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The World Bank

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Report No: 65353-EAP

PROJECT APPRAISAL DOCUMENT

ON

PROPOSED IDA GRANTS

IN THE AMOUNT OF SDR 14.5 MILLION (US\$22.91 MILLION EQUIVALENT)  
TO THE REPUBLIC OF KIRIBATI; AND

IN THE AMOUNT OF SDR 17.2 MILLION (US\$27.21 MILLION EQUIVALENT)  
TO THE KINGDOM OF TONGA; AND

IN THE AMOUNT OF SDR 7.5 MILLION (US\$11.85 MILLION EQUIVALENT)  
TO TUVALU

IN SUPPORT OF THREE PROJECTS UNDER A REGIONAL APL

PACIFIC AVIATION INVESTMENT PROGRAM

IN THE AMOUNT OF SDR 78.8 MILLION (US\$125 MILLION EQUIVALENT)

November 11, 2011

Timor-Leste, Papua New Guinea & the Pacific Islands  
Sustainable Development Department  
East Asia and Pacific Region

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## **CURRENCY EQUIVALENTS**

(Exchange Rate Effective October 31, 2011)

Currency Unit = Australian Dollar (AU\$)  
1 AU\$ = US\$1.0598  
US\$1 = AU\$0.9436

Currency Unit = Special Drawing Right (SDR)  
1 SDR = US\$0.63069  
US\$1 = SDR 1.5856

Currency Unit = Tongan Pa'anga (TOP)  
1 TOP = US\$0.5930  
US\$1 = TOP 1.6863

## **FISCAL YEAR**

January 1 – December 31

## **ABBREVIATIONS AND ACRONYMS**

AusAID	Australian Government Overseas Aid Program
ADB	Asian Development Bank
ADS-B	Automatic Dependent Surveillance-Broadcast
APL	Adaptable Program Lending
ARP	Abbreviated Resettlement Plan
ATC	Air Traffic Control
AU\$	Australian Dollar
AWS	Automatic Weather Station
CAA	Civil Aviation Authority
CAD	Civil Aviation Division (Tonga)
CAR	Civil Aviation Regulations
CAS	Country Assistance Strategy
CQS	Consultants' Qualification-Based Selection
CXI	Cassidy Airport (Kiribati)
DCA	Department of Civil Aviation (Tuvalu)
DCA	Directorate of Civil Aviation (Kiribati)
EA	Executing Agency
EIRR	Economic Internal Rate of Return
EMP	Environmental Management Plan
EPA	Economic Partnerships Agreement
ESMF	Environmental and Social Management Framework
ETOPS	ExTended OPerations (formerly Extended-range Twin Engine Operations)
FA	Force Account
FIR	Flight Information Region
FM	Financial Management
FOD	Foreign Object Damage
FUN	Funafuti Airport (Tuvalu)

GoA	Government of Australia
GoK	Government of Kiribati
GoTg	Government of Tonga
GoTv	Government of Tuvalu
HDM-4	Highway Development and Management Model Version 4
IA	Implementing Agency
ICAO	International Civil Aviation Organization
ICB	International Competitive Bidding
IDA	International Development Association
IFR	Interim Financial Report
IPP	Indigenous Peoples Plan
KAMO	Kiribati Airports Management and Operations
LCS	Least Cost Selection
LMD	Lands Management Division (Kiribati)
MCTTD	Ministry of Communications, Transport and Tourism Development (Kiribati)
MELAD	Ministry of Environment, Land and Agricultural Development (Kiribati)
MTC	Ministry of Transportation and Communications (Tuvalu)
MFED	Ministry of Finance and Economic Development (Kiribati and Tuvalu)
MFNP	Ministry of Finance and National Planning (Tonga)
MoT	Ministry of Transport (Tonga)
MPE	Ministry of Public Enterprises (Tonga)
NPV	Net Present Value
NSC	National Steering Committee
NZAP	New Zealand Aid Programme
NZ\$	New Zealand Dollar
NCB	National Competitive Bidding
NDB	Non-Directional Beacon
ORAF	Operational Risk Assessment Framework
PACER	Pacific Agreement on Closer Economic Relations
PAIP	Pacific Aviation Investment Program
PAPI	Precision Approach Path Indicator
PASNet	Pacific Aviation Safety Network
PASO	Pacific Aviation Safety Office
PDO	Project Development Objective
PIASA	Pacific Islands Air Services Agreement
PIASST	Pacific Islands Aviation Safety and Security Treaty
PIC	Pacific Island Country
PICTA	Pacific Island Countries Trade Agreement
PICFFA	Pacific Islands Forum Fisheries Agency
PMU	Project Management Unit
POM	Program Operations Manual
PRC	People's Republic of China
PRIF	Pacific Region Infrastructure Facility
PSC	Program Steering Committee
PST	Project Support Team
QBS	Quality-Based Selection
QCBS	Quality and Cost-Based Selection of Consultant Firms
RAP	Resettlement Action Plan
RPEC	Regional Procurement Evaluation Committee

RPF	Resettlement Policy Framework
SAR	Search and Rescue
SARP	Standards and Recommended Practices
SBD	World Bank Standard Bidding Document
SDR	Special Drawing Rights
SH	Shopping
SOE	State Owned Enterprise
SPRTECA	South Pacific Regional Trade and Economic Cooperation Agreement
SSS	Single-Source Selected or Single-Source Selection of Consultants
TA	Technical Assistance
TAL	Tonga Airports Limited
TBU	Fua'amotu Airport (Tonga)
TFSU	Technical and Fiduciary Services Unit
TOR	Terms of Reference
TRW	Bonriki Airport (Kiribati)
TSA	Tourism Satellite Account
TSCP	Tonga Transport Sector Consolidation Project
US\$	United States Dollar
VAV	Lupepau'u airport at Vava'u (Tonga)
WTTC	World Trade and Tourism Council

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# PAD DATA SHEET

## REPUBLIC OF KIRIBATI

### PACIFIC AVIATION INVESTMENT PROGRAM – KIRIBATI AVIATION INVESTMENT PROJECT

#### PROJECT APPRAISAL DOCUMENT

#### EAST ASIA AND PACIFIC

#### EASNS

Date: November 11, 2011 Country Director: Ferid Belhaj Sector Director: John A. Roome Sector Manager: Charles M. Feinstein Team Leader(s): Christopher R. Bennett Project ID: P128938 Lending Instrument: Adaptable Program Loan	Sector(s): Aviation (100%) Theme(s): Regional integration (35%); Trade facilitation and market access (35%); Administrative and civil service reform (20%); Infrastructures services for private sector development (10%) EA Category: B - Partial Assessment
<b>Project Financing Data:</b>	
Proposed terms:	
<input type="checkbox"/> Loan <input type="checkbox"/> Credit <input checked="" type="checkbox"/> Grant <input type="checkbox"/> Guarantee <input type="checkbox"/> Other:	
Source	Total Amount (US\$ M)
Total Project Cost:	\$26.72
Cofinancing:	
Government of Australia through the Pacific Region Infrastructure Facility	\$0.28
Borrower:	\$3.54
Total Bank Financing:	\$22.91
IBRD	
IDA	\$22.91
New	\$22.91
Recommitted	
<b>Borrower:</b>	
Ministry of Finance and Economic Development Tarawa, Republic of Kiribati	
<b>Responsible Agency:</b>	
Directorate of Civil Aviation Ministry of Communications, Transport and Tourism Development	

Estimated Disbursements (Bank FY/US\$ m)						
FY	2012	2013	2014	2015	2016	2017
Annual	2.29	3.44	5.73	6.87	3.90	0.69
Cumulative	2.29	5.73	11.46	18.33	22.23	22.91

Project Implementation Period: Start: January 31, 2012 End: June 30, 2016  
Expected effectiveness date: March 31, 2012  
Expected closing date: December 31, 2016

Does the project depart from the CAS in content or other significant respects?	<input type="radio"/> Yes <input checked="" type="radio"/> No
If yes, please explain:	
Does the project require any exceptions from Bank policies? Have these been approved/endorsed (as appropriate by Bank management?) Is approval for any policy exception sought from the Board?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> No
If yes, please explain:	
Does the project meet the Regional criteria for readiness for implementation?	<input checked="" type="radio"/> Yes <input type="radio"/> No
If no, please explain:	
Project Development Objective	
The project development objective is to improve operational safety and oversight of international air transport infrastructure.	
Project description	
<ul style="list-style-type: none"> <li>• <b>Component A: International Airport Infrastructure Investments (US\$17.16 million including contingencies).</b> This component will invest in the aviation infrastructure at Kiribati's international airports, including: (i) replacement of the terminal at Cassidy Airport and improvements to the terminal at Bonriki Airport; (ii) construction of fire tender vehicle shelter and maintenance equipment building at Cassidy Airport; (iii) resealing the road from Cassidy Airport to London to maintain access; (iv) installation of new navigation aids, automatic weather monitoring, safety and security equipment at the Cassidy and Bonriki airports; (v) upgrading of the Cassidy airport runway lights; (vi) provision of air traffic control equipment; (vii) provision of fire safety equipment; (viii) enhancing the power supply for Cassidy Airport and the surrounding village; (ix) conducting a survey of obstacles infringing on the Cassidy Airport; (x) provision of the</li> </ul>	



Pacific Aviation Safety Network at Cassidy and Bonriki airports; (xi) construction of a security fence for the Bonriki airport; (xii) completion of the seawall being constructed at the Bonriki airport; (xiii) provision of design and supervision consulting services required for implementation of the infrastructure investments.

- **Component B: Sector Reform and Training (US\$1.57 million including contingencies).** This component will finance technical assistance to the MCTTD and other Line Ministries for: (i) strengthening capabilities with aviation sector management, policy, safety and security oversight; (ii) development and implementation of civil aviation technical regulations and manuals; (iii) international air transport sector review and policy development with measures for airport safety and security strengthening (through the preparation of proposed amendments to the penal code and implementation of a public awareness campaign), projections for air traffic demand, identification of sources of revenue, public service obligations and gap financing, policy roadmap for reorganization, strengthening and streamlining civil aviation oversight, and long-term airport master plans for Bonriki and Cassidy airports; (iv) training on aviation policy, management and operations; (v) carrying out of a baseline audit of the safety and security at Cassidy and Bonriki Airports and review progress in the implementation of the ICAO Corrective Action Plan by the Recipient; and, (vi) carrying out of safety and security oversight audits.
- **Component C: Strengthening airport operations and management capacity (US\$2.59 million including contingencies).** The component will finance: (i) technical assistance for the: (a) establishment of an independent public entity for the management of Kiribati's airports; and, (b) its operation, and (ii) the management contract for the operations of the Bonriki and Cassidy airports.
- **Component D: Project Support (US\$1.92 million including contingencies).** This component will finance the provision of technical, advisory and administrative support to MCTTD, other Line Ministries and the TFSU and provision of office space and equipment, services of financial auditors and annual subscriptions for the operation of the Pacific Aviation Safety Network during Project implementation.

Safeguard policies triggered?

Environmental Assessment (OP/BP 4.01)

Natural Habitats (OP/BP 4.04)

Forests (OP/BP 4.36)

Pest Management (OP 4.09)

Physical Cultural Resources (OP/BP 4.11)

Indigenous Peoples (OP/BP 4.10)

Involuntary Resettlement (OP/BP 4.12)

Safety of Dams (OP/BP 4.37)

Projects on International Waterways (OP/BP 7.50)

Projects in Disputed Areas (OP/BP 7.60)

☒ Yes ☐ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

☒ Yes ☐ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

<b>Conditions and Legal Covenants:</b>		
Grant Agreement Reference	Description of Condition/Covenant	Date Due
Schedule 2, Section I.A (a)	The Recipient shall establish and thereafter maintain a Program Steering Committee comprised of the Chairmen of the National Steering Committees (or a designated representative) from each of the Program Countries, PASO's General Manager (or a designated representative), the Director of the TFSU, and others as appropriate, to meet at least on a quarterly basis to review and evaluate Program implementation progress	Within 60 days of effectiveness
Schedule 2, Section I.A (b)	The Recipient shall nominate its member to the Program Steering Committee, with terms of reference and qualifications satisfactory to the Association	Within 60 days of effectiveness
Schedule 2, Section I.A (c)	The Recipient shall establish and thereafter maintain at all times throughout the Project implementation period, the National Steering Committee with powers and composition satisfactory to the Association	Within 60 days of effectiveness
Schedule 2, Section I.A (d)	The Recipient shall establish and thereafter maintain at all times throughout the Project implementation period, the Regional Procurement Evaluation Committee with powers satisfactory to the Association and comprising representatives from TAL, Kiribati and Tuvalu as well as members of the TFSU	Within 60 days of effectiveness

Schedule 2, Section I.A (e)	The Recipient shall establish and thereafter maintain throughout the Project implementation period, the Project Support Team with powers and composition satisfactory to the Association	Within 60 days of effectiveness
Schedule 2, Section I.B.1	The Recipient shall enter into a service agreement with TAL under terms and conditions which shall have been approved by the Association	Within 60 days of effectiveness
Schedule 2, Section I.C.1	The Recipient shall adopt and thereafter carry out the Project in accordance with a Program Operations Manual, satisfactory to the Association	Within 60 days of effectiveness
Schedule 2, Section I.F (a)	The Recipient shall collect from departing international air passengers a five Australian Dollars (AU\$5) equivalent levy for use to pay aviation safety and security expenditures incurred by the Recipient.	December 31, 2012
Schedule 2, Section I.F (b) (i)	The Recipient shall transfer fire tender assets from its Police Department to the Bonriki International airport	June 30, 2012
Schedule 2, Section I.F (b) (ii)	The Recipient shall apply revenues from user fees charged from airplanes using the Recipient's upper airspace to finance aviation safety and security expenditures	June 30, 2012
Schedule 2, Section I.F (b) (iii)	The Recipient shall collect departure tax through airlines operating in the Recipient's territory	June 30, 2012
Schedule 2, Section I.F (b) (iv)	The Recipient shall allocate 50% of the Recipient's aviation revenues towards aviation safety and security and operations	June 30, 2012

Disbursement Condition		
Schedule 2, Section V.B.1 (b)	No disbursements will be made out of the grant proceeds allocated for the operation of KAMO unless KAMO has been established in form an substance satisfactory to the Association	

# PAD DATA SHEET

## KINGDOM OF TONGA

### PACIFIC AVIATION INVESTMENT PROGRAM – TONGA AVIATION INVESTMENT PROJECT

#### PROJECT APPRAISAL DOCUMENT

#### EAST ASIA AND PACIFIC

#### EASNS

Date: November 11, 2011 Country Director: Ferid Belhaj Sector Director: John A. Roome Sector Manager: Charles M. Feinstein Team Leader(s): Christopher R. Bennett Project ID: P128939 Lending Instrument: Adaptable Program Loan	Sector(s): Aviation (100%) Theme(s): Regional integration (35%); Trade facilitation and market access (35%); Administrative and civil service reform (20%); Infrastructures services for private sector development (10%) EA Category: B -Partial Assessment
<b>Project Financing Data:</b>	
Proposed terms:	
<input type="checkbox"/> Loan <input type="checkbox"/> Credit <input checked="" type="checkbox"/> Grant <input type="checkbox"/> Guarantee <input type="checkbox"/> Other:	
Source	Total Amount (US\$ M)
Total Project Cost:	\$32.81
Cofinancing:	
Government of Australia through the Pacific Region Infrastructure Facility	\$1.32
Borrower:	\$4.28
Total Bank Financing:	\$27.21
IBRD	
IDA	\$27.21
New	\$27.21
Recommitted	
<b>Borrower:</b>	
Ministry of Finance and National Planning Nuku'alofa, Kingdom of Tonga	
<b>Responsible Agency:</b>	
Tonga Airports Ltd. Ministry of Public Enterprises	

