open. Nevertheless, while the 2015 policy objectives for full liberalization were still not implemented, the GoP announced publicly that it intends to restrict certain agreements to "match capacity of PIA where it competes with large network operators such as EMIRATES." The current administration seems convinced that restricting capacity on certain routes (e.g. Islamabad – Dubai) would improve the financial performance of PIA, and avoid that EMIRATES can gain market by dumping its capacity. The air transport team expressed its concern that such restrictions typically hurt the smaller operator, as the market will start shrinking which the large competitor can sustain longer. Finally, given that PIA is not a network operator, is not part of a large alliance (e.g. One World,



Star Alliance), does not inter-line with many carriers, and has a distinct market segment (religious travel, migrant workers), the carrier was not in a position to compete with large network operators. Instead of restricting the market, PIA should restructure and establish it-self on certain destinations that fit their profile.

- The air transport team also discussed with the Pakistan Civil Aviation Authority (PCAA) the fact that they were both, regulator (oversight of the sector) and operator (airports). In fact, the PCAA seems primarily engaged in managing its airports and airspace, than focusing on its prime regulatory mandate. The mission discussed the possible separation of the regulatory and commercial operations of PCAA, which seems to be acknowledged positively by the counterparts.
- Finally, the mission discussed the possibility of establishing private participation in public infrastructure (PPP). The prime candidate is the new airport in Islamabad (ISB), which has an important potential for development, but which seems not managed to optimize service and revenues. ISB could profit from initially a management contract with an

international operator in order to introduce modern airport management procedures. Later, a possible concession could be considered.

In terms of policy measures to consider, the air transport team identified four areas which should be further evaluated: (i) preparation of a modified aviation policy for Pakistan (the issue of protectionism needs to be addressed), which would aim at developing the sector (the issue of PIA remains the largest challenge for implementing a liberal aviation policy); (ii) separation of the regulatory and operational function of the PCAA by creating an Airport Authority; (iii) preparing an initial airport PPP solution for ISB; and (iv) examining the claim of high fees and taxes.

SEYCHELLES

In June 2019, a Bank air transport team visited In June 2019, a Bank air transport team visited Seychelles with the purpose of discussing with the Government of the Seychelles (GoS) and with management of Air Seychelles (HM) options for the future positioning of the airline.

Background: In 2012, HM and the Gulf carrier Etihad



(EY) entered a joint-venture when Etihad became a 40% shareholder of Air Seychelles. This followed a period of significant losses even though HM at the time dominated the market between the Seychelles and its international destinations by providing about 60% of seat capacity. The losses occurred from long-distance operations to Europe, where the markets were relatively thin.

EY secured management, introduced modern management and operations systems (e.g. Yield Management was done in Abu Dhabi [AUH]), and provided a series of managers (CEO and CFOs). EY also streamlined operations by cutting most unprofitable long-distance routes, disinvesting older aircraft (B767), downsizing staff and local operations, and focusing on a regional network. However, some highly lossmaking operations with newly leased Airbus 330 aircraft were initiated (e.g. Düsseldorf) and cancelled again, resulting in significant losses in 2017 and 2018. Subsequently, management of HM refocused their operation on three main destinations: Johannesburg (JNB), Mauritius (MRU), and Mumbai (BOM). For this, HM leased two A320CEO, which was arranged by EY.

Mission findings: In order to improve profitability, management of HM decided to replace the two A320CEO with two A320NEO, which would drastically increase seat capacity on some high yield routes (SEZ-JNB) at the expense of much higher leasing costs for the A320NEOs. The first A320NEO was scheduled to arrive in August 2019 (already built and painted), financed by a Chinese Development Bank. The second A320NEO was scheduled for May 2020

The WB provided a quick and thorough due diligence about the past, the present, and the future of HM. On the wider focus of air transport development, the mission suggested examining if there was not a case to provide advice to the GoS on the air transport sector at large, the airport with the possibility of PPPs, and on regulatory oversight by the CAA. This could be provided in the context of a Reimbursable Advisory Service agreement between the WB and the GoS.

UZBEKISTAN

Over the period of August 2018 – June 2019, a Bank air transport team provided Reimbursable Advisory Services Technical Assistance (RAS TA) to the Government of Uzbekistan to support reforms in the aviation sector. The team visited Tashkent, Uzbekistan, in 2018 in October and November and in 2019 in January, February, March and June. The areas of this support focused on the following: (i) modernization of the institutional and policy framework in the aviation sector in line with international practice; (ii) the repositioning/restructuring of Uzbekistan Airways, the country's national airline; (iii) attracting private sector participation in airport development and operations; and (vii) definition of a new business model for Uzbekistan Airlines.



The work was closely coordinated with International Finance Corporation (IFC) Transaction Advisory team, specifically, on airports.

At initiation of the RAS, Uzbekistan's aviation sector was vertically integrated with the airline, airports, and air traffic control bundled under a single entity – National Air Company “Uzbekistan Airways” (NAC). The aviation sector policies and governance structure were set up to limit the access of international carriers and to protect NAC from meaningful external competition. The absence of an independent policy-making body also presented a conflict of interest between the policy and operations creating a risk of inefficiency and duplication of service delivery. These arrangements resulted in delivery of inadequate services at high prices to the passengers. The Government's objective was to modernize aviation sector and improve connectivity to facilitate tourism growth and stimulate economic growth.

Highlights from the work carried out under the RAS:

- The RAS team in close collaboration and consultation with aviation sector stakeholders in Uzbekistan, recommended an institutional and organizational structure of the sector that is more suited for a liberalized economy and competition and was aligned with international practices and ICAO conventions, and developed a reform roadmap. The Government adopted most of the recommendations of the Bank team and issued a Presidential Decree No. 5584 in November 2018 announcing the major sector reform. The Decree resulted in initiation of the unbundling of monopoly NAC by separating functions of the airline, airports, traffic control, accident investigation, safety oversight, and policy-making. Airline and Airport are being reorganized into independent corporations as state-owned joint stock companies (JSCs). The Decree also led to the creation of Ministry of Transport on 1 February 2019 as a state body authorized to design and im-

plement the policy for the aviation sector development, as recommended by the RAS.

- One of the most significant parts of the unbundling process of NAC consists in ensuring the creation of viable business models and self-sustainable companies that will continue the deployment of commercial activities in the sector. Due to the strong competition that develops in liberalized markets, Uzbekistan Airways has been identified in a most challenging position, than other entities. The Bank team drilled-down in its analysis and elaborated further on the concerns of the airline to remain profitable once it starts operating as a stand-alone carrier. To assess these challenges, a two-phase analysis was performed, one focusing on understanding the existing structure, network, commercial goodwill as well as current and future liabilities; and a second one focusing on the market opportunities and the restructuring of its fleet and liabilities to enable further activities in a self-sustainable manner.
- While further analysis is underway, it became apparent that the carrier must be well repositioned to

be financially sustainable in a competitive environment. The modelling of market data, resulted in development of three possible outcomes for the airline, after the unbundling process is fully implemented. The recommended business model was based on the principles of economic viability and profitability.

- The sector reforms also opened opportunities for attracting private investments in Uzbekistan's airports. The Bank team jointly with IFC colleagues delivered an assessment of private sector participation options in airport development and operations under four potential Public-Private Partnership (PPP) solutions for one or several airports. The joint Bank-IFC team advised that the Government decision on PPP options should be based on consideration of sustainability of the entire airports system, and the selection of a private partner should follow a transparent competitive process to yield value for money. The Government of Uzbekistan agreed to review the proposal and expressed that they would not rush into any solution before a thorough analysis was done.





As next steps, the Government requested the WBG to continue its assistance in the aviation sector reform under another RAS. In response, the team has initiated a proposal for the next phase of the RAS, which should include support in the following: (i) carrying out of institutional and regulatory reform actions in the aviation sector, including development of National Aviation Policy and strengthening of safety regulation and oversight capacity; (ii) establishment and commencement of operations of “Uzbekistan Airports” JSC and its subsidiary airport companies; (iii) preparation of a detailed Business Plan and restructuring process of “Uzbekistan Airways” JSC; and (iv) restructuring of “Uzbekistan Airways Technics” (UAT) LLC.