Estimated Disbursements (Bank FY/US\$ m)						
FY	2012	2013	2014	2015	2016	2017
Annual	2.72	4.08	6.80	8.16	4.63	0.82
Cumulative	2.72	6.80	13.61	21.77	26.39	27.21

Project Implementation Period: Start: January 31, 2012 End: June 30, 2016  
Expected effectiveness date: March 31, 2012  
Expected closing date: December 31, 2016

Does the project depart from the CAS in content or other significant respects?	<input type="radio"/> Yes <input checked="" type="radio"/> No
If yes, please explain:	
Does the project require any exceptions from Bank policies? Have these been approved/endorsed (as appropriate by Bank management?) Is approval for any policy exception sought from the Board?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> No
If yes, please explain:	
Does the project meet the Regional criteria for readiness for implementation?	<input checked="" type="radio"/> Yes <input type="radio"/> No
If no, please explain:	
Project Development Objective	
The project development objective is to improve operational safety and oversight of international air transport infrastructure.	
Project description	
<ul style="list-style-type: none"> <li>• <b>Component A: Aviation Infrastructure Investments (US\$24.43 million including contingencies).</b> This component will invest in the aviation infrastructure at Fua'amotu and Vava'u airports. The activities include: (i) rehabilitation of airport runways, taxiways and aprons; (ii) installation of new navigation aids, automatic weather monitoring, safety and security equipment at the Fua'amotu and Vava'u airports; (iii) provision of renewable power through the implementation of a photovoltaic power source for generation of on-site power at Vava'u airport; (iv) improvements to terminals to reduce electrical consumption through both passive and technological means; (v) provision of airport facilities to collect and store rain water from roof areas to reduce the potable water demand and preserve natural water resources; (vi) security improvements such as improved fencing, access control, installation of a building</li> </ul>	

management system, a flight information display system, a closed circuit television and X-ray equipment for hand baggage; (vii) upgrading of runway lighting; (viii) provision of fire safety equipment; (ix) provision of the Pacific Aviation Safety Network at Vava'u airport; (x) provision of portable refueling equipment for Vava'u airport; and, (xi) provision of the design and supervision consulting services required for carrying out such investments.

- **Component B: Aviation Sector Reform and Training (US\$1.70 million including contingencies).** Provision of technical assistance to TAL, the MOT and other Line Ministries, and PASO for: (i) strengthening capabilities for aviation sector management, policy, safety and security oversight; (ii) drafting of the legislation needed to improve the long term status of TAL's operations; (iii) training on aviation policy, management and operations; (iv) carrying out a baseline audit of the safety and security at Fua'amotu and Vava'u Airports and review progress in the implementation of the ICAO Corrective Action Plan by the Recipient; (v) carrying out safety and security oversight audits; (vi) preparation of a business plan for PASO's operations; and, (vii) implementation of restructuring measures arising from PASO's business plan
- **Component C: Strengthening Airport Operations and Management Capacity (US\$0.55 million including contingencies).** This component will co-ordinate three studies: (i) to review options for the improving the regional aviation market in the Pacific Island Countries including future travel demand patterns in the region, for passengers and freight, and the types of aviation services that would be most appropriate to meet these demands; (ii) to review options for Pacific Island Countries for sustainable long-term financing and operations of key aviation infrastructure and ways in which this financing can realistically be met; and, (iii) increasing revenues from the Flight Information Regions of Program Countries through which aircraft travel.
- **Component D: Project Support (US\$1.85 million including contingencies).** This component will finance the provision of technical, advisory and administrative support to TAL (including the TFSU) and other Line Ministries and provision of office space and equipment, services of financial auditors and annual subscriptions for the operation of the PASNet infrastructure during Project implementation.

#### Safeguard policies triggered?

**Environmental Assessment (OP/BP 4.01)**

Natural Habitats (OP/BP 4.04)

Forests (OP/BP 4.36)

Pest Management (OP 4.09)

Physical Cultural Resources (OP/BP 4.11)

Indigenous Peoples (OP/BP 4.10)

Involuntary Resettlement (OP/BP 4.12)

Safety of Dams (OP/BP 4.37)

Projects on International Waterways (OP/BP 7.50)

Projects in Disputed Areas (OP/BP 7.60)

☒ Yes ☐ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

☐ Yes ☒ No

<b>Conditions and Legal Covenants:</b>		
Grant Agreement Reference	Description of Condition/Covenant	Date Due
Section 5.01	Recipient and TAL shall sign Subsidiary Agreement between them.	Effectiveness
Schedule 2, Section I.A (a)	Recipient shall promptly establish and thereafter maintain a Program Steering Committee comprised of the Chairmen of the National Steering Committees (or a designated representative) from each of the Program Countries, PASO's General Manager (or a designated representative), the Director of the TFSU, and others as appropriate, to meet at least on a quarterly basis to review and evaluate Program implementation progress	Within 60 days of effectiveness
Schedule 2, Section I.A (b)	Recipient shall nominate its member to the Program Steering Committee, with terms of reference and qualifications satisfactory to the Association	Within 60 days of effectiveness
Schedule 2, Section I.A (c)	Recipient shall establish and thereafter at all times maintain throughout the Project implementation period, the National Steering Committee with powers and composition satisfactory to the Association	Within 60 days of effectiveness
Schedule 2, Section I.E (a)	The Recipient shall collect from departing international air passengers a five Australian Dollars (AU\$5) equivalent levy for use to pay aviation safety and security expenditures incurred by TAL and the Ministry of Transport;	December 31, 2012



Schedule 2, Section I.E (b)	Recipient shall sublease the Fua'amotu and Vava'u airport lands to TAL in accordance with the terms of the leases currently in effect with the Ministry of Transport	August 1, 2012
Schedule 2, Section I.E (c)	Recipient shall ensure that all times during the Project implementation TAL manages all revenues associated with the aviation sector and accounts for such revenues in a satisfactory manner	Continuous
Project Agreement Reference		
Schedule, Section I.A (a)	The Project Implementing Entity shall establish and thereafter maintain at all times throughout the Project implementation period, a Technical and Fiduciary Services Unit with staffing, powers and responsibilities satisfactory to the Association	Within 60 days of effectiveness
Schedule, Section I.A (b)	The Project Implementing Entity shall establish and thereafter maintain at all times throughout the Project implementation period, the Regional Procurement Evaluation Committee with powers satisfactory to the Association, and comprising representatives from TAL, Kiribati and Tuvalu as well as members of the TFSU	Within 60 days of effectiveness
Schedule, Section I.A (c)	The Project Implementing Entity shall appoint the TFSU Program Director, TFSU Finance Manager and TFSU Manager/Tonga Project Manager, with terms of reference and qualifications satisfactory to the Association	Within 60 days of effectiveness
Schedule, Section I.C.1	The Project Implementing Entity shall enter into a service agreement with each of Kiribati and Tuvalu, under terms and conditions which	Within 60 days of effectiveness

	shall have been approved by the Association	
Schedule, Section I.D.1	The Project Implementing Entity shall enter into a cooperation agreement with PASO, under terms and conditions which shall have been approved by the Association	Prior to implementation of any activity under Parts B. (f) and (g) of the Project
Schedule, Section I.E.1	The Project Implementing Entity shall adopt and thereafter carry out the Project in accordance with an Program Operations Manual satisfactory to the Association	Within 60 days of effectiveness

# PAD DATA SHEET

TUVALU

## PACIFIC AVIATION INVESTMENT PROGRAM - TUVALU AVIATION INVESTMENT PROJECT

### PROJECT APPRAISAL DOCUMENT

EAST ASIA AND PACIFIC

EASNS

Date: November 11, 2011 Country Director: Ferid Belhaj Sector Director: John A. Roome Sector Manager: Charles M. Feinstein Team Leader(s): Christopher R. Bennett Project ID: P128940 Lending Instrument: Adaptable Program Loan	Sector(s): Aviation (100%) Theme(s): Regional integration (35%); Trade facilitation and market access (35%); Administrative and civil service reform (20%); Infrastructures services for private sector development (10%) EA Category: B - Partial Assessment
<b>Project Financing Data:</b>	
Proposed terms:	
<input type="checkbox"/> Loan <input type="checkbox"/> Credit <input checked="" type="checkbox"/> Grant <input type="checkbox"/> Guarantee <input type="checkbox"/> Other:	
Source	Total Amount (US\$ M)
Total Project Cost:	\$13.82
Cofinancing:	
Government of Australia through the Pacific Region Infrastructure Facility	\$0.17
Borrower:	\$1.80
Total Bank Financing:	\$11.85
IBRD	
IDA	\$11.85
New	\$11.85
Recommitted	
<b>Borrower:</b> Ministry of Finance and Economic Development Funafuti, Tuvalu	
<b>Responsible Agency:</b> Department of Civil Aviation Ministry of Transportation and Communications	

Estimated Disbursements (Bank FY/US\$ m)						
FY	2012	2013	2014	2015	2016	2017
Annual	1.19	1.78	2.96	3.56	2.02	0.36
Cumulative	1.19	2.96	5.93	9.48	11.50	11.85

Project Implementation Period: Start: January 31, 2012 End: June 30, 2016  
Expected effectiveness date: March 31, 2012  
Expected closing date: December 31, 2016

Does the project depart from the CAS in content or other significant respects?	<input type="radio"/> Yes <input checked="" type="radio"/> No
If yes, please explain:	
Does the project require any exceptions from Bank policies? Have these been approved/endorsed (as appropriate by Bank management?) Is approval for any policy exception sought from the Board?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Yes <input type="radio"/> No
If yes, please explain:	
Does the project meet the Regional criteria for readiness for implementation?	<input checked="" type="radio"/> Yes <input type="radio"/> No
If no, please explain:	
Project Development Objective	
The project development objective is to improve operational safety and oversight of international air transport infrastructure.	

## Project description

- **Component A: Aviation Infrastructure Investments (US\$10.23 million including contingencies).** This component will invest in the aviation infrastructure at Funafuti international airport. Investments include: (i) rehabilitation of the runway, taxiway and apron, including, if viable, storage facilities for runway water runoff; (ii) construction of a new terminal and control tower; (iii) provision of air traffic control equipment; (iv) installation of new navigation aids, automatic weather monitoring, safety and security equipment; (v) provision of the Pacific Aviation Safety Network; (vi) conducting a survey of obstacles infringing on the airport; (vii) provision of fire safety equipment; and, (viii) provision of the design and supervision consulting services required for such infrastructure improvement.
- **Component B: Aviation Sector Reform and Training (US\$0.62 million including contingencies).** Provision of technical assistance to the MTC and other Line Ministries for: (i) strengthening the capabilities for aviation sector management, policy, safety and security oversight; (ii) training on aviation policy, management and operations; (iii) carrying out of a baseline audit of the safety and security at Funafuti Airport and review progress in the implementation of the ICAO Corrective Action Plan by the Recipient; and, (iv) carrying out of safety and security oversight audits.
- **Component C: Strengthening Airport Operations and Management Capacity (US\$0.22 million including contingencies).** Provision of technical assistance to CAA for, inter alia identifying options for the sustainable operation of Funafuti airport.
- **Component D: Project Support (US\$0.95 million including contingencies).** This component will finance the provision of technical, advisory and administrative support to MTC, other Line Ministries and the TFSU and provision of office space and equipment, services of financial auditors and annual subscriptions for the operation of the Pacific Aviation Safety Network during Project implementation.

## Safeguard policies triggered?

Environmental Assessment (OP/BP 4.01)	<input checked="" type="radio"/> Yes <input type="radio"/> No
Natural Habitats (OP/BP 4.04)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Forests (OP/BP 4.36)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Pest Management (OP 4.09)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Physical Cultural Resources (OP/BP 4.11)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Indigenous Peoples (OP/BP 4.10)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Involuntary Resettlement (OP/BP 4.12)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Safety of Dams (OP/BP 4.37)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Projects on International Waterways (OP/BP 7.50)	<input type="radio"/> Yes <input checked="" type="radio"/> No
Projects in Disputed Areas (OP/BP 7.60)	<input type="radio"/> Yes <input checked="" type="radio"/> No

<b>Conditions and Legal Covenants:</b>		
Grant Agreement Reference	Description of Condition/Covenant	Date Due
Schedule 2, Section I.A (a)	The Recipient shall establish and thereafter maintain a Program Steering Committee comprised of the Chairmen of the National Steering Committees (or a designated representative) from each of the Program Countries, PASO's General Manager (or a designated representative), the Director of the TFSU, and others as appropriate, to meet at least on a quarterly basis to review and evaluate Program implementation progress	Within 60 days of effectiveness
Schedule 2, Section I.A (b)	The Recipient shall nominate its member to the Program Steering Committee, with terms of reference and qualifications satisfactory to the Association	Within 60 days of effectiveness
Schedule 2, Section I.A (c)	The Recipient shall establish and thereafter maintain at all times throughout the Project implementation period, the National Steering Committee with powers and composition satisfactory to the Association	Within 60 days of effectiveness
Schedule 2, Section I.A (d)	The Recipient shall establish and thereafter maintain at all times throughout the Project implementation period, the Regional Procurement Evaluation Committee with powers satisfactory to the Association and comprising will include the participation of representatives from TAL, Kiribati and Tuvalu as well as members of the TFSU	Within 60 days of effectiveness
Schedule 2, Section I.A (e)	The Recipient shall establish and thereafter maintain throughout the Project implementation period, the	Within 60 days of effectiveness

	Project Support Team with powers and composition satisfactory to the Association	
Schedule 2, Section I.B.1	The Recipient shall enter into a service agreement with TAL under terms and conditions which shall have been approved by the Association	Within 60 days of effectiveness
Schedule 2, Section I.C.1	The Recipient shall adopt and thereafter carry out the Project in accordance with a Program Operations Manual, satisfactory to the Association.	Within 60 days of effectiveness
Schedule 2, Section I.F	The Recipient shall collect from departing international air passengers a five Australian Dollars (AU\$5) equivalent levy for use to pay aviation safety and security expenditures incurred by the Recipient.	December 31, 2012





## **I. Strategic Context**

### **A. Regional Context**

1. The Pacific island countries (PICs), despite notable differences in history, culture and endowments, face similar development challenges arising from their dispersion, remoteness and small populations. As a group, these countries' development priorities focus on two strategic areas: (i) mitigating economic isolation by encouraging regional and global integration; and, (ii) building resilience against external shocks. These areas are especially pressing in countries such as Kiribati and Tuvalu, which are among the most remote and geographically isolated countries in the world<sup>1</sup>.

2. Under such circumstances, the aviation sector provides vital national, regional and international connectivity. Air services are essential for the import and export of goods, and a prerequisite for tourism development. Shipping can play an important role in goods transport, but given long distances, is often not a viable alternative either for passenger transport or for export of high value, time sensitive commodities and/or import of emergency supplies. Major vessels typically arrive at the main islands monthly at best, with routes and schedules primarily determined by cargo considerations. A reliable network of air links, within and among island countries and to major hubs such as Australia and New Zealand beyond, is therefore essential to the viability of these countries from humanitarian, political and economic perspectives.