IFC AIR TRANSPORT PROJECTS: The IFC provides financing to private sector companies and has traditionally financed air carriers and airport infrastructure projects.

IFC ACTIVE AVIATION PORTFOLIO: Major active projects financed by the International Finance Corporation (IFC) include Queen Alia Airport in Jordan, the Zagreb Airport in Croatia, the Enfidha Airport construction in Tunisia, as well as Belgrade Airport in Serbia. In addition, the IFC investment portfolio also includes Lima Airport in Peru and the 14 Regional Airports in Greece.

In addition, IFC is active through the provision of Advisory Services for Kingston Airport (Jamaica), the Saudi Airports (26 in total), Sofia Airport (Bulgaria), Podgorica and Tivat (Montenegro), Beirut Airport (Lebanon) and Clark Airport (Philippines).



IFC Commitment

- US\$1 to \$10 Million
- US\$10 to \$30 Million
- US\$30 to \$50 Million
- > US\$50 Million



IFC PROJECTS

COUNTRY	PROJECT CODE	DESCRIPTION	AMOUNT (Million USD)	IFC'S EXPOSURE (as of End-of-FY2017) (Million USD)	TYPE
Cambodia	25332	Cambodia Airports II: Privatization of Phnom Penh International Airport – required capital and investments for expansion	Up to USD17.5 million	Project Closed	IFC A Loan up to USD7.5 million, IFC standby up to USD10 million
Cote D'Ivoire	32061	IAS: Acquisition of up to 3 secondhand Dauphin N3 helicopters to provide transport services to leading oil and gas exploration and production companies	USD7 million	Project Closed	A Loan
Jamaica	24676	MBJ Phase 1 Swap: The proposed project is to provide a USD interest rate swap to hedge the interest rate volatility inherent in the floating rate IFC Phase 1 loans (24676)	USD1.2 million (24676)	Project closed	Client Risk Management – Inter-mediation
Jamaica	24306	MBJ Phase II - Expansion and redevelopment of Sangster International Airport (24306)	USD42 million; USD20 million for IFC's own account (24306)	Project closed	A and B loans
Jamaica	31658	MBJ ROS: The proposed project consists of the runway overlay of Sangster International Airport (SIA) and other safety investments (31658)	USD7.5 million (31658)	Project closed	A and B loans

IFC PROJECTS

COUNTRY	PROJECT CODE	DESCRIPTION	AMOUNT (USD)	IFC'S EXPOSURE (as of end of FY2018) USD*	TYPE
Jordan	26182, 34536, 26864, 26685	Queen Alia International Airport: Rehabilitation of both airside and landside facilities	USD295 million; USD148.4million for IFC's own account	USD70.7 million A Loan; USD50 million quasi-loan and USD15.6 million in swaps	IFC A Loan USD141.2 million; USD160 million B Loan (26182) and (34536) IFC Client Risk Management - Cross Currency Swaps (26864, 26685)
Kenya	31650	KQ Airways: Expansion program consisting of the acquisition of 9 Boeing 787 Dreamliner aircrafts and 10 Embraer 190 aircrafts	USD25 million	USD3.8 million	Equity
Peru	24489	Lima Airports Partnership: Financial restructuring and assistance in conjunction with Fraport	USD20 million	USD13.4 million	Equity
Tunisia	26913, 28076	TAV Tunisia: Construction of a new airport in Enfidha, with an initial capacity of 7 million passengers per year, and rehabilitation of the airport in Monastir	USD253 million; USD184 million for IFC's own account	USD111.3 million (26913)	IFC A Loan, Subordinated Loan, Syndicated B Loan, Equity

IFC PROJECTS

COUNTRY	PROJECT CODE	DESCRIPTION	AMOUNT (USD)	IFC'S EXPOSURE (as of end of FY2018) USD*	TYPE
Croatia	31969, 34380	Zagreb Airport: Construction and operation of a new passenger terminal and related infrastructure at Zagreb Airport and the existing facilities.	USD72.65 million for IFC's own account (31969)	USD61.1 million (31969)	A Loan, Equity, and C Loan (31969)
		Zagreb Air Hedge: Interest Rate Swap	USD1.2 million for IFC's own account (34380)	USD4.4 million (34380)	Client Risk Management (34380)
Greece	37655	Greek Airports (Infrastructure services upgrade at 7 airports)	USD97.4 million A Loan and USD3.8 million swap (Commitment in Euros)	USD111.3 million	A Loan and Client Risk Management
	38905	Greek Airports B (Modernization of 7 additional airports in key Greek islands)	USD65.9 million A Loan and USD2.8 million swap (Commitment in Euros)	USD75.2 million	A Loan and Client Risk Management
Madagascar	36882	FCS RE-Ravinala: Upgrade and expansion of the two international airports of the country, with the help of the Emerging Africa Infrastructure Fund.	USD43.5 million A Loan, USD109.4 million Parallel Loan and USD71.3 million MIGA Guarantee	USD21.2 million	A Loan, Parallel Loan and MIGA Guarantee
Serbia	41123	Belgrade Airport: Capacity increase and upfront concession fee for the airports authority	EUR 72 million A Loan for IFC's own account plus EUR 110 million B Loan	USD56.2 million	A Loan and B Loan

IFC: PROJECT HIGHLIGHTS

CROATIA ZAGREB AIRPORT (31969)

The IFC is supporting the development of a terminal at Zagreb International Airport as part of a Public Private Partnership (PPP). The new USD 450 million terminal, built by a consortium supported by IFC, is expected to contribute to economic growth and tourist activity. Tourism is a major driver of employment in Croatia, and improved infrastructure will develop the sector and boost GDP. IFC is committing USD 72.65 million to the project, including a loan of up to USD 47 million and an equity investment of nearly USD 26 million. The concession includes financing, design, and construction of the terminal, along with airport operation until 2042.

The new terminal is 65,000 square meters and has welcomed 5 million travelers per year since it opened in March 2017, compared to its previous capacity of two million. An average of 400 new jobs were created during construction, and up to 700 at peak. For the first time in Croatia private firms involved in a transport concession project have assumed passenger volume risks, enabling the country to upgrade essential infrastructure without adding a burden to state finances.

MADAGASCAR AIRPORTS IN NOSY BE AND ANTANANARIVO (36882)

In FY17, IFC approved the project for airports in Madagascar. The project consists in a 28-year Design, Build, Finance, Operate and Transfer (“DBFO”) concession to rehabilitate, upgrade, expand, operate and maintain the two largest airports in Madagascar: Ivato Airport, serving the capital city Antananarivo, and Fascene Airport, located on the island of Nosy Be, the country’s busiest tourist destination. The concession was awarded through an international competitive tender to Ravinala Airports.

The Project Company’s shares will be owned by four reputable investors, three of whom are existing IFC clients. It represented an opportunity for IFC to invest in one of the poorest countries in the world. The investment aimed to expand the airports’ capacity while they remained operational.



IFC: PROJECT HIGHLIGHTS

PERU LIMA AIRPORT (24489)

In FY07, IFC approved the Lima Airport equity investment. It was for a 19.99 percent stake for USD 20 million. At the time IFC considered the investment, Lima Airport Partners S.L.R. (LAP) had a 30-year concession to operate the Jorge Chavez Int'l Airport in Lima, Peru. Concession term can be extended to 40 years at LAP's option and to 60 years by mutual agreement between LAP and the government of Peru. JCIA is the only commercial airport serving Lima and is Peru's primary international airport, operating on a 24-hour schedule. It was, and remains, the principal hub for domestic routes in Peru. IFC's investment intended to support the private operation of an international airport hub in one of Latin America's best performing economies and enabled the transfer of control from a shareholder (Singapore Airport/Bechtel) to a strategic investor and airport operator (Fraport AG), committed to the airport's expansion and increased efficiency.

Fraport AG Frankfurt Airport Services Worldwide ("Fraport") owns and operates the Frankfurt Airport in Germany, the seventh largest airport in the world and second largest airport in Europe. Fraport's management was meant to add airport operation and management know-how and result in an upgrading of skills of the local workforce. MIGA also provided Fraport with a guarantee for USD 11.5 million, to cover its USD 12.8 million counter guarantee for a performance bond posted for the privatization of Lima's airport.

TUNISIA ENFIDHA AIRPORT CONSTRUCTION (26913)

In FY08, IFC arranged a full financing package of €135 million from IFC's own account and a €255 million syndicated loan, underwritten by ABN, Société Générale, and Standard Bank. This was for a new airport at Enfidha, in central Tunisia, which would have an initial capacity of seven million passengers per year. This was also to rehabilitate the existing airport at Monastir and operate both under a 40-year concession. The airports were set to serve major tourism areas around the towns of Monastir, Sousse and Hammamet on the Mediterranean Coast. This was the first PPP in the air transport sector in Tunisia and more broadly, in North Africa.

Contact person for all IFC Investment projects is Maria Lopez Conde at mlopezconde@ifc.org





IFC: 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 a fraction of the world's commercial airports are managed or owned by private sector entities. However, as passengers carried by air transport has neared 4.1 billion in 2017, and more than one-third in value of all merchandise and goods 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

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 30 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 period of higher oil price in 2011-2014, they accounted for as much as 30 percent of the cost base (up from 15-20 percent in 2009), and have since dropped with declining oil prices (variations according to individual airline hedging strategies).
- 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.

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.

Selected IFC Advisory Mandates in Airports

PROJECT NAME	COUNTRY	YEAR	MANDATE/RESULT
Grantley Adams Airport	Barbados	2019-ongoing	EOI completed
Montenegro Airports	Montenegro	2018-ongoing	RFQ completed
Beirut Airport	Lebanon	2018-ongoing	Government approval stage
Sofia Airport	Bulgaria	2017-ongoing	Award pending
Nepal Airports	Nepal	2016-ongoing	Strategic Assessment Ongoing
Clark Airport	Philippines	2018	Awarded to Changi led consortium
Norman Manley Airport	Jamaica	2018	Awarded to GAP led consortium
Samoa Airline JV	Samoa	2017	JV Options Analysis
Jacksons Airport	Papua New Guinea	2017	Strategic Options Analysis
Jeddah Airport	Saudi Arabia	2016	Due Diligence / Project Structuring / Tender process
Taif Airport	Saudi Arabia	2016	Due Diligence / Project Structuring
Saint Lucia Airport	Saint Lucia	2016	Due Diligence / Project Structuring
Croatia Airlines	Croatia	2015	Strategic Partnership analysis
Brazilian Airports	Brazil	2014	Galeao and Confins Airports successfully awarded to Changi and Zurich Airport led consortiums respectively
Dili Airport	East Timor	2014	Feasibility Study Completed
Madinah Airport	Saudi Arabia	2012	Successfully awarded to TAV, Saudi Oger, Al Rajhi consortium
Male Airport	Maldives	2010	Successfully awarded to MAHB —GMR
Queen Alia Airport	Jordan	2007	Successfully awarded to Aéroports de Paris, ADIC, J&P, Noor consortium
Hajj Terminal	Saudi Arabia	2007	Successfully awarded to Saudi Bin Laden Group, Aéroports de Paris consortium
Abuja Airport	Nigeria	2006	Successfully awarded to Abuja Gate-way consortium (Airport Authority and equity partners)
Air Jamaica	Jamaica	2009	Awarded to Caribbean Airlines
Drukair	Bhutan	2008	Strategic analysis
JAT	Yugoslavia	2006	Strategic analysis
Polynesian Airlines	Samoa	2005	49% sold to Virgin Blue
Cameroon Airlines	Cameroon	2005	Awarded but cancelled by Govt.
Air Tanzania	Tanzania	2002	49% sold to SAA
Kenya Airways	Kenya	1996	76% sold to KLM, financial investors

ADVISORY MANDATE EXAMPLE: PHILIPPINES

CLARK INTERNATIONAL AIRPORT

The Government of the Philippines (GOP), through the Bases Conversion and Development Authority (“BCDA”), successfully concluded a Public Private Partnership (“PPP” or the “Transaction”) bid process for Clark International Airport (“CRK” or the “Airport”). The scope involved an EPC/build-transfer contract to finance, design and construct a new terminal shell, followed by an operations and maintenance (O&M) concession to finance, equip and install all airport fit-outs, and operate and manage the entire airport, with an augmented capacity of 8m passengers per annum (from 2.5m). The International Finance Corporation (“IFC”), through its PPP Transaction Advisory team, was the Lead Advisor to BCDA on the Transaction, which closed in January 2019.

The Project was a government priority, and was the first successful transaction under a new hybrid PPP structure to leverage their “Build Build Build” infrastructure program. Under the proposed structure, financing and construction was assigned to BCDA (via public procurement) and O&M to the private sector (via PPP). The intention was to maximize the use of cheaper public financing for construction, while harnessing private sector expertise in O&M. For this Project, the GOP adopted IFC’s proposed variation to the hybrid PPP model, wherein:

- The construction component is likewise implemented as a PPP, using the Build-Transfer variant of the Philippine BOT Law and procured adopting output-based specifications for the Engineering, Procurement and Construction (EPC) contract; and,

- The EPC contract was streamlined to cover only the basic civil works and building systems, and all other critical systems and inputs for airport operations were assigned to the O&M Concession to enable the latter to bring private sector expertise and efficiencies by managing better their operational obligations and traffic demand risk. The O&M attracted ten potential bidders, including several globally recognized operators.

Under this hybrid model, the Project successfully delivered two transactions (the EPC contract and the O&M concession) within 23 months. The tenders attracted credible investors and global market players: a top Filipino contractor, Megawide, along with Indian airport operator GMR, won the EPC contract; and Changi Singapore, with local conglomerates Filinvest and JG Summit, won the O&M concession.

Together the Project delivered to BCDA: (i) cost savings of USD 61 million for the EPC; (ii) nominal cost recovery of their investment for the EPC (USD 180 million) through fixed concession payments from the O&M concessionaire; (iii) an 18 percent annual share in airport gross revenues; (iv) successful demonstration of the proof of concept of its new hybrid PPP policy—the contractual and procurement adaptations made by IFC through this Project are now considered the model for the Hybrid PPP approach; and (v) fiscal space savings that can be used where public funds are most needed.

*Contact person for all IFC Advisory Services
Ramatou Magagi at rmagagi@ifc.org and Alexandre
Leigh at aleigh@ifc.org*





MIGA GUARANTEES

Guarantees provided by the Multilateral Investment Guarantee Agency (MIGA) cover projects in a broad range of sectors, with projects in infrastructure accounting for an important share of the agency's portfolio. Infrastructure development is an important priority for MIGA given the estimated need for USD 230 billion a year solely for new investment (maintenance needs are of a similar magnitude) to deal with rapidly growing urban centers and underserved rural populations in developing countries. MIGA is currently involved in three aviation projects: the Queen Alia International Airport in Jordan, Jorge Chavez International Airport in Peru and the Ravalala Airports in Madagascar.

JORDAN: Queen Alia International Airport

On 30 March 2018, MIGA agreed to issue guarantees of up to USD 195,154,839 to Meridiam Eastern Europe Investments 2 SAS (Meridiam) of France for its equity/quasi-equity investment into Airport International Group (AIG), the current concessionaire of the Queen Alia International Airport (QAIA) in Jordan. The guarantees are issued for a period of up to 15 years against the risks of Transfer Restriction, Expropriation, War and Civil Disturbance and Breach of Contract.

The project consists of the acquisition by Meridiam of a 32 percent stake in AIG, which entered a 25-year concession agreement with the Government of Jordan (GoJ) in 2007 to rehabilitate, expand and operate QAIA with the possibility to extend the concession by an additional 5 years (until 2037).