3. All countries in the region are vulnerable to natural disasters and climate change. The PIC economies depend on a very limited range of revenues—natural resource rents, tourism, remittances and aid—all of them external and each dependent to a greater or lesser degree on connectivity and access. The long-term viability of many PIC economies therefore hinges not only on domestic economic growth but also on opportunities arising from intra-regional integration and with neighboring larger economies.

4. The region has very limited comparative advantage outside of tourism, which accounts for a major part of the PIC economies: the combined direct and indirect contribution of tourism to GDP is approximately 45% in Vanuatu; 30% in Fiji and 17% in Tonga and Samoa<sup>2</sup>. Overall, it is estimated that the tourism industry accounts for some one fifth of GDP and employment in the PICs. This is well above the world average of 10% of GDP and 8.3% of employment. PICs could benefit greatly from the rebalancing of growth in Asia towards greater consumption, including tourism. Following the signing of the Peoples' Republic of China (PRC) Pacific Island Country Economic Development and Cooperation Guiding Framework, the PICs were granted approved-destination status for PRC citizens and organized tours. Without a reliable and safe aviation industry, however, many PICs will miss out on this unique growth opportunity. Air transport is also essential to the development of another area of comparative advantage: high value niche export opportunities such as fresh seafood, fresh vegetables and live fish, marine plants and animals destined for aquariums. Environmentally responsible growing and harvesting of these are often labor-intensive and provide a rare opportunity for private sector growth and

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<sup>1</sup> Pacific Islands Development in 3D: Reshaping Economic Geography. The World Bank, 2009.

<sup>2</sup> Oceanic Voyages: A Study of the Aviation Sector of the Pacific Developing Member Countries. Report to the ADB, 2007.

diversification in smaller PICs. These products have a ready market in Europe, Asia and North America, but their export is facing huge obstacles due to lack of viable transport options.

5. Connectivity through international aviation, essential for each of the PICs in their own right, is also a regional public good. Air navigation plans formulated by the Regional Air Navigation Meetings and approved by the International Civil Aviation Organization (ICAO) set forth the facilities, services and procedures required for international air navigation within a region. Such plans form the basis on which each country plans its provision of air navigation facilities and services, but rely in turn on facilities and services furnished in accordance with the plan by other countries. Air service operators require a network of international airports meeting ICAO safety and security standards to be financially viable<sup>3</sup>.

6. Many airports serve as launching points for search and rescue (SAR) operations beyond national borders. Should a natural disaster strike, airports capable of servicing international flights are indispensable to any humanitarian relief campaign. For example, in October 2011, due to ongoing drought, Tuvalu ran out of drinking water and New Zealand flew in water supplies and desalination units<sup>4</sup>. PIC airports need to serve as ETOPS<sup>5</sup> facilitating scheduled air travel between third country destinations. Last but not least, only a greater level of regional integration in terms of international air travel options will allow the PICs to achieve the tourism growth rates forecasted for the region, and essential for the region's economic development.

## **B. Sectoral and Institutional Context**

7. The PICs suffer from inadequate airport and freight handling facilities. Many of the region's airfield lighting and navigation systems date back to the 1960-70s and are in need of replacement and upgrading. Although there are 184 airports in the PICs, most of them are located in Papua New Guinea (69, only 17 paved), French Polynesia (39), Solomon Islands (12 only 2 paved) and New Caledonia (11). The majority of PIC airports (161) have runways shorter than 2,000 meters, and 52 are shorter than 1,000 meters. The limited length of the runways at a number of PIC airports hampers transport of air freight. Additionally, pavement strength can effectively limit the weight-load of aircraft at some airports. Storage and handling facilities are either constrained or unavailable at many PIC airports<sup>6</sup>.

8. The specialized nature of aviation places a high burden on small countries with limited human resources. To help address the shortcomings of the policy and regulatory environment,

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<sup>3</sup> As noted in 'Oceanic Voyages': "The Pacific market is characterized by small and widely dispersed populations spread across many islands. The provision of air services is consequently fragmented, often involving long routes with thin traffic and freight levels. As a result, airlines face considerable constraints in profitably managing returns through a viable passenger and cargo mix, and achieving sufficiently high levels of aircraft utilization and revenue load factors".

<sup>4</sup> The New Zealand Air Force C130 Hercules aircraft damaged the FUN runway, removing significant amounts of surfacing chips while overloading the pavement. Even with reduced loads, the aircraft exceeded the runway's strength by over 100%. Not only did this increase the urgency for the proposed runway resurfacing under the project, but it highlights the need for all airport runways to have designs which cater for such emergency flights.

<sup>5</sup> Rules for extended- operations (ETOPS) require that the aircraft must remain within a prescribed flying time, such as 120 minutes, of an alternate airport. Cassidy International (CXI) airport on Kiribati is an example of an airport playing a strategic role for flight path from the US west coast and Honolulu to New Zealand and Australian destinations (see Annex 6).

<sup>6</sup> Oceanic Voyages: A Study of the Aviation Sector of the Pacific Developing Member Countries. Report to the ADB, 2007.

the Pacific Aviation Security Office (PASO) was established in 2004 through the Pacific Islands Aviation Safety and Security Treaty (PIASST) with support from an Asian Development Bank (ADB) regional loan<sup>7</sup>. PASO's role is to provide safety and security oversight to the aviation sector. All developing member countries of PASO have agreed to regulatory harmonization<sup>8</sup>, as well as an annual levy and the implementation of an oversight program. To maximize the efficiency and effectiveness of operations and create a least-cost operating environment for airlines, the legislation and regulations of member countries should be harmonized to create a common inspection regime and common compliance protocols. In mid-2011, the ADB started a Technical Assistance project (TA 43429) to assist developing member countries of PASO to update and harmonize their legislation and regulations around those of New Zealand. The technical assistance will also assist PASO to refine its management systems to help ensure financial sustainability.

9. Assessments of the aviation sector in the South Pacific by ICAO have found that many of the countries lack the proper policy, regulatory and infrastructure to comply with ICAO requirements. The developing member countries of PASO are signatories to international and regional treaties that commit them to meeting aviation safety and security standards through the uniform application of ICAO safety and security standards. In recent years, these standards have been greatly expanded, particularly those related to security<sup>9</sup>. However, most PASO members are unable to fully meet all of their oversight obligations. As a result, the PICs have received less than satisfactory results from the ICAO-mandated Universal Safety Oversight Audit Program and Universal Security Oversight Audit Program. As shown in Figure 1, with regard to aviation safety and security, PASO member countries are comparable to African countries—well below the global average, and that of developed countries<sup>10</sup>.

10. Due to the poor safety and security situation, international airline operators servicing the PIC markets are incurring considerable risk, and in the event of an accident they may be found negligent for operating international flights to/from airports with significant safety and security issues. In some cases, flights were suspended causing significant economic losses and less easily quantifiable political and social costs<sup>11</sup>. Failure to address these issues will likely lead to international aircraft operations, particularly those using jets, being curtailed or halted, severely affecting the affected countries. The danger of international long-distance flights ceasing due to

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<sup>7</sup> PASO has 13 member countries: Australia, the Cook Islands, the Fiji Islands, Kiribati, Nauru, New Zealand, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, and Vanuatu. PASO's core responsibilities are to provide oversight and advice on (i) aerodrome security and safety, (ii) flight operations, (iii) airworthiness of aircraft, and, (iv) personnel licensing.

<sup>8</sup> The CAAs are financially and operationally autonomous, acting in each country. They are in various stages of implementing the New Zealand CAA regulations which are used throughout the Pacific. PASO provides the audit and oversight role, as well as providing technical assistance as requested to the CAAs.

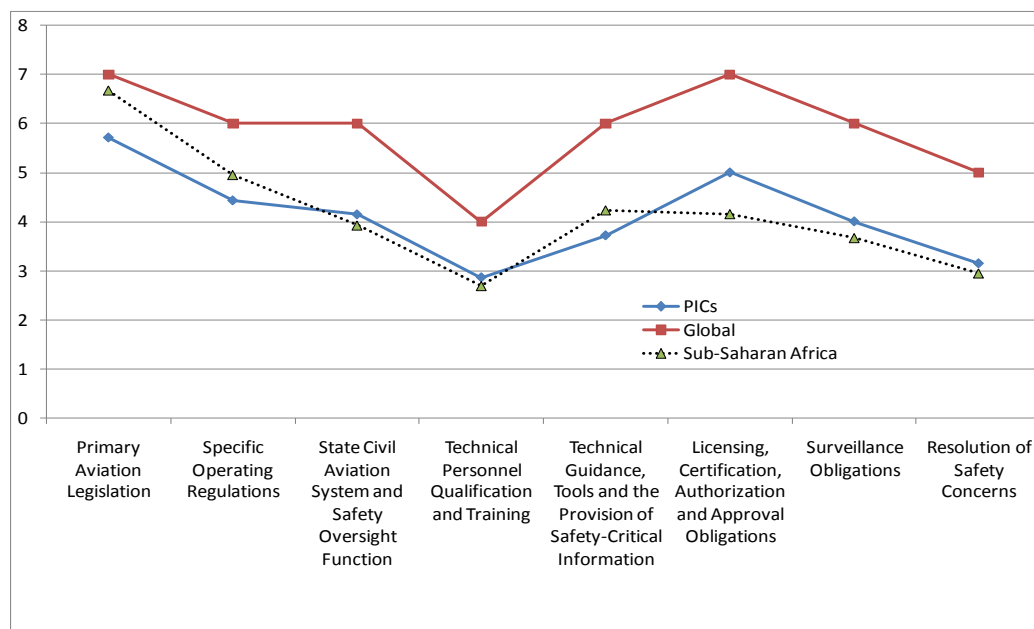
<sup>9</sup> An urgent regional priority to meet those standards is the need for reliable, secure data and communications between regulators, airports and operators. Many airports rely on the unreliable public telephone system for receiving/filing flight plans and other such information.

<sup>10</sup> The comparison is between PASO states (except Australia and New Zealand), African States and all States for which audit results are available at 10 November 2010. The depicted percentage refers to the degree of compliance of a given country (region) with the Standards and Recommended Practices of ICAO.

<sup>11</sup> For example, from September 2008 to June 2010 jet services to CXI ceased due to the state of the runway. The weekly Honolulu-CXI service by B737 was replaced by a 19-seat Gulfstream G1 turboprop of 1960s vintage. The consequence was: "the tourism industry on the island...collapsed overnight creating a massive reduction in income to the island".

the state of physical infrastructure or shortcomings in the policy and regulatory environment is very real for several PIC airports in the near to medium term<sup>12</sup>.

**Figure 1: Degree of Implementation of Critical Elements of Safety and Security Oversight as Determined by ICAO Audit**



Source: Based on data from ICAO

11. The Pacific Islands Air Services Agreement (PIASA) aims at creating an ‘open skies’ environment between the member states. Having recognized a need for countries air services to further develop and become more efficient, PIASA was endorsed by the Pacific Forum leaders in 2002 and fully ratified in 2007. Currently there are 10 signatories to PIASA. Its main objective is to establish a framework for the gradual integration of aviation services of the Forum members in a collaborative way that is fully supportive of sustainable development in the region. However, not all countries have fully implemented the provisions of the agreement and the potential benefits have yet to be realized.

12. **Rationale for World Bank involvement:** The proposed Pacific Aviation Investment Program (PAIP) will improve the aviation infrastructure, management and operations. The World Bank has experience in supporting aviation worldwide, including in small and vulnerable economies. World Bank-financed aviation projects range from regulatory reforms and capacity building for sector oversight, investment financing in infrastructure on airports, air traffic control, technical advice on a variety of topics (e.g. safety and security, sector analysis and reform, private participation in infrastructure, air carrier restructuring and/or privatization). The

<sup>12</sup> In 2003 flights were suspended to Pago Pago when the runway condition caused ‘Foreign Object Damage’ to two jet aircraft; in 2009 flights to Tarawa were suspended when damage was found on the runway just prior to a landing—the flight was diverted to Majuro and then back to Fiji. Flights resumed after repairs. Nausori Fiji airport was closed for several years due to safety concerns and only recently reopened for B737-700 flights; B737-800 flights are still restricted.

World Bank is able to mobilize concessional funds (IDA Grant resources) and other donor financing to address critical infrastructure needs through public expenditure.

13. The Program is consistent with the “safe, clean and affordable transport” paradigm outlined in the World Bank Group’s Transport Business Strategy for 2008-2012, as it addresses critical infrastructure investments to meet international air safety and security requirements, institutes a sustainable financing mechanism for regulatory oversight, and is delivered through a programmatic approach with clear regional benefits.

### **C. Higher Level Objectives to which the Program Contributes**

14. The PAIP supports the focus of the World Bank’s Regional Engagement Framework for Pacific Islands on mitigating the effects of economic isolation through, among others, reduced barriers to trade and investment, promotion of tourism, human resource development and mobility and improved environmental management. The Program also supports policies and infrastructure development that could assist these countries cope with the encroaching effects of climate change.

## **II. Program Development Objectives**

15. The Program development objective is to improve operational safety and oversight of international air transport infrastructure in participating countries.

### **1. Program Beneficiaries**

16. Since failure to implement the Program’s activities could result in the cancellation of international flights due to the airports’ non-compliance with ICAO safety and security requirements, the Program is of major importance to the participating countries. The Program will directly benefit most segments of the population and key institutions in each country. Primary beneficiaries are air travelers in the PICs: tourists, travelers visiting friends and relatives, public administration and business travelers, seafarers and seasonal agriculture workers, and recipients of education, training and specialized health services. Freight and passenger air service providers, and perishable goods exporters will benefit from fewer disruptions to flight schedules as a consequence of the improved condition of the runways, more efficient passenger and cargo handling, and the supply of goods available to the respective populations will improve accordingly. Only with air service can emergency supplies be rapidly obtained—such as were required in October 2011 when Tuvalu experienced severe water shortages. Mariners and others will benefit from the airports being able to be a base for SAR efforts. All air transport users will enjoy increased safety and security in landing and taking off from the airfields.

17. Other direct beneficiaries are the national and regional administrative bodies and personnel involved in air transport management and operations, who will benefit from the development of civil aviation technical regulations and manuals, as well as from technical advice and training.

18. For the more remote PIC economies, air transport is the only way to ensure a steady supply of high value spare parts and specialized expertise, which benefits all commercial businesses and public sector institutions. Local households who depend on the flow of

remittances and other support from long-term diasporas will also benefit from air transport services enabling visits from family members residing in other countries.

19. Finally, more energy efficient and environmentally sustainable terminals and improved airport operations will reduce the pressure on the national budgets and ensure that vital infrastructure is maintained and available in the event of natural disasters.

## 2. PDO Level Results Indicators

20. The success of the Program will be monitored in each participating country through four indicators: (i) regulatory 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.