The proposed investment by Meridiam will enable capital expenditures to be directed towards optimizing the commercial activities of Jordan's principal airport (e.g. duty free shopping, specialty retail, food and beverages) which is expected to lead to higher non-aeronautical revenues, thereby generating additional revenues for Jordan over the duration of the REOA while enhancing the passengers' travel and retail shopping experience. The airport is an important infrastructure asset for Jordan, used by over 7 million passengers in 2017, supporting the country's economic growth and development, notably

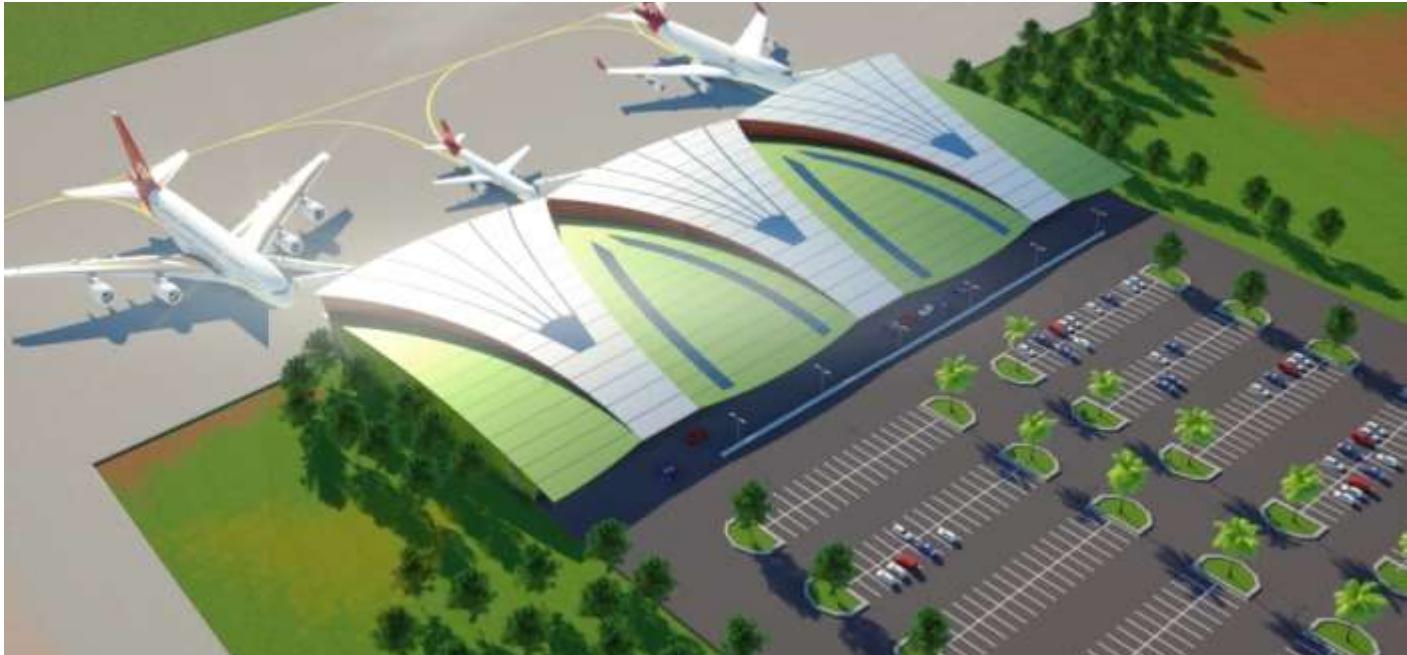
through the tourism sector. The acquisition is expected to reinforce the role of QAIA, consistent with the Jordan Economic Growth Plan spanning 2018-2022. The acquisition will support existing and new direct employment opportunities at QAIA, as well as indirect employment by domestic suppliers and service providers.

MADAGASCAR: Ravalala Airports

On 29 May 2017, MIGA issued an USD85 million guarantee covering equity and shareholder loan investments by Aéroports de Paris Management S.A, Bouygues Bâtiment International S.A.S., Colas S.A. and Meridiam Infrastructure Africa Fund, Meridiam Infrastructure Africa Parallel Fund FIPS, Meridiam Infrastructure Africa Parallel Fund SCsp into Ravalala Airports S.A. in Madagascar. The coverage is for a period of up to 15 years against the risks of transfer restriction, expropriation, war and civil disturbance, and breach of contract.

The project consists of the financing, rehabilitation/ expansion, operation and maintenance of the Ivato airport in Antananarivo and the Fascene airport in Nosy Be, currently being managed by the state-owned enterprise Aéroports De Madagascar (ADEMA). Works include (i) works at Ivato in preparation of the Francophonie summit (expansion of apron and presidential pavilion as well as establishment of a dedicated process path in the existing terminal for arriving/departing delegations), to be held in Antananarivo (the country's capital) at the end of November; (ii) construction of a new passenger terminal at Ivato airport and limited refurbishment works in the existing terminal; (iii) renovation of the runway and Tarmac II to host aircrafts Code E and one Code F at Ivato; (iv) renovation of the runway and limited expansion of the current passenger terminal at Fascene airport; and (v) rehabilitation of landside facilities at both airports, including the construction of new wastewater treatment plants, improvement of the existing incinerator at Fascene airport to meet emission standards, improvement of surface water drainage, construction of a new waste water treatment plant and installation of an oil water separator at Ivato airport.

The project's major expected development impact is to help upgrade and improve Madagascar's most important international and local gateways by implementing much



needed investment, delivering better services and offering more efficient air travel options. It will thus contribute to facilitate tourism, a key sector to unlock economic growth in the country, as well as help develop linked economic activities and create jobs. The project is also expected to have a significant demonstration effect for investors into the country, as well as providing a platform for the implementation of further public-private partnerships.

PERU: Jorge Chavez International Airport (JCIA)

MIGA has provided Fraport AG, of Germany, with a guarantee for USD 11.5 million, to cover its USD 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.

Peru depends greatly on its airport network because of the country's geography, and because ground handling transportation infrastructure has not been fully developed. JCIA is especially important to the country, since it is Peru's main operating international airport, accounting for 97% of international traffic, as well as some 58 percent of national traffic. JCIA also functions as a regional hub for all cargo traffic. The airport privatization is considered by the government as a key factor in the expansion of employment opportunities, the creation of a modern transportation facility to serve as Peru's gateway to the world, and for the enhancement of tourism, an industry that the government is actively trying to expand.

The airport's privatization is expected to provide the government with additional revenues through in-

creased income tax, custom duties, and concession fees. During the first four years of the concession, the consortium is expected to invest more than USD 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. Upgrades in the technology and services at the airport will create approximately 49 additional positions, mostly for expert technicians and service operators. The sponsors have instituted an employee profit-sharing plan. The majority of the goods and services required by the airport refurbishment will be sourced locally, and most ongoing capital expenditures foreseen, amounting to USD 1 billion over the entire life of the concession, will be sourced locally. Furthermore, the government will benefit from improvements in JCIA's operation, through a revenue-sharing agreement as well as a landing and take-off fee-sharing agreement.

Contact persons for MIGA portfolio information are Moritz Nikolaus Nebe at mnebe@worldbank.org and Susan Josefina Vasquez at svasquezplasenci@worldbank.org