## III. Program Description

### A. Phases

21. The Program will be implemented in four phases over a five to ten year period based on projected country demand, readiness to meet eligibility criteria, and overall reform progress. It will be supported by parallel investments of other donors<sup>13</sup>. The expected phases (subject to client readiness) are:

- Phase 1: Kiribati, Tonga and Tuvalu Aviation Investment Projects (FY12)
- Phase 2: Samoa Aviation Investment Project (FY13)<sup>14</sup>
- Phase 3: Vanuatu Aviation Investment Project (FY 14)<sup>15</sup>
- Phase 4: Solomon Islands Aviation Investment Project (FY15)<sup>16</sup>

22. If PASO is restructured to the satisfaction of IDA, PASO may participate as a recipient of finance in a future phase<sup>17</sup> for performing similar services to those it is providing in Phase 1.

23. **Country Demand:** Kiribati, Tonga and Tuvalu have officially requested IDA support. All three countries are included in Phase 1. Samoa, Solomon Islands and Vanuatu have

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<sup>13</sup> Examples are the NZAP and Taiwan, China investments in Kiribati airport infrastructure and the ADB technical assistance to PASO and country CAAs.

<sup>14</sup> The Government of Samoa has recently completed its National Infrastructure Strategic Plan, which identifies selected strategic interventions in the aviation sector, while the Samoa Airports Authority is undertaking a study to update its Development Master Plan. The Government of Samoa and IDA will consider these plans and their financing under the Program in the upcoming Country Partnership Strategy discussions.

<sup>15</sup> In September 2011 the IFC signed a mandate for a transaction to consider options for a public-private partnership to improve the international airports in Vanuatu. This will consider options for the government on how to proceed. The government has already raised with donors the issue of donor support for major international airport infrastructure investments.

<sup>16</sup> Investments in the runway and taxiway at Henderson International Airport, and with navigation aids, security and other equipment at both Henderson and Munda International Airports were identified as potential investments by the Solomon Islands.

<sup>17</sup> During Phase 1 PASO is providing services financed through the Grant agreements from each of the three participating countries. However, since PASO is a regional organization which, during project preparation, was confirmed to be eligible to receive Regional IDA Grant financing, during future Phases the Program may provide finance directly to PASO rather than through country Grant agreements. The criteria for PASO to receive such funding would be different to the criteria defined for the country participants.

expressed preliminary interest in the Program as they are facing similar infrastructure and capacity issues.<sup>18</sup>

24. The following eligibility criteria are required to participate in the Program:

- Agree to implement PASO's recommended minimum regular scheduled safety and security oversight program for the country;
- Agree to implement the separation of the policy/regulatory functions from airport operations, except where (in IDA's assessment) there are human capacity constraints that make this impractical;
- Agree to implement at least an AU\$5 equivalent departing international passenger 'safety and security levy' which is dedicated to covering the costs of safety and security oversight, Civil Aviation Authority<sup>19</sup> (CAA) operations, and other safety and security related activities.

25. All Phase 1 countries have met these criteria. The criteria can be readily met by countries wishing to participate in future phases. If PASO is restructured to the satisfaction of IDA, it would be eligible to be a direct recipient of financing in future phases, subject to different eligibility criteria.

## **B. Program Components**

26. The detailed Program description is given in Annex 1. The Program will have a total cost of US\$147.26 million (US\$73.35 million Phase 1; US\$73.91 million Phases 2 to 4). It will focus on three main areas: (i) infrastructure investments; (ii) aviation sector reform; and, (iii) strengthening the operations and management of regional airports. All three areas are essential to the achievement of the development objective.

27. **Component A: Aviation Infrastructure Investments (US\$120.78 million including contingencies).** This component will invest in the aviation infrastructure so international airports are able to meet the ICAO safety and security standards, while preserving and extending the service life of existing airport assets. It will also contribute to regional safety and security through the introduction of improved regional navigation and communication technologies. The focus will be on improving safety and security as well as operating efficiency.

28. **Component B: Aviation Sector Reform and Training (US\$9.08 million including contingencies).** This component will support sector reform both regionally and within each participating country, although the projects for each country will be driven by the current status of reform efforts and local conditions. With financing from the Government of Australia (GoA) through the Pacific Region Infrastructure Facility (PRIF), the regional reform activities will include preparation of a business plan for PASO, with the main focus on its ability to meet its objective of improving regional aviation safety and security, and then financing PASO services

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<sup>18</sup> Confirmation of potential interest in the Program was obtained from the CAA representatives for Samoa, Solomon Islands, and Vanuatu at the PASO Council Meeting held at Noumea, New Caledonia on October 13, 2011.

<sup>19</sup> The CAAs in the participating countries are as follows: (i) Kiribati—Directorate of Civil Aviation (DCA) under the MCTTD; (ii) Tonga—The Civil Aviation Department (CAD) under the MoT; (iii) Tuvalu—The CAA under the MCT.

for participating countries<sup>20</sup>. There is a strong training/capacity building program: (i) support to the Line Ministries and CAAs; (ii) training programs, including regional training activities to maximize the benefits; and, (iii) industry training through secondments.

29. **Component C: Strengthening Airport Operations and Management Capacity (US\$7.87 million including contingencies).** This component will assist the countries to manage and operate their airports, given domestic capacity constraints. With financing from the GoA through PRIF, it will also undertake regional studies into: (i) aviation supply; (ii) how to sustain regional aviation infrastructure; and, (iii) managing revenue from the upper air space.

30. **Component D: Project Support (US\$11.03 million including contingencies).** This component will finance the support required by the various parties involved in the Program. This will include: (i) incremental operating costs for the Program countries to implement their project; (ii) the costs of Project Support Teams (PSTs) in each country; (iii) financial audits; (iv) the annual subscription costs of the PASNet communications system; and, (v) the costs of the 'Technical and Fiduciary Services Unit' (TFSU) which provides procurement, fiduciary and technical support to the Program.

## C. Project Financing

### 1. Lending Instrument

31. **Lending Instrument:** The proposed lending instrument is a Regional IDA<sup>21</sup> Adaptable Program Loan (APL). Designed to utilize the benefits of a horizontal APL instrument, the approach enables IDA to provide support to countries that have met the eligibility criteria and wish to participate in the Program. Once the overall APL Program is reviewed and initial phase grants are approved, the subsequent phases of APL Program will be approved by the Regional Vice President as long as they do not exceed the overall IDA/country allocations and meet eligibility requirements.

32. **Rationale for Regional IDA:** The Program meets all regional funding eligibility criteria: (i) the first Phase includes three countries, two of them considered fragile states, and more countries are expected to participate in future Phases; (ii) the investments are expected to generate significant cross-boundary benefits and network effects; (iii) there is clear evidence of regional commitment with both PASO and the majority of eligible individual PASO member countries potentially interested in participating, and active support from regional donors (NZAP, AusAID and ADB); and, (iv) it provides a platform for harmonization of regional aviation policy and standards, as well as harmonization and implementation of important regional safety and security infrastructure.

33. Regional IDA funds will provide critical resources for the financing of investments in airport infrastructure, the costs for which are otherwise beyond (or significantly absorb) the resources available from national IDA allocations. IDA's ability to mobilize these funds simultaneously to participating countries facilitates the synchronization of the infrastructure investments, which will effectively elevate ICAO compliance ratings across the region, in

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<sup>20</sup> In the unlikely event that the GoA financing is not provided, the Program will seek an alternative funding source or not undertake the proposed activities.

<sup>21</sup> The project links to the IDA16 special theme on climate adaptation and low-carbon growth (see Additions to IDA Resources: Sixteenth Replenishment, pg 31-33).



addition to ensuring needed provision of critical airfield assets and apparatus. Further, the operability of the air traffic monitoring and communications equipment (e.g. PASNet) is dependent on an integrated system-wide roll out that will bring visibility to air traffic traversing the region.

34. Connectivity through international aviation, essential for each of the PICs in their own right, is also a regional public good. Air navigation plans formulated by the Regional Air Navigation Meetings and approved by ICAO set forth the facilities, services and procedures required for international air navigation within a region. Such plans form the basis on which each country plans their provision of air navigation facilities and services and assume a reliance on facilities and services furnished in accordance with the plan by other countries. Air service operators require a network of international airports that meet ICAO safety and security standards to be financially viable<sup>22</sup>. The primary justification for utilizing Regional IDA resources is the recognition that the cross country benefits of regional connectivity can only accrue after the investments in improved airport infrastructure meet uniform operational requirements, thereby enabling air service providers to assess intra-regional passenger and air freight opportunities.

## 2. Program Costs and Financing

35. The anticipated total Program cost will be US\$147.26 million, with an IDA envelope of US\$125 million. The proposed financing plan and financing sources are shown in Table 1. The appraised Phase 1 activities are estimated to require IDA financing of US\$61.98 million (see Table 2). The Phase 1 financing would be provided by the World Bank through an IDA Regional Grant of US\$48.68 million, IDA National Grants US\$13.30 million (US\$6.8 million for Kiribati; US\$3.0 million for Tonga; and, US\$3.5 million for Tuvalu), and US\$9.62 million of counterpart financing (US\$3.54 million for Kiribati; US\$4.28 million for Tonga; and, US\$1.80 million for Tuvalu) in the form of foregone taxes<sup>23</sup> and, for Kiribati, land acquisition costs. The GoA through PRIF will provide financing of US\$3.19 million for the Program (all phases). Table 3 shows the cost by component and country.

36. Although not included as part of the Program costs, complementing the Program's Phase 1 investments in Component A, parallel financing was provided to Kiribati by a New Zealand Aid Program (NZAP) grant of NZ\$ 17 million and a Taiwan, China loan of AU\$14 million. These funds are to be used to rehabilitate the Cassidy Airport (CXI) and Bonriki Airport (TRW) runways respectively. The ADB is also currently providing parallel financing of US\$0.9 million to PASO which complements the activities proposed under Component B: Aviation Sector Reform. All donors have collaborated closely and the PAIP investments are seen by the other donors as the key to realizing the full benefits from their respective investments.

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<sup>22</sup> As noted in 'Oceanic Voyages': "The Pacific market is characterized by small and widely dispersed populations spread across many islands. The provision of air services is consequently fragmented, often involving long routes with thin traffic and freight levels. As a result, airlines face considerable constraints in profitably managing returns through a viable passenger and cargo mix, and achieving sufficiently high levels of aircraft utilization and revenue load factors".

<sup>23</sup> All countries agreed that there would: (i) be no taxes or import duties charged on goods and materials imported from overseas specifically for the project; (ii) there would be no taxes or import duties charged on equipment or personal effects imported for the project which will be re-exported; and, (iii) there will be no income or corporate taxes for foreign consultants on the project.

**Table 1: Program Financing by APL Phase**

	Phase 1	Phases 2 - 4	Total
Counterpart Financing	\$9.62	\$9.45	\$19.07
IDA Grant	\$61.98	\$63.02	\$125.00
GoA Through PRIF	\$1.76	\$1.43	\$3.19
<b>Total</b>	<b>\$73.35</b>	<b>\$73.91</b>	<b>\$147.26</b>

**Table 2: Phase 1 Program Cost by Financing Source**

Financing Source	Amount (US\$ m)	Share of Phase 1 Program
International Development Association		
National IDA	\$13.30	18.1%
Regional IDA	\$48.68	66.4%
GoA Through PRIF	\$1.76	2.4%
Government of Kiribati	\$3.54	4.8%
Government of Tonga	\$4.28	5.8%
Government of Tuvalu	\$1.80	2.5%
<b>Total</b>	<b>\$73.35</b>	

**Table 3: Phase 1 Program Cost by Component**

Component	Cost by Project (US\$ m)			Total Cost (US\$ m)
	Kiribati	Tonga	Tuvalu	
A – Aviation Infrastructure Investments	\$15.89	\$22.23	\$9.44	\$47.56
B – Aviation Sector Reform	\$1.45	\$1.55	\$0.58	\$3.58
C – Strengthening Airport Operations and Management Capacity	\$2.40	\$0.50	\$0.20	\$3.10
D – Project Support	\$1.78	\$1.69	\$0.88	\$4.35
Contingencies	\$1.72	\$2.56	\$0.92	\$5.21
<b>Sub-Total</b>	<b>\$23.24</b>	<b>\$28.53</b>	<b>\$12.02</b>	<b>\$63.79</b>
<b>Taxes</b>	<b>\$3.49</b>	<b>\$4.28</b>	<b>\$1.80</b>	<b>\$9.57</b>
<b>Total Including Contingencies</b>	<b>\$26.72</b>	<b>\$32.81</b>	<b>\$13.82</b>	<b>\$73.35</b>

## IV. Implementation

### A. Institutional and Implementation Arrangements

37. Annex 2 describes the implementation arrangements for the Program in detail. In summary these are:

- **Regional Coordination.** At the regional level, a Program Steering Committee (PSC), comprising at least one high-level representative from each of the current and future participating countries and PASO will provide inputs on safety and security compliance. The PSC will provide overall guidance on the Program. The PSC Chair will be the representative from one of the Program countries, rotating each year.
- **National Coordination:** Each country will establish a National Steering Committee (NSC) to ensure that the project is consistent with the national goals and objectives.
- **Technical and Fiduciary:** The TFSU will be established to provide technical guidance to the Program, and undertake procurement and other fiduciary activities on behalf of the Program participants. The TFSU will be responsible for supporting the day-to-day implementation of the Program and its components, as well as reporting. It is based on the Tonga Transport Sector Consolidation Project (TSCP) Project Management Unit (PMU) <sup>24</sup>, with technical support from Tonga Airports Ltd. (TAL). There will be a Service Agreement for the Program in general, that outlines the roles and responsibilities of the TFSU, which will be signed by each Grant Recipient or autonomous implementing entity. The signing of this agreement is to be done within 60 days of project effectiveness.
- **Implementing Agencies:** The Implementing Agencies (IAs), with the support of PSTs, will be responsible for monitoring implementation progress of their respective projects, signing of contracts, providing authorization for contract payments, and providing progress reporting for consolidation by the TFSU. The following will be the IAs in Phase 1 for each country: (i) Kiribati: the Ministry of Communications, Transport and Tourism Development (MCTDD) (ii) Tonga: TAL; and, (iii) Tuvalu: Ministry of Transportation and Communications (MTC). The Phase 2 to 4 IAs will be similar agencies.

38. **Regional Procurement Arrangements:** In accordance with the Service Agreement, each IA will appoint a technical specialist/representative to participate as a member of the Regional Procurement Evaluation Committee (RPEC). The technical specialist/representative will advise on the technical requirements, participate in the RPEC. The TFSU will be responsible for all procurement for the participating countries under the Program including: (i) advertisements; (ii) with the support of the Design and Supervision Consultant, bidding document preparation and procurement processing; (iii) evaluation of bids/proposals; and, (v) submission of procurement documents to IDA for review.

39. To maximize the efficiency of the Program, the major civil works investments are to be bid together to form a single large package, with three lots (one per country). To help achieve the

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<sup>24</sup> The TFSU will provide guidance and support to all implementing agencies on matters related to the planning, budgeting, engineering design, procurement, contract management, FM, monitoring and evaluation, and reporting requirements. The arrangements are intended to build partnerships, improve efficiency and address capacity constraints.

goal of regional harmonization, the goods procurements for the navigation aids and security, along with fire safety, are to be procured for multiple countries under a single package. Each country will sign their own contract for the supply of equipment and services as appropriate. Due to the remote locations and logistical challenges, the contracts for supply of equipment will see the equipment calibrated, tested and commissioned by the supplier.

## **B. Results Monitoring and Evaluation**

40. The results monitoring and evaluation will be undertaken by the TFSU in the form of quarterly Program and Project Reports and by IDA. Each country's Implementing Agency (IA) will have the responsibility of ensuring that the necessary data are provided to the TFSU. The majority of the data for the monitoring and evaluation will be gathered by the Program's Design and Supervision Consultant with inputs from IAs. Annexes 7 to 9 present the results framework adopted for each project in Phase 1.

## **C. Sustainability**

41. The Recipients are committed to the respective projects under the Program and see it as essential to the economic well-being of their countries. The failure to comply with ICAO's safety and security standards can lead to the interruption or cessation of services from international airlines, causing major economic and social disruptions. Although the Recipients' commitment to the project is not likely to waver, the project design specifically addresses the two key risk factors to sustainability: human capacity and severe fiscal constraints. The human capacity constraint will be alleviated through a matrix of activities tailored to the individual country's needs: (i) a management contract with experienced airport operator to include on-the-job training and end-of-contract transfer technical assistance; (ii) contracting out part of civil aviation oversight to PASO; (iii) specialized technical assistance to airport operators and CAAs; and, (iv) extensive training programs including staff secondment and other regional twinning initiatives. Fiscal constraints will be addressed through: (i) corporatization of airport operation, when feasible, combined with channelling sector-generated revenue streams back into asset maintenance and general operations; (ii) close performance monitoring of corporatized airport operators; (iii) increasing and developing new revenue streams through Flight Information Region (FIR) agreements and passenger safety and security levy.

42. The sustainability of the aviation sector will be further strengthened through harmonization of policies, and implementation of regulations as enshrined in the PICASST treaty which was already ratified. By providing PASO with a proper business plan, and putting in place a more rigorous regular oversight program financed by a passenger safety and security levy and the Program, the participating countries will be able to finance and meet their safety and security obligations to ICAO while also contributing towards the sustainability of PASO. Sector reforms will help to improve overall efficiencies. By procuring similar equipment for participating countries, the Program will also leverage the limited technical capacities in the region by providing an improved platform for support and supply of spare parts. The Program will undertake a specific technical assistance activity which will identify options for long-term sustainability, including considerations from cost recovery to corporatization.

## **V. Key Risks**

43. High risk elements that may impact achievement of the Program's objectives relate primarily to implementation capacity and sectoral governance constraints. There is a shortage of skilled technical and managerial staff in the sector, particularly in Kiribati and Tuvalu. The establishment of the TFSU to provide procurement, Financial Management (FM) and technical support to each project, strengthened by international specialists, is intended to partially mitigate this risk. Further mitigation will be through the substantial capacity development and training program. The major investments under the proposed Program will entail runway rehabilitation and investments in navigation aids as well as other aviation safety and security infrastructure. These are relatively straightforward in terms of technical feasibility. Other risks relate to procurement aspects that will be mitigated through the coordinated, regional approach to contract packaging and procurement handling arrangements. Potential risks are summarized in the Operational Risk Assessment Frameworks (ORAF) for each project in Annexes 7 to 9.

## **VI. Appraisal Summary**

### **A. Economic and Financial Analysis**

44. Failure to address the safety and security deficiencies at international airports will result in eventual withdrawal of international air services since air carriers potentially face unlimited liability for accidents arising at airports which are known to be unsafe<sup>25</sup>.

45. As described in Annex 5, the economic benefits of connectivity through international aviation, or rather the devastating costs that a loss of such connectivity would entail are large and filter through the entire economies of PICs. The loss or curtailment of airline services would affect the flows of tourism, remittances, labor, goods, services, knowledge and investments in each affected country, as well as its neighbors. There would be further losses in regional benefits related to regional navigation, SAR operations, and optimal long-distance route planning requiring ETOPS. There are other benefits—political integration, social cohesion, emergency evacuation, etc—but these are almost impossible to quantify. The quantification of these benefits or the costs of losing them is, however, exceedingly difficult.

46. The Phase 1 quantitative economic analysis focuses on the impact of withdrawal of air services on several aspects to the economies of affected countries:

- There is a clear impact on the travel industry and the value created by visitors, both directly and indirectly;
- It would affect remittances which, for countries like Tuvalu, are significant: by one estimate, Tuvalu's maritime training center has provided employment on foreign vessels for 15% of the work force. Loss of air services would disrupt maritime employment opportunities and their associated remittances; and,

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<sup>25</sup> Liability in international air transport is limited by several conventions. For example, under the Montreal Convention, the most recent one, air carriers are strictly liable for proven damages up to 113,100 SDR. Where damages of more than 113,100 SDR are sought, the airline may avoid liability by proving that the accident which caused the injury or death was not due to their negligence or was attributable to the negligence of a third party. However, operating to and from an airport that has serious deficiencies and must be considered unsafe, could constitute negligence by the operator and trigger unlimited liability.

- It would adversely affect the growing seasonal employment schemes for workers in New Zealand and Australia.

47. Annex 5 describes in detail the methodology used to estimate the effect of the with- and without-project scenarios on each Phase 1 country's travel GDP and 'travel GDP for the whole economy' (i.e. including indirect value created by visitors). The costs of the various technical assistance activities were included in the project costs as these are integral to achieving the project's safety and security objectives. For Kiribati, the project cost does not, however, include the investment by NZAP in CXI or Taiwan, China in TRW. These investments are committed and are independent of this project.

48. Using the assumed impact from service interruption, the economic analysis shows that the Phase 1 investments offer very strong Economic Internal Rates of Returns (EIRRs) for all three countries, reflecting the importance of aviation to their respective economies.

Country	EIRR and NPV (@12%) By Year of Service Interruption <sup>1/</sup>			
	2014		2016	
	EIRR (%)	NPV (US\$ m)	EIRR (%)	NPV (US\$ m)
Kiribati	34.0	\$5.7	16.0	\$2.0
Tonga	48.7	\$14.1	20.9	\$7.8
Tuvalu	38.3	\$4.2	17.7	\$1.8

Notes: 1/ The year of service interruption is the year when flights are curtailed due to poor condition of infrastructure.

49. **Financial Analysis:** A financial analysis of meeting the participating countries oversight requirements was undertaken as part of an alternatives analysis of viable organizational and funding arrangements that would enable the sustainable operation of PASO. The latter is essential to achieve the goal of enhancing regional safety and security. Further details on the analysis are given in Annex 5. This analysis indicated that a regional safety and security levy on departing international passengers ranging from AU\$1.18 to AU\$1.65 would meet the safety and security oversight needs. Since proper implementation of aviation safety and security also requires that the CAA be properly financed, and there be funds to cover the operating costs of equipment such as PASNet, the Program requires that participating countries place in escrow proceeds derived from a safety and security levy of AU\$5 equivalent per departing international passenger. This will provide income for participating countries to meet their ongoing ICAO safety and security oversight and management requirements. All countries in Phase 1 agreed during project preparation that they would collect this safety and security levy and escrow it for passenger safety and security activities. The implementation of a safety and security levy is a condition for other countries to participate in future phases of the Program.

## B. Technical

50. From a technical point of view the Program is relatively straight forward. The investments will be in improving the physical infrastructure of international airports to meet the ICAO safety and security requirements. At the same time, the Program will address the institutional weaknesses prevalent in the PICs which have contributed to the region having such poor aviation safety and security.

51. The Program's physical investments are 'forward looking', consisting of next-generation technologies that will greatly facilitate aviation safety and energy efficiency. The implementation of Automatic Dependent Surveillance-Broadcast (ADS-B) at all participating airports will provide the region with excellent air traffic control and the ability to monitor aircraft position in real-time, an important consideration with such vast ocean distances to traverse. The PASNet safety and security network will augment this, providing a reliable satellite based network that will be operational even during natural disasters. With improvements to runways, terminals, firefighting equipment, and other key infrastructure, the Program will provide a platform for significant improvements in aviation efficiency, energy savings, safety and security. With the same equipment procured for multiple countries, the Program will contribute towards regional harmonization and allow for the PIC's to support each other technically.

52. A key element of the Program will be the support for the restructuring of PASO so that it can become an effective regional safety and security oversight agency, with its services being used by the client countries. The implementation of a safety and security levy will provide financial support to achieving this vision. At the same time, the Program will support the individual countries to improve their management and operations of airports, as well as their regulatory oversight.

### **C. Financial Management**

53. The TFSU, which will include a Financial Manager and an experienced project Accountant, will be responsible for Program FM, monitoring and consolidated reporting. At the start of the Program, a short-term Financial Advisor will be recruited to ensure appropriate systems are put in place. Monitoring and management of Grant Agreement proceeds, including overseeing the associated Designated Account (DA), will be handled by the each Program country's Ministry of Finance.

54. As part of the Program Operations Manual (POM), a Program FM Manual will be developed by the Financial Advisor and the Financial Manager and used to assist in the training of finance staff in the PSTs. Accounting software will be properly configured to meet accounting and reporting requirements. Training on the World Bank's FM and disbursement procedures will be provided. Monitoring will be managed through reviews of the project's FM system, including but not limited to operation of DAs, Statement of Expenditures, internal controls, reporting and follow up of audit findings and mission findings. The FM assessment has concluded that with the implementation of these proposed actions, the FM arrangements will satisfy IDA's minimum requirements under OP/BP 10.02. Annex 2 provides additional information on FM.

### **D. Procurement**

55. The procurement risk assessment reviewed the procurement capacity across the public sector in Phase 1 participants. In view of identified limitations, procurement will be managed by the TFSU. The Accountant and Lead Procurement Specialist will come from the on-going IDA-financed TSCP project in Tonga; additional consultants will be hired for the Program. TAL will provide technical guidance as required. The TFSU and participating country IAs will be assisted by the Design and Supervision Consultant, expected to be mobilized by February 2012. As will be agreed under the terms and conditions of a Service Agreement between the TFSU and each respective Executing Agency (EA), the RPEC will include the participation of representatives from each Recipient's country as well as members of the TFSU. With the assistance of the

Design and Supervision Consultant, the TFSU will prepare technical specifications and bidding documents, in consultation with respective representatives, and manage all procurement processing, up to contract signing. Each country's IA will be responsible for signing of contracts.

56. The draft Procurement Plan for Phase 1 countries was prepared and finalized at negotiations. The plan will be updated at least annually (or as required) to reflect the actual Program implementation. A summary of the procurement capacity assessment and the procurement arrangements are provided in Annex 2. Each country's procurement plan is presented in the Country annexes 7 to 9.

## **E. Social**

57. The Program is expected to have many positive social impacts by improving air transportation. Appropriate safeguard documentation was prepared for each Phase 1 project, and will also be prepared for future Phases. Land acquisition and livelihood impacts will be assessed on a project-specific basis, and mitigation plans prepared accordingly. During Phase 1, only Environmental Assessment (OP/BP 4.01) and Involuntary Resettlement (OP/BP 4.12) were triggered.

58. A Program level Environmental and Social Management Framework (ESMF) was prepared that explains the processes for preparing, consulting on, approving and disclosing each project's safeguard documents. The Program ESMF was disclosed through the InfoShop on July 15, 2011. The ESMF will guide the preparation of safeguard documents for future Phases. In all instances, when needed as per the Frameworks participants will need to prepare, seek IDA's approval, and implement Environmental Management Plans (EMPs), and Resettlement Action Plans (RAPs) or Abbreviated Resettlement Plans (ARPs). Participants will also need to seek IDA's approval for any changes thereafter to such EMPs/RAPs/ARPs.

59. Where involuntary land acquisition and/or resettlement are confirmed and specific project areas are known prior to appraisal, RAPs/ARPs will be prepared. Where involuntary land acquisition and/or resettlement is not confirmed, or specific project areas are unknown prior to appraisal, then a Resettlement Policy Framework (RPF) will be prepared.

60. Each project will need to assess whether there are indigenous people located in the project area. It was confirmed during Phase 1 that there were no indigenous people affected by the proposed investments. In future Phases, if indigenous people are found to be in the project area, an Indigenous Peoples Plan must be prepared by the client as per World Bank policy OP 4.10. If indigenous people are potentially found in the project area, but it will be unclear until detailed design, an Indigenous Peoples Framework must be prepared. Should the OP 4.10 be triggered, then free, prior and informed consultations that lead to broad community support for the project will need to be organized.

61. As described in Annexes 7 to 9, it was confirmed that all Phase 1 project airports where investments will be made are on leased or government land. Due diligence on the lease rates was undertaken during preparation to make sure they represented fair market value and to verify that leases were being paid to all landowners. In Tonga since the leases were expiring during the life of the project, the government renegotiated the leases, both to increase the rate and extend the duration. The only airport where social issues were identified at was TRW, which is located in the densely settled South Tarawa, Kiribati. Here, there is the potential loss of community access due to the re-establishment of the airport security fence. There is also an ongoing dispute in the



Magistrates Court over ownership of some reclaimed land at the TRW terminal. No construction will commence at the terminal until this dispute has been resolved. To address these and other concerns, an RPF was prepared and disclosed, as shown below. The RPF will be used during the project to ensure that the local communities are not disadvantaged by the project. It will also be applied to the runway rehabilitation which is being parallel-financed by a Taiwan, China loan since this is considered to be a linked project to the IDA-financed activities. In addition, road rehabilitation is being financed in Kiritimati Island, Kiribati, to link CXI to London. While the rehabilitation will be done on the existing road, the RPF prepared will also cover any potential impacts, such as loss of access that may be in the right-of-way. The RPF will also apply to the rehabilitation of the CXI runway being parallel financed by the NZAP since this is considered to be a linked project to the IDA-financed activities.

62. The following table shows the dates of disclosure of the Phase 1 project safeguard documents.

Safeguards Document	Disclosure Location	Date of Disclosure by Country		
		Kiribati	Tonga	Tuvalu
EMP	In-Country	July 25, 2011	February 28, 2011	September 19, 2011
	InfoShop	July 11, 2011	June 1, 2011	September 15, 2011
RPF	In-Country	July 25, 2011	N/A <sup>1</sup>	N/A <sup>1</sup>
	InfoShop	July 11, 2011	N/A <sup>1</sup>	N/A <sup>1</sup>

Note: 1/ An RPF was only required for the Kiribati project.

## F. Environment

63. The Program is rated as a Category B due to the limited environmental impact. This is reflected in the Program ESMF which was produced during Program preparation and is on file.

64. For each Phase 1 project, an Environmental Management Plan (EMP) was prepared and disclosed as shown in the table above. The EMP summarizes all the anticipated environmental impacts and associated mitigation measures during the design, construction and operational phases. It makes reference to the relevant laws and contract documents, approximate locations, timeframe, mitigation costs, and the responsibility for its implementation and supervision. A field monitoring checklist was prepared based on the EMP and monitoring plan. The field monitoring checklist will be used by the supervising engineers. The signed checklists will be provided to the TFSU and IAs that will be responsible for the appropriate follow-up and compliance reporting.

65. The main potential impacts identified in the Program include: (i) disturbance including noise and dust arising from loading and unloading, and transportation of construction materials (aggregates and bitumen) by dump trucks; (ii) noise and dust arising during scarifying the existing runway and construction of the new surface; (iii) erosion and sedimentation from exposed surfaces that may affect the lagoon environment during the construction processes; and, (iv) risks from the use and disposal of hazardous materials such as used fuel and lubricants. All of these risks can be adequately managed through the contractor applying the provisions of the EMP. Since the EMP will form part of the civil works contract, there will be consequences to the contractor for failure to comply with the EMP. The EMP will apply not only to the IDA-financed activities but also to any parallel financed investments, such as those in the CXI and TRW runways financed by the NZAP and Taiwan, China.