AIR TRANSPORT COMMUNITY OF PRACTICE

WORLD BANK TRANSFORMING TRANSPORTATION EVENT AVIATION SESSION

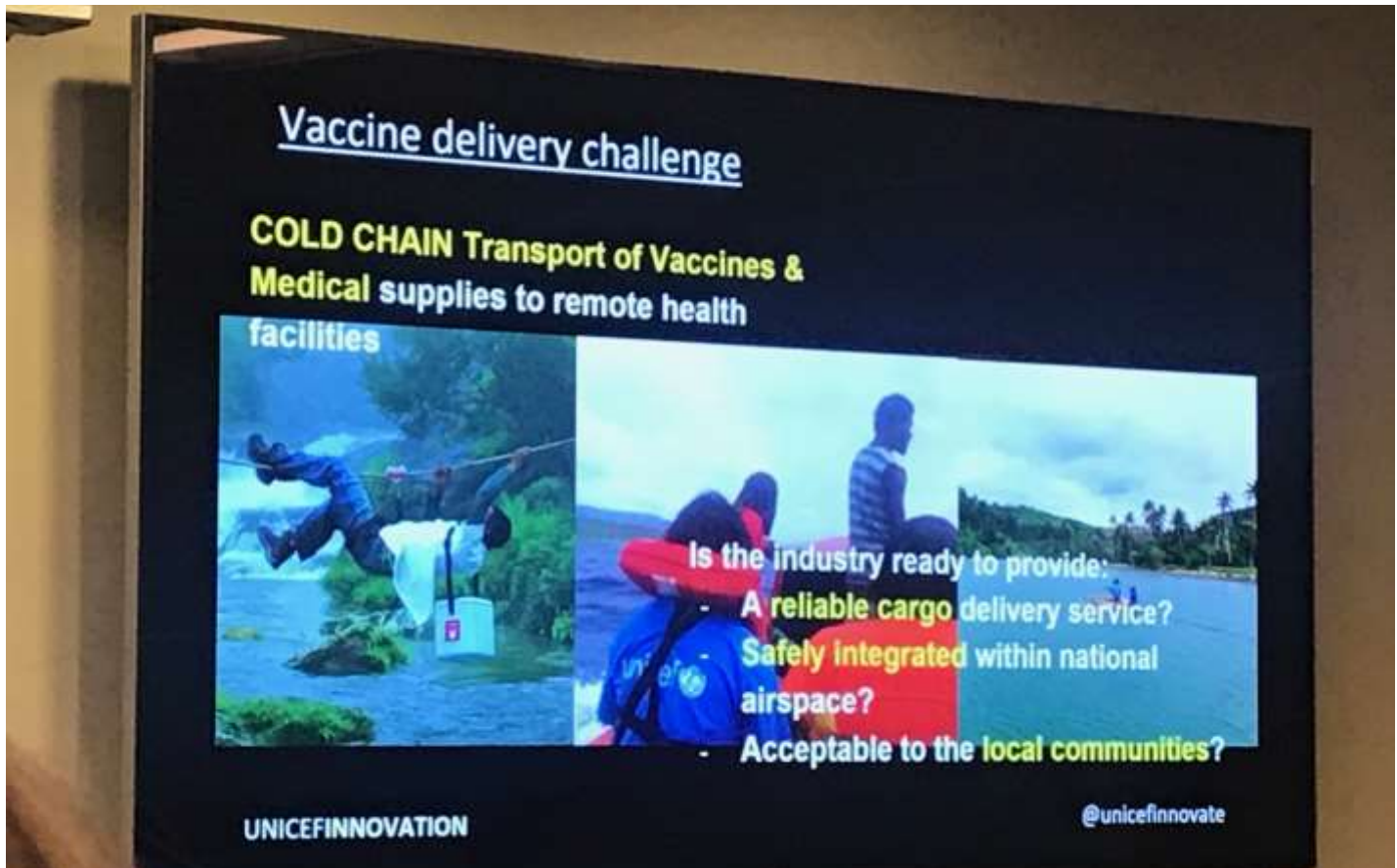
The International Civil Aviation Organization (ICAO) and the Air Transport Action Group (ATAG) with the World Bank's Air Transport Community of Practice (ATCOP) organized a session during the 2019 Transforming Transportation event which took place on 18 January 2019, at the World Bank headquarters. The presenters offered diverse perspectives on Innovation in the Aviation sector and the role it plays in development and promoting sustainable transport. The session was commenced by Charles Schlumberger, Lead Aviation Specialist at the World Bank, and moderated by Henry Gourdj, Head, Strategic Planning, Coordination and Partnership at ICAO. Presenters included: Capt. Houston Mills, Director, Global Aviation Strategy and Public Policy at UPS; Christopher Fabian, Co-founder of UNICEF Innovation Fund and Head of UNICEF Ventures; Leslie Cary, Chief of Remotely Piloted Aircraft Systems (RPAS) Section at ICAO; Nan-

cy N. Young, Vice President at Environmental Affairs for Airlines for America (A4A); and Dale Smith, Regional Director of Environmental Strategy for Boeing Commercial Airplanes. Key session takeaways are presented below:

The use of unmanned aircrafts can significantly improve people's lives and business development. Discussions about unmanned aircrafts tend to strongly focus on safety hazards as well as on potential loss of jobs and lives. Whilst those are valid issues to be addressed, these technologies can make a difference in people's lives, by, among others, providing significant business opportunities for economies around the world, increasing as well as creating new kinds of jobs, and improving disaster risk management as well as the provision of first responders' emergency medical services. About one billion dollars a year is being spent on technology development for mobile labs, improvement of automatic technologies to make operations faster and more efficient, and of course, on aviation technology to ensure that air fleet is more reliable, safe, and environmentally friendly.

UPS has been a champion in investing and including these technologies to their opera-





tions and has continued to add jobs while doing so. In the last decade, fueled by e-commerce, UPS has created more than 30,000 jobs and counts with a 450,000-employee force around the world. Their daily shipping has grown more than 20% (from 15.5 to 20 million deliveries every day). UPS is piloting the use of drones to deliver items from a package truck, to a location up to half a mile away, while the truck driver is carrying out deliveries to another location and the drone would eventually run into him/her again. This is a great example of transport multimodality, which could also make a difference from an environmental sustainability stand point.

Unmanned aircraft, such as drones, are being used in the delivery of medicines and medical equipment to remote locations in emergency situations as drones can arrive faster than an ambulance. Hence, technology and people are not a zero-sum game, technology complements what people can do, enabling their capability of keeping the required pace in a world that will continue to demand more, better and faster.

There are various, significant opportunities for PPPs, as regulators continue to frame/set up the regulatory frameworks. Regulators need to be in sync with the needs of the industry, as innovation takes place in companies. These companies will collect data that will help regulators develop performance space standards. These kinds of PPPs allow testing and builds public trust. It is critical for the aviation sector

to work together (manufacturers, operators, regulators).

The development and establishment of frameworks and regulations for unmanned aviation is key to ensure operationalization of the new technologies as well as to continue innovating. Aviation technology changes rapidly, whereas regulatory processes take many years to be developed and implemented. According to UPS, new and harmonized regulations, as well as performance-based standards, are needed to foster innovation. UPS believes it is organizations like ICAO that can deliver those standards to run aircraft systems across international borders. Regulation is needed to enable effective integration between manned and unmanned aviation as well as sharing airspace. ICAO is working towards building regulations in a smooth way to enable the industry to keep growing and innovating whilst ensuring safety. They are taking the traditional manned aviation approach building all of the standards that will be implemented into national regulations going forward, both for manned aviation and remotely piloted aircraft systems.

Developing regulations becomes more complex as unmanned aircraft comes in different shapes and sizes (drones, flying taxis, remotely piloted aircraft, unmanned free balloons). In complex airspaces such as in the US and Europe, more rules and regulations will be needed to securely advance these technologies.

In these countries, the pace to develop such regulations has increased. For example, in October 2018 the US passed an authorization which included effective rules that allow unmanned systems operations beyond the visual line of sight. Other advancements include a treaty signed by 192 countries, which establishes that no unmanned aircraft can be flown over a territory without proper authorization from the civil aviation authority of that state and count with a license plate. The treaty established that it is the responsibility of each state to make sure that all other aircrafts in its jurisdiction are protected.

To establish and enforce regulations, just like for manned aviation, documents must be in place, remote pilots must be licensed, aircrafts must have a certificate of air worthiness, the system also has to be airworthy, operators have to be certified by the State. Once these aspects are settled, ICAO can start looking at things like air traffic management issues, separation standards from other aircrafts, among others. ICAO is currently working on Unmanned Aircraft System Traffic Management Standards and Regulations, registration and tracking systems (including communications and geofencing systems).

The use of unmanned aircrafts for humanitarian initiatives is increasing rapidly. In Malawi, UNICEF started working three years ago to build what is now the largest drone testing corridor for humanitarian obligations in the world (400 m), located in the north of the country. A regulatory framework was created, involving local civil aviation authorities, from South Africa, the US and other countries. This effort resulted in an agile and adaptable regulatory framework that can be relooked at every six months, which is very unusual. That corridor in Malawi is being used to study the use of drones for the delivery of blood spot samplers to test babies for HIV and to gather data from drone imagery to identify the locations of water puddles where mosquitoes breed. The latter may aid the Government of Malawi to start planning its response to epidemics such as Malaria and Zika. In the Pacific, UNICEF is supporting the use of drones for the delivery of vaccines within the islands of Vanuatu, thus ensuring compliance with packaging and temperature requirements. In Kazakhstan, they have supported the creation of the highest humanitarian drone testing corridor in the world (5,000 m) to deconflict traffic during and after an emergency. The Government of Kazakhstan and UN agencies are involving private sector actors such as Airbus to develop frameworks faster.