## Annex 1: Detailed Program Description

1. The Program will focus on three main areas: (i) infrastructure investments; (ii) aviation sector reform; and, (iii) strengthening the operations and management of airports. All three areas are essential to the achievement of the development objective: to improve operational safety and oversight of international air transport infrastructure in participating countries. The needs, priorities, and reform readiness in each area will be closely evaluated in all participating countries. Investments identified for inclusion will depend on what the most pressing priorities are and the availability of alternative sources of finance.

2. **Component A: Aviation Infrastructure Investments (US\$120.78 million including contingencies).** This component will invest in the aviation infrastructure so international airports are able to meet the ICAO safety and security standards, while preserving and extending the service life of existing airport assets. The focus will be on improving safety and security on the one hand, and operating efficiency on the other. The efficiency will be improved through a number of energy and water conservation measures, which will have an important side benefit of making the airports much more likely to continue operating in the event of natural disasters. All equipment purchases will be coordinated between countries, which will generate a regional public good of reduced servicing and replacement costs. The investment activities will be carefully planned and organized so as to avoid service disruption.

3. The specific activities will vary between participating airports and may include:

- **Resurfacing of Airport Pavements:** Many of the region's international airport runways are in poor condition due to lack of regular maintenance and harsh climate. In some cases, airports are facing an imminent threat of closure to international jet flights. The Program will rehabilitate the runways, taxiways and aprons, as needed. This will see the existing surfaces milled (if needed) and replaced with asphalt concrete, surface dressing, cement concrete and/or interlocking concrete/stone pavers as appropriate, with proper attention to airfield drainage to prevent ponding on shoulders, aprons and other critical areas. The runways will receive new markings. The Program will look the viability of capturing and storing runway runoff water at FUN and TRW.
- **Replacement or Improvements to Terminal buildings and Control Towers:** The Program will rehabilitate or provide new terminal buildings in cases where they are very old or have deteriorated due to lack of maintenance and harsh climate conditions (CXI and FUN), or may need reconfiguration in order to meet ICAO security compliance requirements, enable security improvements and efficient cargo and luggage handling (TRW). A fire tender shelter and maintenance building will be included for CXI. A new basic control tower will be provided at FUN. With all investments, facilities will be provided to collect and store rain water in order to reduce the potable water demand and preserve natural water resources. Water collected from roof areas will be used to service all sanitary demands and provide required collections for Crash Fire Rescue demands, and ground vehicle maintenance. Water consumption will be reduced by utilizing fixtures and valves within the terminal buildings that are high efficiency/low consumption. Improvements to terminals to reduce electrical consumption through both passive and technological means will also be considered, along with solar power (VAV).

- **Air Traffic Control Equipment:** Provision of ceilometers, signal lamps, radios, backup generators/improved power supplies, along with the necessary communication and surveillance equipment.
- **Upgrading of Runway Lighting:** Runway and/or approach lighting using low power consumption LED fixtures will reduce the energy demand by 90%.
- **Security Improvements:** Investments such as improved perimeter fencing, access control, building management system, X-ray equipment for hand baggage, etc.
- **Navigation Aids:** Provision of Automatic Dependent Surveillance-Broadcast (ADS-B)<sup>26</sup>, Precision Approach Path Indicators (PAPI), and Non-Directional Beacons (NDB) where needed.
- **Secure Communications:** Provision of the PASNet<sup>27</sup> secure communications system to airports, except TBU where it is already operational. This will allow for communication of voice and data communications on safety and security via a full-mesh closed network connecting regional CAAs, airports and air service providers.
- **Fire Safety:** Provision of fire tender vehicles and other equipment and protective clothing for firefighters<sup>28</sup>.
- **Airfield Maintenance Equipment:** Provision of equipment for routine airfield maintenance such as tractors, grass cutters, and runway sweeper attachments;
- **Refueling Equipment:** Trailer for refueling small aircraft.
- **Weather Monitoring:** Automatic Weather Stations.
- **Obstacle Limitation Surveys:** WGS84 surveys to identify obstacles around the airport.
- **Resurfacing of CXI-London Road:** Resurfacing with improved safety features for the road from CXI to London;
- **Completion of Bonriki Airport Seawall:** Completion of the seawall at TRW that was partially constructed under the Kiribati Second Climate Adaptation Project.
- **Laboratory Testing Equipment:** Testing equipment for Tuvalu for construction materials.
- **Consulting services:** Procurement of: (i) Design and Supervision Consultant for aviation investments; and, (ii) Design and Supervision Consultant for CXI-London road.

4. **Component B: Aviation Sector Reform and Training (US\$9.08 million including contingencies).** This component will support sector reform both regionally and within each participating country, although the Program for each country will be driven by the current status of reform efforts and alternative sources of financing. The specific activities will include, but will not necessarily be limited to the following:

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<sup>26</sup> ADS-B is a new technology which is part of ICAO's strategic plan for the Pacific. It allow for more efficient aircraft operations, as well as providing continuous location data which is of value in case of emergency.

<sup>27</sup> PASNet is an aviation safety and security network to enable Regional CAAs and air transport organizations to communicate essential safety and security communications in a secure and timely manner. Satellite ground stations are installed at the airports beside the control tower. The ground stations are linked by satellite in a full mesh closed network, with ground equipment housed within each control tower.

<sup>28</sup> At TRW the fire tenders are currently operated by the Police with no accountability to the airports. In order to ensure that they are utilized for the airports and properly maintained, the control and responsibility for the fire tenders will be transferred to the respective airport operators.

- **Support to CAA and Line Ministries:** The Program will provide support to CAA and Line Ministries to improve various aspects of managing aviation infrastructure and operations, and civil aviation oversight, which may include, but not be limited to:
  - i. development of civil aviation technical regulations and manuals and assistance with their implementation;
  - ii. separating regulatory functions from management and operations of airports, and other sector restructuring activities;
  - iii. improving effectiveness and efficiency of airport management through commercialization of operations and performance monitoring;
  - iv. strengthening airport security through penal code amendments and public awareness campaigns;
  - v. developing new sources of revenue to improve sustainability; and,
  - vi. implementation of agreed corrective action plans following ICAO audits;
- **Air Transport Sector Strategies and Airport Master Plans:** The Program will assist countries to develop air transport sector strategies and airport master plans (in Phase 1 for Kiribati). These plans will guide the development of airports, overall sector policy and institutional framework development and will be done at the onset of the project.
- **Training:** Training program to address project support needs, as necessary. This will also include industry training which would see staff seconded to similar agencies overseas.
- **New Legislation:** Draft legislation will be prepared, and assistance provided to the Government of Tonga (GoTg) to establish the Tonga Airports Authority<sup>29</sup>.
- **Baseline Airport Safety and Security Audits:** The Program will finance baseline safety and security audits by ICAO of all participating airports for the purpose of establishing the existing levels of compliance and identifying action plans for addressing issues. Future data will come through the PASO oversight programs (see below).
- **PASO Business Plan:** A business plan for PASO will be developed which considers the overall operating structure and activities, staffing, revenue sources, etc. It will complement the ADB's current technical assistance work with PASO and the member countries.<sup>30</sup> This activity will be funded by the GoA through a PRIF Grant, implemented by TAL. The anticipated outcome is a business plan which details an appropriate operating and governance structure for PASO, possible changes in services offered and their pricing, corresponding revisions to the staffing and skill composition, and revised operating procedures. The adoption of this plan by PASO should result in a stronger PASO, with better strategic planning, FM, and greater

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<sup>29</sup> TAL is currently operating under an Instrument of Delegation from the Minister of Transport under the Civil Aviation Act 1990 and the Civil Aviation Regulations 1992. This was considered necessary and as an interim measure to ensure viable airports. The proposal is to create an Airport Authority Act whereby TAL's operations would be clearly defined for the long-term. This would be similar to the Ports Authority Act 1998 and the Tonga Communication Corporation Act 2000, as well as other Primary Level legislations which other SOEs operate under.

<sup>30</sup> The ADB technical assistance is focused on countries by: (i) assisting with revisions to national aviation legislation and regulations; (ii) ensuring that PASO member countries have the ability to generate sufficient revenues for oversight; (iii) ensuring PASO achieves financial sustainability through revised financial procedures; and, (iv) auditing PASO's financial performance.

support from member countries. The Program includes finance for any costs associated with restructuring PASO.

- **PASO Oversight Programs:** A key element to the success of PASO will be its ability to execute regularly scheduled minimum compliance oversight programs for its member countries, with the countries having the revenue to finance these services<sup>31</sup>. For those countries participating in the Program, PASO will identify the minimum oversight program required to ensure effective safety and security oversight. The departing international passenger safety and security levy to be implemented under the Program will provide income to help cover the oversight costs. For high passenger volume countries—such as Samoa, Tonga and Vanuatu—over time the safety and security levy should be sufficient to cover all costs. Low passenger volume countries—such as Kiribati and Tuvalu—will never be able to cover all costs through just the safety and security levy (see Annex 5).

The Program will address these revenue shortfalls by helping finance the cost for PASO to deliver the necessary oversight program, as appropriate. The proceeds of the GoA through PRIF Grant will be used to cover any financing gap between income from the safety and security levy and the costs incurred for these services; until such time that the PRIF Grant is fully exhausted. It is anticipated that a long-term solution will be identified by the sustainability study to be conducted under Component C, although for some countries donor support may continue to be required.

5. **Component C: Strengthening Airport Operations and Management Capacity (US\$7.87 million including contingencies).** Airport management poses unique challenges for smaller island states with limited human resources. In particular, there is an acute lack of local specialized management capacity to operate international airports capable of meeting ICAO safety and security standards. The Program will support activities designed to strengthen participating countries' airport operations and management capacity, with each project's activities tailored to the specific capacity constraints faced by each country. During Phase 1, the Program will support Kiribati and Tuvalu in establishing appropriate structures to manage and operate their airports. This will involve putting Kiribati's two international airports under a three-year management contract with an experienced airport management company. In addition to setting up a well-run commercialized operation and developing operating procedures, the contracted management will develop and demonstrate safety and security conscious work habits and a culture of maintenance, and provide on-the-job training for local staff and management. Assistance with transition to local management of the two airports will also be included in the management contract. In Tuvalu, the Program will finance a study to identify options for creating a separate operating company for FUN. Financing and support for the implementation of the recommended framework is not currently included in the Program.

6. In addition to activities to address airport operations in specific countries, during Phase 1 the Program will undertake the following regional studies:

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<sup>31</sup> Countries participating in the Program will be required to commit to a regularly scheduled oversight program, the costs of which are expected to be covered by the safety and security levy allocated to the airport regulatory bodies in the respective countries. As the funds from the levy will always not be sufficient to bear the full cost of oversight, the balance will initially be financed from the PRIF Grant financing.

- **Options for Regional Aviation Supply:** A study into the options for the regional aviation market. This will consider the current and future travel demand patterns in the region—for passengers and freight—and the types of aviation services that would be most appropriate to meet these demands.
- **Long-Term Sustainability of Aviation Infrastructure:** With the often very low levels of demand, many countries in the region lack the revenue to ensure that future operations and maintenance needs can be financed. This study will review the options for countries in the region for sustainable long-term financing and operations of key aviation infrastructure, and ways in which this financing can realistically be met.
- **Analysis of Flight Information Region (FIR):** Each country has an FIR through which aircraft travel. This study will review the revenue received by the participating countries for access to their FIR and consider options for improvements to the current approach. On the basis of this study, and the infrastructure improvements financed under the Program, it is anticipated that Kiribati and Tuvalu will receive regular FIR income due to the increased navigation services being provided through the Program. This income in turn will contribute to development and sustainability of the aviation sector.

7. **Component D: Program Support (US\$11.03 million including contingencies).** This component will finance the support required by various parties involved in the Program:

- **Support to the Technical and Fiduciary Services Unit (TFSU):** The TFSU will be responsible for preparing regional bid documents, supporting countries in the award and management of contracts, and processing payments. It will provide overall support and guidance for the Program. The TFSU will include, but not necessarily be limited to, the following full time staff: (i) PAIP Director; (ii) Financial Manager; (iii) Accountant; (iv) Lead Procurement Specialist; (v) Procurement Assistant; (vi) Contracts Manager; and, (vii) Administration Assistant/Coordinator. The TFSU will be supported by the following part-time consultants: (i) Financial Advisor; (ii) Aviation Procurement Specialist; (iii) Environmental/Safeguards Specialist; (iv) Electrical Engineer; (v) Building / Structural Engineer; and, (vi) Pavement Engineer. The latter three engineering experts will be on an ‘as required’ basis to provide a resource pool of qualified engineers who can provide advice and direction to the PAIP Director on technical aspects of the Program. TAL will provide specialist technical guidance to the TFSU.
- **Incremental Operating Costs:** This activity will also finance incremental operating costs including office space and equipment for Program participants.
- **Country Project Support:** Each country participating in the Program will have a PST responsible for managing all project activities within their jurisdictions<sup>32</sup>. This component will finance project-related staff and operating costs of implementation. It also includes the accommodation costs for the PST in Kiribati.
- **Project Financial Audit:** The cost of financial audits.
- **PASNet Annual Subscription:** The cost of annual subscriptions for the operation of the PASNet infrastructure.

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<sup>32</sup> Since the TFSU is based in Tonga, the PST will only consist of a Project Manager with other staff provided from the TFSU.

8. Table A1.1 shows each of the proposed Phase 1 investments, by Component and airport. The shaded cells identify the investment activities.

**Table A1.1: Phase 1 Investments<sup>1/</sup>**

Component	Description	Kiribati		Tonga		Tuvalu FUN
		TRW	CXI	TBU	VAV	
A	Navigation Aids					
	Automatic weather station (AWS)					
	Automatic dependent surveillance-broadcast (ADS-B)					
	Terminal building improvements					
	Security screening equipment					
	Airfield lighting and cabling					
	Air Traffic Control Equipment					
	Obstacle Limitation Survey					
	Fire Tender Vehicle Shelter					
	Resurfacing Road CXI-London					
	Maintenance Equipment Building					
	Airfield Maintenance Equipment					
	Improved Power Supply					
	Security Fence					
	Fire Tender Vehicle					
	Fire Safety Equipment for Fire Crews					
	Emergency Infrastructure Repairs					
	Pacific Aviation Safety Network (PASnet)					
	Design and Supervision of CXI-London Road					
	Design and Supervision Aviation Investments					
	Laboratory/Testing Equipment					
	Fuelling Equipment					
	Airport Seawall and Construction of Bonriki Village Facilities					
	Land Acquisition and Resettlement					
B	Support CAAs and Line Ministries <sup>2/</sup>					
	Implement Regulations <sup>2/</sup>					
	Air Transport Master Plan <sup>2/</sup>					
	Training <sup>2/</sup>					
	Industry Training <sup>2/</sup>					
	Establishment of an Airports Authority Act for Tonga <sup>2/</sup>					
	ICAO Baseline Audit <sup>2/</sup>					
	PASO Safety and Security Oversight <sup>2/</sup>					
	PASO Restructuring Costs <sup>3/</sup>					
	PASO Business Plan <sup>3/</sup>					

C	Options for Regional Aviation Supply <sup>3</sup>					
	Long-Term Sustainability for Regional Aviation Infrastructure <sup>3</sup>					
	Analysis of Flight Information Region (FIR) <sup>3</sup>					
	Kiribati Airport Management and Operations					
	Funafuti Operations Options					
D	Country - Project Operating Costs					
	Kiribati PST Accommodation					
	PASnet Annual Subscription					
	TFSU - Program Operating Costs					
	Project Support Team					
	Financial Audits					
	Tonga Project Manager					
	TFSU - PAIP Director					
	TFSU - Financial Manager					
	TFSU - Financial Advisor					
	TFSU - Accountant					
	TFSU - Lead Procurement Specialist					
	TFSU - PAIP Procurement Assistant					
	TFSU - Contract Manager					
	TFSU - Administration Assistant/Coordinator					
	TFSU - Aviation Procurement Specialist					
	TFSU - Environmental/Social Specialist					
	TFSU - Pavement Engineer					
	TFSU - Electrical Engineer					
	TFSU - Building Engineer					

- Notes: 1/ The highlighted cells show which activities are to be done in each country or the region.  
2/ Although shown against individual airports for Kiribati and Tonga, these costs are for the country.  
3/ These regional activities will be managed by the TFSU on behalf of the Program.