The World Food Program has been working with a company in Spain that is building fly-ops and is using that for cargo delivery aircraft for humanitarian food supplies in remote locations. Commercial drones will be doing the same kind of deliveries in countries around the world, including vaccines and blood supplies. The use of unmanned aircraft to deliver vaccines is increasing rapidly. Within the next five years, there will be flight demonstrations in several countries (for 150 km distances for example).

Best practices and lessons learned from aviation technology development could contribute to other modes of transportation. Since 1903, Aviation has leveraged technology over the years to reduce risk and gain trust as one of the safest and most reliable forms of transportation in the world today. Sharing and leveraging technology, lessons learned and best practices from aviation to other modes of transportation, will help ensure the success and sustainability of the mobility sector. There is much to gain from leveraging existing aviation knowledge and technology to build public trust and cultivate a sustainable future. For these purposes, it would be key to: (i) create a repository place for frameworks and regulations; (ii) Building narratives on what has been tried, what has been done, what can be done, lessons learned; and (iii) create a network of partners. As of recent, ICAO has made available online their lessons learned and best practices on frameworks regulations so far.

Technological Innovations and the use of sustainable alternative fuels are key to continue driving improvements on Aviation's management of climate/environmental challenges. Aviation accounts for two percent of the world's GHG emissions inventory. This is because the sector is driven to be exceptionally fuel efficient, hence GHG fuel efficient. Since the late 70's, in the US alone, aviation has attained a 125% improvement in fuel efficiency, saving over 4.6 billion metric tons of CO₂, which is equivalent to taking 25 million cars of the road each year from 1978 to today. Airlines for America (A4A) is seeking to further reduce aviation's GHG emissions levels, by divining the right aviation targets for climate change and how to use technology, operations, infrastructure (bringing Innovations in engines, in the type of materials used to manufacture them, making the aircraft more aerodynamic), and sustainable alternative aviation fuels to achieve such goals.

Given that aviation is a global industry, agreements within ICAO are needed to ensure that measures are being put in place to reduce GHG emissions, which would add an additional layer of regulation. In 2016, the 192 Countries at ICAO agreed on a new certification standard pertaining to GHG emissions for future aircrafts and on a CO₂ reduction scheme for international aviation. As of Jan 01, 2019, all airlines and aircrafts that operate internationally have started moni-

toring and reporting on their emissions. Pertaining to sustainable alternative fuels, A4A and ICAO are working together in the development of a framework to ensure that when an aircraft is flying internationally utilizing biofuel everybody knows it's safe and approved, and we have common standards for ensuring environmental integrity.

Although significant technological advancements have been achieved, further investigations and developments are required for Electric Aircraft to play a protagonist role in the market. Boeing is investing in new technologies for airplanes and are working in the development of autonomy and artificial intelligence. Airplanes are being built with new materials and count with new systems for data collection. They are also very committed to investigating new technologies that will bring about fuel efficiency without compromising safety in any way.

Whilst some small short-range airplanes may interject markets in the upcoming decades, Boeing doesn't foresee electric or hydroelectric planes playing a significant role in our traditional markets for some time. The development of large electric or hydroelectric aircraft will be paced by the development of hi density energy storage, lightweight electrical components or other technological advancements. All these elements must be integrated while ensuring safety above all.



AIR CARRIER ADVISORY SYSTEM

WORLD BANK STAFF AIR TRAVEL

The Bank has maintained an evaluation tool for assessing risks associated with air travel for mission travel since 2008. The air carrier advisory system developed by the Bank’s General Services Department and Air Transport team was launched in FY2011. Airline ratings/risk are based on the following criteria:

Risk Criteria:

1. *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)*
2. *Registered in a country with poor oversight (based on ICAO safety audit)*
3. *A flag of convenience airline (an airline that is registered and maintained in a country other than where it operates)*
4. *Use of aircraft over 20 years old*

Overall there were 193,686 flights booked

by American Express for Bank staff in Fiscal Year 2017 (from HQ), representing a decrease in traveling by 0.4 percent compared to Fiscal Year 2016. The majority of flights booked were with airlines considered to be “Good to fly”. This data does not capture trips arranged in the regions.

Travelers should be aware that surface transportation may not always be possible or may represent more risks than air travel in some client countries. The advisory team continues to provide on-demand assessments and safety advice for operational staff.

Contact person is at Ndeye Anna Ba at nba@worldbank.org

	DESCRIPTION	RECOMMENDATION FOR STAFF
1	All airlines that are industry certified by having passed an IATA IOSA audit, unless subsequent safety experience indicates a safety problem.	Good to fly. The Bank has no objection to using these airlines.
2	All airlines that though they are not industry certified are either licensed by a country with an FAA IASA rating of Category 1, or are known to the Bank as safe carriers.	Good to fly. The Bank has no objection to using these airlines.
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.	<p>3a. Airlines that do not qualify for Category 1 or 2, but have been reviewed by the Bank’s air transport specialist and considered good to fly.</p> <p>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.</p> <p>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.</p>



ANNUAL AVIATION SYMPOSIUM AND ANNUAL AIRPORT ECONOMICS & FINANCE CONFERENCE

In March 2019, The Bank Air Transport Team organized the 5th ACI WB Aviation Symposium, which took place in London and concentrated on Airport Public-Private Partnerships (PPP). The team also participated in the 11th Annual ACI Economics and Finance Conference, which followed the Symposium. The following can be retained about the Conference and the Symposium:

- The 11th Annual Airport Economics & Finance Conference brought together the world's airports and The World Bank with the aim of exchanging knowledge and experience, bridging the gap between the financing capabilities and requirements of the private capital owners and the interests and challenges of the airport industry. During the three days of the conference, investors, financing institutions, forecasters, regulators and the industry players addressed the critical aspects that would enable or represent a threat to the implementation of public-private partnerships or privatization process of airports across the globe.
- The World Bank Group, the largest provider of development finance, assists large-scale transformational projects in air transport by offering operational and financial support through projects and technical assistance, air transport research and collaboration with aviation organizations. The International Finance Corporation (IFC) unit provides comprehensive transaction advisory support, mobilizing and committing since 2005, over USD 2.3 billion USD for airport investments worldwide, whilst the Multilateral Investment Guarantee Agency (MIGA) offers insurance solutions to mitigate risks faced by lenders and investors. Throughout the session the bank presented the investment parameters required by airports owners as well as the process deployed in assisting airports in their preparation for a public private partnership. Examples from across the globe have been presented as well as the importance of the legal and institutional framework in aligning the owners' expectations with their contractual obligations.
- The Symposium held during the first day of the conference, led by the World Bank; set the scene by giving an outlook of the economic perspective as well as the traffic and cargo expectations for the next two decades. Although, the economic development registered a slight slowing compared to the past two years, growth is expected to continue at an average rate of 4.1%, with global airport passenger traffic estimated to double in the next 20 years,





from 8,8 billion in 2018 to 20,9 billion by 2040. Air travel demand, is also expected to continue to grow, at an average annual of 3.5%, with significant shifts in the global market share; China, India and Indonesia taking lead in the market share distribution by 2037. The Symposium included a group exercise where five teams each presented a Public-Private Partnership proposal to the participants who voted on several aspects of the presentation. Three winning teams were rewarded with small prizes.

- The industrial production and trade are key drivers of the cargo segment growth, and yields registered in 2018 were 22% higher than in 2016, with an average 10% annual revenue growth, despite the volatility in the volumes. The environmental aspects impacting the auto industry in Germany, the high-incidence of protest in France, the instability caused by the Brexit, the slow-down of the Chinese market, are just some of the factors that affected the growth rates in 2018. Nowadays, both Chinese and European markets have shown signs of recovery and the long-term outlook is positive, with an expected 4.2% annual growth, as freighters are expected to remain the backbone of the air cargo industry, with the world fleet estimated to reach 3,260 aircraft over the next two decades.
- In terms of traffic forecast, Eurocontrol foresees a 53% increase in flights in Europe between 2017 and 2040, resulting in a capacity gap of 1.5 million IFR movements, a loss of 8% of demand, ac-

counting for approximately 160 million passengers. By 2040, 16 of Europe's airports are expected to reach high-congestion levels if no infrastructure developments are undertaken or efficiency gains through new technologies are reached. Another significant upside risk of growth in air travel demand is given by the insufficient number of pilots and training facilities to accommodate the rate of growth, with over 160,000 additional commercial pilots being required in the next ten years.

- Set in the positive outlook of market growth and evolving business models on behalf of the airlines, the airport industry is changing rapidly, moving from a more passive role of a simple infrastructure provider, to an active player, engaged in competing with other airports in attracting airlines and passengers. In their quest for leadership airports need to invest in infrastructure, services, innovative marketing schemes and overall management processes. Out of the 8,278 airports, 27% have opted for a public private partnership whilst 26.8% have opted for concession programs or other types of public private partnership operations, with no apparent relationship between ownership and revenue generation, nevertheless airports with private structures have seen a more significant increase in infrastructure investments compared to their state-owned competitors.
- Beyond the competition for airlines and new route development, the industry needs to establish the degree of airport economic regulation that would

enable the most successful business development, some voicing for allowing the market forces to lead business strategies. As the European Commission and the Australian Productivity Commission are assessing their respective airport charges directives, airports are signaling that a single set of regulation would not benefit all players, and that the new level of condition on which airlines and airports should engage in commercial relationships should take into account the different types of airports, based on size, competition level and buying power.

- The capacity constraint remains the key upside risk at airports across the world, as it becomes almost impossible to add new runways and additional infrastructure, as such slot allocation has become a battlefield for competition and transparency and their most efficient use has been debated. Strong focus was placed on how slots should be allocated as to balance regional connectivity and profitability in an "evolutionary" approach or should the administrative system be replaced by a "revolutionary" market based approach. As there are no current changes being discussed at European Commission level a more efficient air traffic management remains the key enabler for increasing capacity.
- Both airlines and passengers are customers of airports, generating together aeronautical and non-aeronautical revenues; as such the marketing strategies need to address the expectations of both customers. Attracting and retaining airlines has evolved from an airport activity, to a destination management collaborative process, where local government, tourism board and airport become part of a market development strategy. The positive results have been seen in airports of all sizes, as Dubai International, Moscow Domodedovo and Kalamata Airport, have registered excellent results in attracting and retaining airlines.
- When looking at the final customers, the millennials are the key drivers in changing the dynamics of airport commercial revenues, as 93% of them have indicated "pre-shopping habits", by researching on-line before purchasing in airport stores. 60% of interviewees responded that "exclusivity" of products at airport is a key driver in their purchasing decision. As passengers are getting more sensitive to their overall experience in the airports, any negative aspects, as higher prices in food and beverage outlets can affect their desire to purchase. Non-aeronautical revenues represent 50% of airport revenues; as the Travel Retail revenues have been decreasing, airports need to focus on "fulfillment" and "experience", and to prevail on the "experience" function to maximize opportunities through the development

of attractive marketing strategies and efficient ecommerce platforms. The key word is "digitalization", an integrated process that will start from the parking of their car until the fulfillment of the journey at destination.

ICAO MEETING ON THE OPERATION OF UNMANNED AIRCRAFT SYSTEMS FOR HUMANITARIAN AID AND DEVELOPMENT

In February 2019, The Bank Air Transport Team participated in the ICAO Meeting on the Operation of Unmanned Aircraft Systems (UAS) for Humanitarian Aid and Development, which took place in Montreal, Canada. The meeting was supported by the Interagency Supply Chain Secretariat, an informal coordination effort composed of 15-member donor foundations and international organizations dedicated to solving public health supply chain challenges. There are currently seven agencies involved, which are investing in UAS cargo delivery programs and use cases for public health systems strengthening, last mile supply chain and disease management. These include: Bill and Melinda Gates Foundation, DFID, USAID, GIZ, GAVI, UNICEF, The Global Fund. The objective of the meeting was to further explore how drones become a relevant tool for various development applications, as well as associated risks and regulatory requirements. The following was discussed and concluded:

Several participants delivered presentations on operational and regulatory issues concerning the usage of UAS for Humanitarian Aid and Development. The World Bank outlined a presentation about regulatory and legal issues when using drones in Fragility, Conflict and Violence (FCV). Another interesting presentation was on the Lake Victoria Challenge Project, which aims at developing the usage of cargo drones in East Africa. This initiative is supported by the WB (FY18: USD 150,000, FY19: USD 300,000).

Several ICAO Sections delivered good presentations, which outlined the complexity of regulations on UAS (Sections: Remote Piloted Aircraft Systems, Air Traffic Management, Aviation Medicine, Dangerous Goods, Operational Safety, Safety Management, and Facilitation). This, because UAS, or simply "Drones," are generally considered an aircraft, so many Standards and Recommended Practices (SARP) of ICAO apply. However, to get a better understanding of the usage of UAS and how they should be regulated, better guidance material by ICAO is needed.

A general discussion regarding several regulatory and operational challenges and current experiences revealed the need to support Contracting States of ICAO to introduce regulatory framework for UAS. On

the other hand, the important advantages for the usage of drones in missions of humanitarian aid or development in WB client states, call for a quick and unautocratic implementation of oversight in order to facilitate the usage of drones.

Therefore, a Task Force on UAS for Humanitarian Aid and Development (TF-UHAD) was established, which will support the ICAO Secretariat in guiding ICAO Member States, international organizations and industry seeking to leverage the operation of unmanned aircraft for humanitarian aid and development purposes. The work of the TF-UHAD will expedite the development of harmonized UAS regulations, thus enabling the safe and efficient expansion of these potentially life-saving operations with particular focus on responding to contingency, public health, development and emergency situations. In this way, it is anticipated that the work of the TF-UHAD will assist in advancing many of the United Nations Sustainable Development Goals (SDGs).

Draft Terms-of-Reference (TOR) were prepared (see attachment), and the first meeting of the Task Force to be held at ICAO on 9-11 April 2019. The main objective of the Task Force to develop guidance material that will support Civil Aviation Authorities (CAA) and public health/emergency response entities in regulating and authorizing operations being conducted for humanitarian aid or development purposes.

The guidance material will be completed and delivered to ICAO in time for presentation at the 40th Session of the ICAO Assembly in September 2019. The deadline for guidance material to be published online is mid- September (to be announced at 40th Assembly, which starts on 24 September 2019).

Relevance for the World Bank Group and Air Transport Community of Practice:

UAS have an important potential for an array of efficient, safe, and inexpensive applications in developing and emerging countries. Furthermore, WBG counterparts and staff on mission may soon request the usage of UAS for the identification and implementation of projects. Supporting the above described initiative is therefore warranted.

However, UAS are still a very small segment of the overall air transport sector. At the WB, air transportation remains a niche sector, which focusses on selected opportunities that promise a good development impact and/or respond to the agreed development priorities of a client country.

Next steps: Given the above stated, and given that no internal WB funding is available to support the initiative of the TFUNAD, the Air Transport Community of Practice will continue to monitor and participate remotely, as time permits, in the above mentioned work. Nevertheless, ATCOP will deepen its research and exchanges on UAS, also in view of the WB's participation in the Lake Victoria Challenge.

THE INAUGURAL LAKE VICTORIA CHALLENGE - TRIAL AND SYMPOSIUM

During FY19 the World Bank, in cooperation with the Government of Tanzania and Development Partners, helped to launch the inaugural Lake Victoria Challenge (LVC) – a show case of Unmanned Aircraft Systems (UAS) tailored for use in rural African use cases. The LVC sought to address the enabling envi-



ronment for African clients to scale up the use of safe, effective, socially and economically beneficial applications of UAS. This work focused on knowledge sharing of state-of-the-art regulations, airspace management, and safety management systems.