## Annex 2: Program Implementation Arrangements

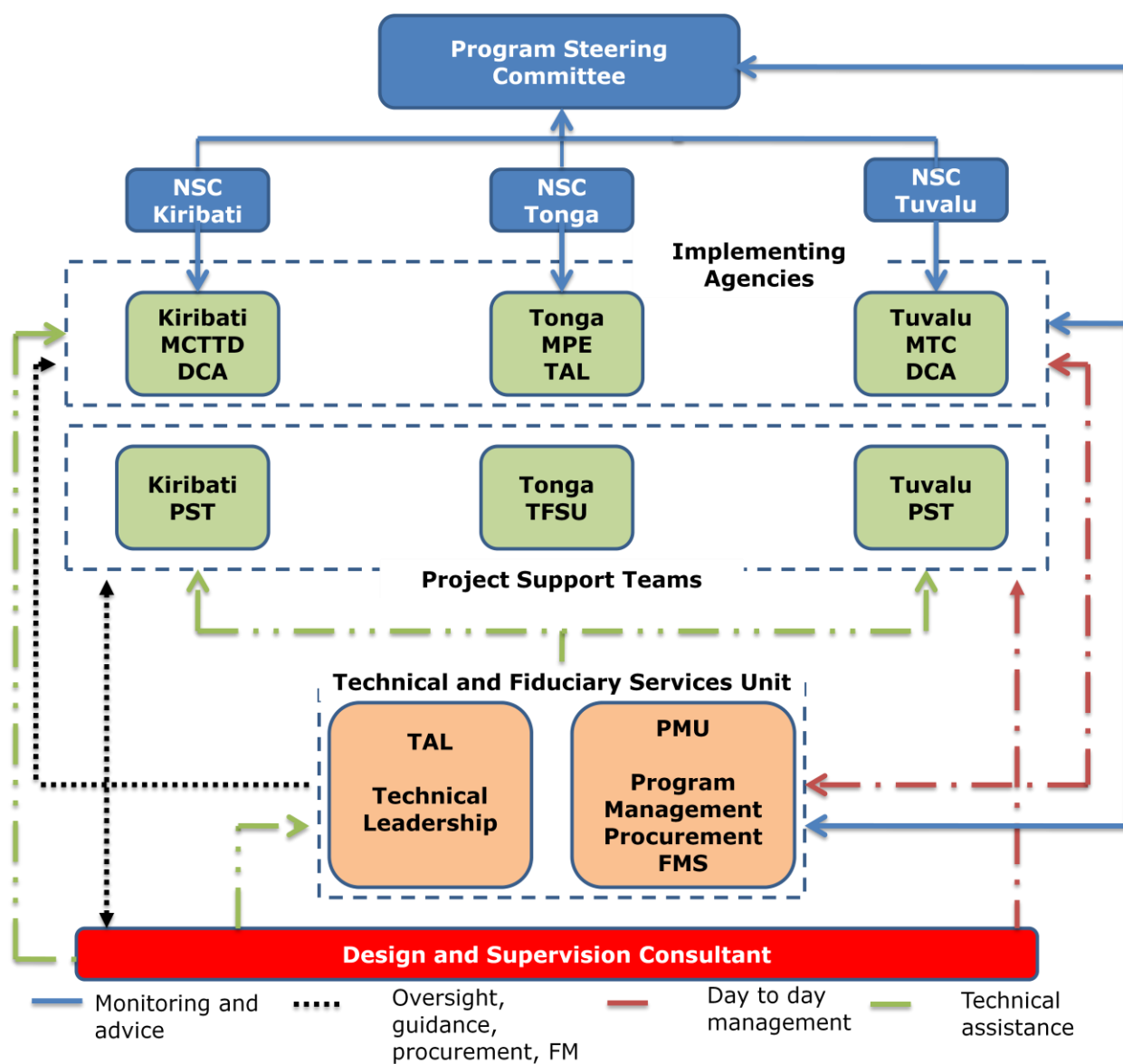
### A. Program Administration Mechanisms

1. Table A2.1 shows the Program Implementation Organizations and their roles. All phases of the Program will be implemented using the same arrangements. Figure A2.1 shows the implementation arrangements for Phase 1.

**Table A2.1: Program Implementation Organizations and their Roles**

Organization	Management Roles and Responsibilities
<b>REGIONAL COORDINATION</b>	
Program Steering Committee (PSC)	Oversees and monitors overall Program implementation Advises the NSCs of any issues or concerns affecting project implementation and proposes remedial actions Resolve any disputes that may arise in the Program
Technical and Fiduciary Services Unit (TFSU)	Supports PSTs in day-to-day implementation of the Program Responsible for all procurement advertising, bid document preparation and procurement processing Assists in the implementation of accounting procedures in the payment process Consolidates reports from individual countries for Program reporting Responsible for Program FM, monitoring and consolidated reporting Performs mandated regional oversight in Program countries
Pacific Aviation Safety Office (PASO)	
Regional Procurement Evaluation Committee (RPEC)	Consists of TFSU and technical specialist from each IA. Conducts bid/proposal evaluation and make civil works contract award recommendation.
<b>COUNTRY-LEVEL COORDINATION</b>	
National Steering Committees (NSC)	Established in each country participating in the Program Advises national governments of issues or concerns affecting project implementation and proposes remedial actions
Executing Agencies (EA)	Sign Grant Agreements Responsible for overall project execution Sign TFSU Service Agreement
Implementing Agencies (IA)	Responsible for the overall implementation of the project in respective countries Provide technical inputs, as required Participate in regional procurement committee Sign contracts for investments activities in respective country Responsible for environmental and social safeguards compliance
Project Support Teams (PSTs)	Monitor progress of project activities Manage contracts for all activities in a country, including payments with support from TFSU Monitor safeguards compliance for investments Provide quarterly reports as well as project Monitoring and Evaluation data Manage the DA for small incidental payments specific to the country.
IDA	Responsible for administering IDA and GoA through PRIF-financed components of the Program Responsible for Program implementation support Responsible for supervision of environmental and social safeguards

**Figure A2.1: Phase 1 Implementation Arrangements**

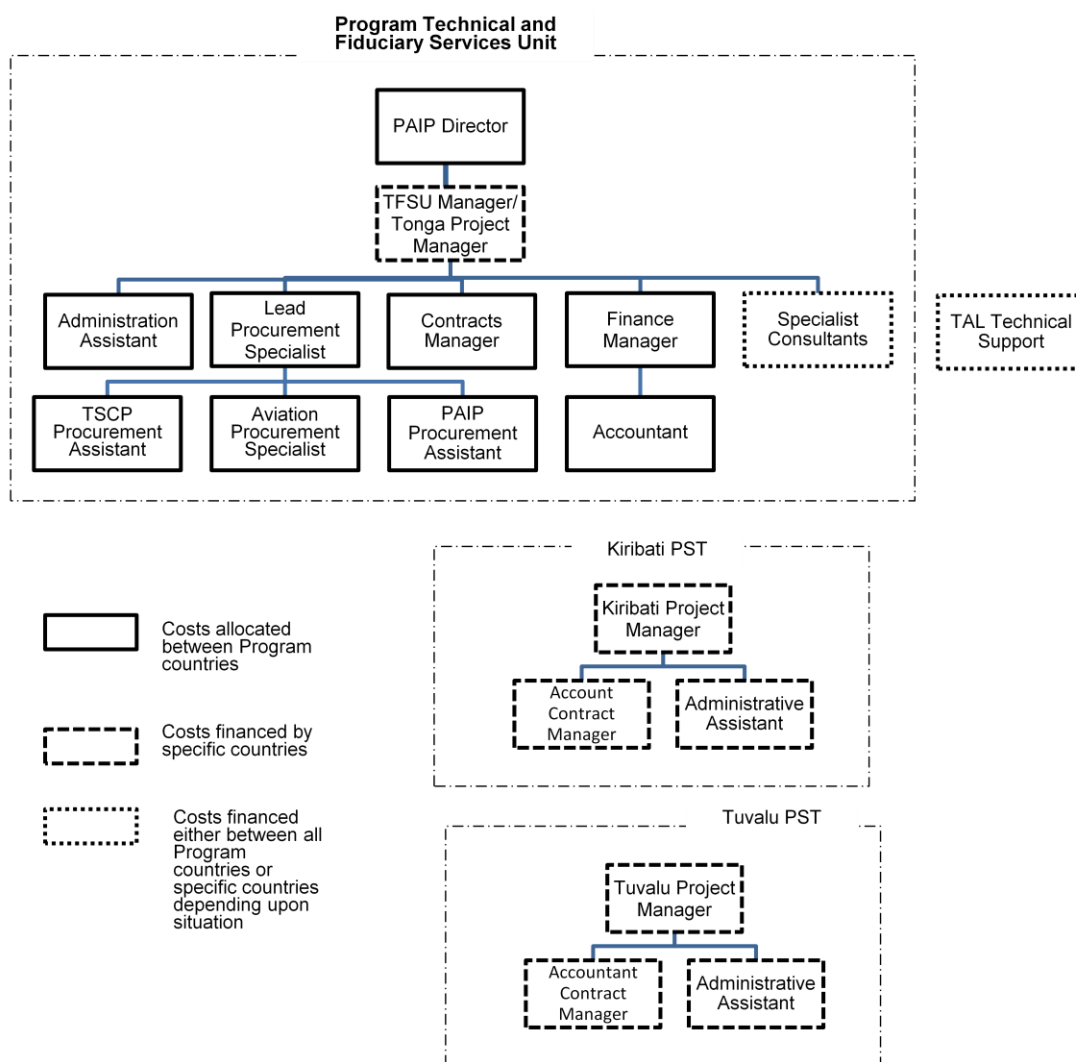


## Regional Implementation

2. **Regional Coordination and Implementation Arrangements:** The Program will be led by the PSC, comprising the Chairmen of the NSC (or a designated representative) from each of the participating countries, the PASO General Manager (or a designated representative), the PAIP Director of the Technical and Fiduciary Service Unit, and others as appropriate. It will meet on a quarterly basis to review and evaluate Program implementation progress. The PAIP Director will chair the PSC.

3. **Technical and Fiduciary Service Unit:** As a measure to address the capacity constraints in the Program countries, the TFSU will be responsible for coordinating implementation across all activities for the Program<sup>33</sup> (see Figure A2.1). Figure A2.2 shows the TFSU and PST staffing.

**Figure A2.2: TFSU and Phase 1 PST Staffing**



4. The TFSU will consist of the following full-time consultants: (i) PAIP Director—the lead person who will coordinate the Program between the participating countries, helping manage resources and timing of the Program; (ii) Financial Manager—responsible for developing the Program FM Manual establishing, managing and coordinating the Program’s financial mechanisms to ensure all payments are processed in accordance with the respective Grant Agreements; (iii) Accountant—who will be responsible for day-to-day financial transactions

<sup>33</sup> TAL has committed to continue its involvement even once the investments in Tonga are completed so the TFSU will be able to provide service for the Program’s entire life.

under the Program; (iv) Lead Procurement Specialist—responsible for management of the procurement process for the Program; (v) Procurement Assistant—to assist in managing procurement; (vi) Contracts Manager—to monitor and assist countries in managing contracts; and, (vii) Administration Assistant/Coordinator—to support the administration/co-ordination of the Program.

5. The TFSU will be supported by the following part-time consultants: (i) Financial Advisor—an international consultant to develop the FM Manual and put in place appropriate systems at the start of the Program; (ii) Aviation Procurement Specialist—due to the size and technical nature of the Program, an aviation procurement specialist will be required to support the procurement of highly technical aviation equipment; (iii) Environmental/Safeguards Specialist—for providing advice on safeguards issues; (iv) Electrical Engineer; (v) Building / Structural Engineer; and, (vi) Pavement Engineer. The latter three engineering experts will be on an as required basis to provide a resource pool of qualified engineers who can provide advice and direction to the PAIP Director and countries on technical aspects of the Program.

6. The PAIP Director, TFSU Manager/Tonga Project Manager, Contracts Manager, and Financial Manager are new positions which will be competitively hired under the Program. The Lead Procurement Specialist and Accountant will be provided from the existing TSCP PMU<sup>34</sup>.

7. TAL which is successfully implementing the IDA-financed TSCP<sup>35</sup> will provide specialist technical guidance to the other Program countries on a cost-recovery<sup>36</sup> basis.

8. A portion of each Grant's proceeds will be allocated for project management and project operating costs associated with services rendered by the TFSU. The costs of the TFSU consultants will be pro-rated between Program participants based on the percentage of finance for each participant relative to the Program total (in Phase 1—Kiribati: 37%; Tonga: 44%; Tuvalu: 19%). The exception to this will be for consultants hired for specific activities in a country who will be charged to the respective participants based on work done.

9. The PAIP Director will be assisted by the TFSU Manager, who will also act as the Project Manager for the Tonga project. TFSU Manager/Tonga Project Manager is fully financed by the IDA grant for Tonga.

10. As noted earlier, a Service Agreement will be signed between each EA and TAL (TFSU). The Service Agreement will require establishment of a RPEC, with TFSU as the coordinating member. A technical specialist/representative appointed by each of the IAs will participate in the committee to advise on the technical requirements and to conduct the evaluation of

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<sup>34</sup> The TSCP staff will provide support to both the Program and the TSCP until the TSCP closes in 2013. While both projects are operating, the costs for the Lead Procurement Specialist and Accountant will be shared equally between the projects. Once the TSCP closes, all costs will be financed from the Program.

<sup>35</sup> In 2010 the TSCP had mis-procurement declared without cancellation due to errors in the procurement of aviation equipment. This situation addressed by the PMU through hiring a full-time international procurement specialist, contract management staff, and others. It is considered that with the current composition, and the proposed additional staff (e.g. aviation procurement specialist) proposed under the PAIP, that they are fully capable of meeting the procurement needs of the project and avoiding any repeat of the previous situation.