The Tanzania activities in 2018 established both a proof of concept for advancing regional innovation, dialogue and knowledge exchange, and catalyzed demand for a continental platform to reconvene. The knowledge symposium held in Mwanza, Tanzania in October 2018 brought together close to 300 participants from 23 countries and saw 34 flights from five different drone teams, prompting research into new use-cases for unmanned aerial systems in the region. As such, the legacy of the 2018 activities have been to give rise to the African Drone Forum, or AD-F2020, which is a scaled-up version of the LVC to be hosted in Rwanda and is scheduled to place on February 2020.

The LVC trials of October 2018 served to validate a set the standards for flying competition safety, security, use case application, airspace management and business model opportunities, which will be leveraged in the planning of the Lake Kivu Challenge. The LVC trial demonstrated a world class safety and compliance regime for cargo drones and served as an opportunity to test the LVC operational manual. During LVC drone manufacturers were able to demonstrate cutting edge drone technologies operating 'Beyond Visual Line of Sight' in the Mwanza airspace. Based on this experience, the Lake Kivu Challenge, a set of Flying Competitions to take place in Lake Kivu, Rwanda, kicked off on March 2019 with the launch of the online registration. The Lake Kivu Challenge hosts three flying competitions based on Africa specific use cases: 1. Emergency Delivery, 2.

Sample Pick-up and 3. Find and Assess. Ten teams are expected to be selected as finalists to compete in live beyond line of sight competitions in early 2020.

As a follow up to the Lake Victoria Challenge, and in order to strengthen the operations and risk management of long range UAS operations, an Unmanned Traffic Management (UTM) workshop took place from 6 to 8 May 2019 in Mwanza Tanzania. Further activities in FY20 are expected to develop a new Concept of Operations for the Rwanda based flying competitions as well as convene a new Regulators Summit on UAS in Africa as part of the broader African Drone Forum.

Implementing partners to the World Bank in this initiative include ICAO, CASSOA, World Economic Forum, Unicef, World Food Program, Village Reach and AfricanDrone.

The total Bank financial allocation in FY19 for this initiative was USD 350,000 from Trust Funds supported by the Korean Green Growth Partnership and Digital Development Partnership under the Climate Technology Innovation Program. At the end of FY19 the African Drone Forum was selected by the Disruptive Technologies for Development Fund for continued support, as well as by UK Aid Frontier Technologies program. The FY20 plans will target an audience of 1000 participants and include a UAS industry expo, business plan competition and youth scholar's program.

Contact person is Edward Charles Anderson at eanderson1@worldbank.org



COMMUNITY SERVICE

Several World Bank staff members are licensed and active pilots, certified by the US FAA and/or European Aviation Authorities EASA. To remain current on their pilot qualifications, they regularly fly and undergo required refresher training. The most rewarding way of keeping current is to engage in 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 cannot withstand traveling long distances by automobile, rail, or bus, or who do not have the financial means to use suitable alternative transportation. Oftentimes, transport in smaller, private aircraft can better accommodate patients whose conditions could worsen if exposed to the re-circulated air on commercial flights, or who need efficient point-to-point transport.

One example of an Angel Flight mission, which was carried out by Charles E. Schlumberger, Lead Air Transport Specialist and Roman Neumeister, Travel Specialist of the Global Corporate Solutions

Travel Unit of the WBG, was a flight to transport cancer patient Lloyd Moore and his mother from Manassas, VA, to Cobb County International Airport - McCollum Field near Atlanta, GA.

The WBG's contribution, in accordance to Staff Manual 9.10, consisted of one day of administrative leave to carry out this rewarding community service.

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

For more information visit: www.angelflighteast.org



The Outlook for the global air transport sector for Fiscal Year 2020 was initially quite positive. For 2020, IATA forecasted that the global airline industry would generate a net profit of USD29.3 billion, a significant improvement over a net profit of USD25.9 billion in 2019. The optimism was based on an expected improvement in economic growth in 2020, together with broadly stable fuel prices, resulting in a solid growth of air travel (RPK) in par with 2019. Passenger numbers were expected to reach 4.72 billion (up 4.0% from 4.54 billion in 2019), and cargo (freight tons) carried were expected to recover to 62.4 million, a 2.0% increase over 61.2 million tons carried in 2019, which was the lowest in years.

Given the initially expected growth of the aviation sector, including its economic opportunities for emerging countries, but also given some expected challenges, the WBG remained committed to continue supporting the development of air transportation in selected client countries. However, since a few years, the development approach increasingly focused at policy measures that facilitate the development of the sector by the participation of the private sector, and to a lesser extent, direct investments by the WBG. This should be achieved by applying the principles of the “Cascade Approach,” which facilitates the mobilization of private funding for the expansion of necessary infrastructure, for example by establishing PPPs for airport infrastructure projects.

The outbreak of the COVID-19 pandemic in early 2020 drastically changed the above initial outlook. The air transport industry came to an unprecedented standstill, which lasted several month and virtually grounded often the entire fleet of many carriers, especially in developing and emerging countries in Africa and Latin America. Airlines around the world were facing serious liquidity problems, and several announced insolvency or even liquidation at the time of the publication of this Annual Report.

In June 2020, IATA revised its forecast for 2020 for the global air transport industry by expecting airlines to lose USD84.3 billion with a net profit margin of -20.1%. Revenues were forecasted to fall by 50% to

USD419 billion from USD838 billion in 2019. Passenger numbers would also halve to 2.25 billion, approximately equal to 2006 levels. Load factors were expected to average 62.7% for 2020, some 20 percentage points below the 2019 high of 82.5%.

All regions are expected to suffer heavy losses in 2020. The highest loss would occur in Asia Pacific with a net profit of -USD29 billion. The highest reduction in passenger demand (RPK) was expected in Africa (-58.5%) and Latin America (-57.1%), while the highest reduction in capacity (ASKS) should occur in Africa (-50.4%) and the Middle East (-46.1%). These regional differences highlight that the air transport industry in emerging and developing countries is far more affected, than in developed regions. Furthermore, many developing countries do not have the fiscal space to provide emergency funding for their failing aviation sector, and many carriers may simply be liquidated resulting in a loss of connectivity, which potentially could take years to restore. Such a loss of connectivity will affect remote countries, as well as markets that relay primarily on tourism or global trade, more severely than developed ones with multiple modes of transportation. An increase of unemployment and a loss of fiscal revenue will ultimately lead to more poverty in these countries. As such, the preservation of essential air services in terms of connectivity becomes a prime development objective.

The WBG will continue to support its client countries on the development of sustainable, safe, and affordable air transport services. On the one hand, it will address the short-term challenges, by shaping policy measures as well as means of supporting the aviation sector at large. On the medium and long run, the WBG will continue its development support, which includes institutional reforms, capacity building, sector reforms, or infrastructure financing where warranted. A continued focus on private sector participation will also be supported with financing by IFC and by the provision of guarantees by MIGA.

Finally, the WBG is maintaining productive partnerships with the industry, as well as with bilateral and international partners, which include ICAO, ACI, IATA, as well as with multi-national and regional development banks.



ST. LUCIA FIRE DEPARTMENT

ST. LUCIA FIRE & EMERGENCY SERVICES - 911





SUNRISE
airways

HH-SUN

Photography Credits:

- Page 29, Rwanda Safari Gorilla Tours Official Website, <https://www.safarigorillatours.com/getting-to-rwanda-away-kigali-international-airport-rwanda/>
- Page 60, Construction Review Online, <https://constructionreviewonline.com/2018/01/construction-ivato-international-airport-fascene-airport-madagascar-underway/>
- Page 61, How to Peru website, <https://www.howtoperu.com/lima-airport/>
- Page 62 top picture, Image courtesy of TAV Airports Holding Co.
- Page 62 bottom picture, Image courtesy of TAV Airports Holding Co.
- Page 68, Bouygues Construction Official Website, <https://www.bouygues-construction.com/en/press/release/ravinala-airports-concession-company-antananarivo-and-nosy-be-airports-madagascar-formed-groupe-adp-bouygues-batiment-international-colas-and-meridiam-africa>
- All other images belong to WBG or contributors to this report