<sup>36</sup> As described in the Service Agreement, TAL will provide technical support to other countries only in response to a formal, written request. TAL will be reimbursed for all out of pocket expenses with meeting such a request, for example travel costs, as well as for staff time (charged at cost with no profit). TAL will not be reimbursed for any support associated with investments in Tonga.

bids/proposals for all Program activities. The share to be financed out of grant proceeds by each signatory will be specified and will be the basis for disbursements under the Grant.

11. Whilst the TFSU is responsible for the implementation of the Project in Tonga, and for coordination of the Program and provision of support and assistance to the IAs under the Program, one of the key approaches of the TFSU will be to provide this support in a collaborative manner to promote capacity building wherever possible. The TFSU will work closely with each participating country's PST, in the management of all facets of the Program and to ensure that efficient and effective management and administrative practices are followed. This includes the involvement of the PSTs in many aspects of the Program's implementation, from Program design, to procurement, contract management, and others.

12. **Regional Procurement Evaluation Committee (RPEC):** A Regional Procurement Evaluation Committee under the framework of the Service Agreement will be established. The committee will consist of TFSU and technical specialist from each IA. The role of the RPEC is to conduct bid/proposal evaluation and make civil works contract award recommendations.

13. **Dispute Resolution:** The PSC will be responsible for resolving any disputes which may arise on the Program.

14. **Pacific Aviation Safety Office (PASO):** PASO will participate on the PSC. It will also perform its mandated role as a regional regulatory oversight body, advising respective agencies on ICAO compliance requirements. An agreement will be signed between TAL and PASO for cooperation in the implementation of activities benefitting PASO.

### **National Implementation**

15. **National Coordination:** Each country in the Program will establish a NSC, with representation acceptable to IDA, to monitor and advise implementation. The key role will be to advise national governments and respective Ministries of issues or concerns affecting project implementation and will propose remedial actions accordingly.

16. **Executing Agencies.** The EAs under this Program will be: (i) Kiribati: the Recipient through the Ministry of Finance and Economic Development (MFED); (ii) Tonga: Recipient through the Ministry of Finance and National Planning (MFNP); and, (iii) Tuvalu: Recipient through the Ministry of Finance and Economic Development (MFED). A separate PRIF Grant Agreement will be signed with each country to finance costs associated with the provision of PASO services to its client countries.

17. **Implementing Agencies:** The IAs will be responsible for managing all project activities within their jurisdictions, contract signatures, monitoring implementation progress of their respective projects, providing authorization for contract payments, ensuring environmental and social safeguards compliance in accordance with World Bank policies and providing progress reporting.

18. The IAs for the Phase 1 projects will be:

- Kiribati: the Directorate of Civil Aviation under the Ministry of Communications, Transport and Tourism Development (MCTTD);
- Tonga: TAL under the Ministry of Public Enterprises (MPE); and
- Tuvalu: the Department of Civil Aviation under the Ministry of Transportation and Communications (MTC).

19. **Project Support Team:** A PST within the each country's IA will be responsible for project coordination. This will consist as a minimum of: (i) a Project Manager; (ii) an Accountant/Contracts Officer; and, (iii) an Administrative Assistant. Details of the technical roles and responsibilities of the TFSU and PSTs are outlined in Table A2.2. For Tonga only a Project Manager will be hired, who will also act as TFSU Manager under the PAIP Director, with the TFSU staff providing other support services.

**Table A2.2: Technical Coordination between TFSU and PSTs**

TFSU responsibilities	<ul style="list-style-type: none"> <li>• Responsible for all procurements<sup>37</sup>.</li> <li>• Approve all engineering and cost estimates.</li> <li>• Provide oversight during implementation in terms of services provided by the Program design and supervision engineers.</li> <li>• Provide advice on management of construction contracts including work progress, quantities, disbursement and recommend remedial measures, if required.</li> <li>• Assist with technical-related contract management responsibilities.</li> <li>• Provide guidance on and review project implementation schedules and identify potential problems and recommend solutions.</li> <li>• Provide focal point for Program communications/public relations.</li> <li>• Prepare reports for submission to IDA, as required.</li> </ul>
PST Responsibilities	<ul style="list-style-type: none"> <li>• Review all engineering designs, specifications and cost estimates and advise TFSU of its opinions.</li> <li>• Provide oversight of implementation in terms of construction quality and quality of services provided by supervision engineers.</li> <li>• Oversees contracts for the country.</li> <li>• Prepare reports for submission to TFSU, as required.</li> <li>• Responsible for monitoring of project development objectives for investments involving only the respective country and not related to Program objectives.</li> </ul>

20. **Program Operations Manual (POM):** A draft POM—which includes the FM Manual—will be developed by the TFSU to guide Program participants, particularly IAs, in the management of project activities implementation. The POM provides details on institutional roles and responsibilities for safeguards procedures, monitoring and evaluation for reporting, contract management, and scheduling. It describes the operating principles for the PSC and NSCs. The FM Manual and Procurement Plan requirements will guide fiduciary oversight of the Program. The recruitment of the Financial Advisor and Financial Manager are a priority for the Program and their first role will be the finalization of the FM Manual and training of FM staff on the Program.

## **B. Financial Management, Disbursements and Procurement**

### **Financial Management**

21. The FM capacity of the Program will build on the existing FM capacity of the Tonga TSCP PMU. This existing capacity will be enhanced by the employment of a Finance Manager under Terms of Reference (TOR) acceptable to IDA. Under guidance of the Financial Advisor,

<sup>37</sup> The exception is for advanced procurements done in Kiribati prior to the TFSU being established. These were done by the PMU established under the Kiribati Road Rehabilitation Project.

the TFSU FM team will finalize the Program FM Manual, and use it to implement the financial side of the Program. They will provide training and support to other countries participating in the Program.

22. A FM Assessment identified the following key risks associated with the Program: (i) various degrees of public sector capacity constraints across participating countries; and, (ii) IAs do not have effective processes and controls to meet IDA FM standards. A ‘substantial’ FM risk rating was assigned to the Program at the appraisal stage. To address these risks, (i) a Program FM Manual (as a part of the POM) detailing the roles and responsibilities of parties concerned and specifying the FM procedures and regulations of the Program is to be adopted; and, (ii) the TFSU will be responsible for overall Program FM.

- *Measures completed during preparation:* Accounting software installed, operational and producing requisite reports.
- *Measures to be completed within 60 days of effectiveness:* a ‘Service Agreement’ between the TFSU and each country’s EA is to be signed.
- *Measures to be carried out throughout Program implementation:* An appropriate procurement record keeping and monitoring system (including adequate document storage) is established, operated and managed by a designated procurement specialist. Ad-hoc advanced procurement training will be conducted on an as-needed basis and availability of training courses to be organized by World Bank Sydney Office. Additional training will be undertaken during Program implementation as part of the training and capacity building.

23. FM roles and responsibilities between the TFSU and PSTs are outlined in Table A2.3.

**Table A2.3: FM Coordination between TFSU and PSTs**

TFSU responsibilities	<ul style="list-style-type: none"> <li>• Ensure appropriate records of FM systems and compliance with requisite accounting and FM practices.</li> <li>• Support Governments in monitoring and management of Grant Agreement proceeds and DAs.</li> <li>• Provide guidance on specific FM arrangements.</li> <li>• Monitor and review financial performance of the Program in relation to disbursements schedules.</li> <li>• Assist Program participants with preparation of annual disbursement plans and budgets.</li> <li>• Assist in the implementation of accounting procedures in the payment process: <ul style="list-style-type: none"> <li>- Reviews certificates for payments submitted by contractors and confirms IA approval.</li> <li>- Prepares Withdrawal Applications on behalf of IAs.</li> <li>- Retains statement of expenditures to support replenishment requests.</li> </ul> </li> <li>• Provide control of expenditures for Program participants.</li> <li>• Ensure reconciliation of Government and donor financial records.</li> <li>• Develop and Provide updates, revisions to FM Manual (which is part of the POM) as may be required.</li> <li>• Ensure the production of the Quarterly Interim Financial Reports for each of the grants.</li> <li>• If required prepare a consolidated quarterly financial report for management.</li> <li>• Review audit reports, and provide recommendations to PST accountant.</li> <li>• Assist external auditors as may be necessary.</li> <li>• Prepare reports for IDA, as required.</li> </ul>
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PST responsibilities	<ul style="list-style-type: none"> <li>• Approve and authorize certificates for payments submitted by contractors.</li> <li>• Prepares Statement of Expenditures for PST-related reimbursements.</li> <li>• Approves and submits withdrawal applications prepared by TFSU.</li> <li>• Prepare reports for TFSU, as required.</li> <li>• Maintain a DA for small incidental payments relating to their grant.</li> </ul>
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24. **Project Staffing:** The TFSU, which includes a Financial Manager and an experienced Accountant, will be responsible for FM. The respective PSTs in each IA will also include a project accountant. The Financial Manager, with support from the Account in the TFSU, will provide guidance to, and coordinate with, each PST. Training on Bank FM requirements and disbursement procedures is also to be provided to the PSTs and relevant FM personnel in the respective implementing entities.

25. **Budgeting and Counterpart Funding Arrangements:** In consultation with each NSC, the IA will be required to prepare and submit a project budget covering the life of the project, for consolidation by the TFSU. This total Program budget will be broken down by year, and revised annually. Based on this annualized budget, an annual procurement plan, physical works schedule, financial plan, and disbursement plan should be prepared to detail how the budget will be achieved. Details are to be provided in the Program FM Manual.

26. **Accounting:** The TFSU will provide accounting services for the entire Program. The TFSU uses QuickBooks accounting software, which has sufficient functionality to: (i) record all financial payments under the Program; (ii) record transfers between IDA and project DAs; (iii) record cash flow forecasts; (iv) record the amounts paid to contracts; (v) report in formats acceptable to IDA; and, (vi) performs bank reconciliations.

27. **Funds Flow Arrangements:** The Program will be able to use any of the four disbursement methods: (i) direct payment; (ii) replenishment; (iii) reimbursement; and, (iv) special commitment. The DA, one of which will be in each country, which will be used for relatively small disbursements related to project management support and internal operation costs, will then be funded following submission of a satisfactory withdrawal application (prepared by TFSU for each country, signed by the relevant authorized signatories).

28. **Management of Designated Accounts:** The IA will be responsible for managing their respective DA. Reconciliation of the DA will be done on a monthly basis (or with each Withdrawal Application) and reported to the TFSU using an agreed format presented in the FM Manual.

29. **Quarterly Interim Financial Reports (IFRs):** The individual IFRs from each country will be required to be submitted to IDA not later than 45 days after the end of each reporting quarter. The current accounting software will be configured to produce IFRs in the format to be agreed during initial stages of implementation. A consolidated report may also be produced to meet management needs.

30. **Annual Project Financial Statements (FS):** The FSs will cover all transactions of the project components and activities. The FSs must be prepared on a modified cash basis in accordance with international and national accounting standards. The FSs will consist of:

- A Statement of Sources and Uses of Funds / that includes all Cash Receipts and Payments and payments by third parties on behalf of the entity.



- The Accounting Policies Adopted and Explanatory Notes. The explanatory notes should be presented in a systematic manner with items on the Statement of Cash Receipts and Payments being cross referenced to any related information in the notes. Examples of this information include a summary of fixed assets by category of assets, and a schedule of grant withdrawals, listing individual withdrawal applications;
- A Management Assertion that IDA funds have been spent in accordance with the intended purposes as specified in the relevant IDA Grant Agreement; and,
- The annual FSs are required to be audited and submitted to IDA within six months of the end of each financial year.

31. **Independent Financial Audits:** The annual FSs for each country will be audited in accordance with international auditing standards by independent auditors and TOR acceptable to IDA. The TFSU will manage the selection process of the auditing assignment. It will appoint the auditor(s) at the early stage, within six months after the signing of the FA. The audited FSs and audit reports will be submitted to IDA within six months of the end of each financial year, and the date of closing of the project. The annual FSs and audit reports will be made publicly available through the project web sites. The cost of audits will be financed from project funds.

### **Disbursements**

32. Given the type of works and services to be carried out under the Program, it is anticipated that the majority of disbursements will be made through direct payment to suppliers, contractors and consultants for eligible expenditures incurred under the Program. The minimum application level for direct payment is set in the disbursement letter for each project. In addition, DAs, one for each Grant Agreement under the Program, will be opened at a commercial bank with terms and conditions satisfactory to IDA. The IDA DAs will have an authorized ceiling as stated in the Disbursement Letter. Replenishment applications will be submitted monthly or when the DA is drawn by one-third of the authorized ceiling, whichever occurs first. The Program will not finance land acquisition.

### **Procurement**

33. The procurement capacity assessment identified the following main risks: (i) Program coordination of several projects in multiple countries; (ii) weak institutional arrangements and low capacity; (iii) market constraints due to geography; and, (iv) procurement complexity. The Program's overall procurement risk is rated high. A key Program-level mitigation measure that addresses identified capacity constraints and supports regional harmonization includes establishment of the TFSU which will be responsible for coordinating and handling all procurement activities up to contract signing. Furthermore, a RPEC with members from the TFSU and technical specialists/representatives representing each IA will foster stakeholder ownership in the process and outcomes. Contract packaging arrangements for goods, works and consultants have also been identified that are intended to maximize market interest.

34. The following measures were agreed with the IAs:

- *Measures completed during preparation:* Procurement and contract management specialists have been retained by the TFSU. A Service Agreement was prepared outlining the roles and responsibilities of the TFSU, the RPEC, and each IA in the procurement and contracting process.

- *Measures to be completed at the start of the Program:* The Service Agreement is to be signed between EAs and TFSU. Procurement training is to be provided by World Bank procurement specialists at the launch workshop. The contract for the Design and Supervision Consultant, which includes procurement support, is to be signed and the consultant mobilized.
- *Measures to be carried out throughout Program implementation:* The TFSU will be responsible for managing procurement process, but procurement recommendations for award and other decisions of the procurement process will be made by the RPEC. PSTs will be responsible for managing all project activities with their jurisdictions including contract award and signature, monitoring implementation progress of their respective projects, providing authorization for contract payments and providing progress reports for consolidation by the TFSU. An appropriate procurement record keeping and monitoring system (including adequate document storage) is to be established, operated and managed by the TFSU. Ad-hoc advanced procurement training will be conducted on an as-needed basis and training courses will be organized by the World Bank Sydney Office. Additional training will be undertaken during project implementation as part of the training and capacity building. Staff will be encouraged to take international procurement training courses.

35. Procurement roles and responsibilities between the TFSU and PST are outlined in Table A2.4.

**Table A2.4: Procurement Coordination between TFSU and PST**

TFSU responsibilities	<ul style="list-style-type: none"> <li>• Ensure all procurement is conducted in accordance with World Bank guidelines.</li> <li>• Prepare, review and update Procurement Plans, as required.</li> <li>• With the support of the Design and Supervision Consultant: <ul style="list-style-type: none"> <li>- Prepare bidding documents (for civil works, goods, and consulting services).</li> <li>- Prepare Request for Expressions of Interest.</li> <li>- Prepare shortlist evaluation report.</li> <li>- Coordinate inputs and finalize TOR and cost estimates.</li> <li>- Respond to bidders' questions and clarification of Request for Proposals.</li> <li>- Lead the RPEC and coordinate the inputs of the committee members for all Program activities.</li> <li>- Prepare Bid Evaluation Reports for submission to IDA, as required.</li> <li>- Lead contract negotiations.</li> </ul> </li> <li>• Provide support to PSTs in national procurements.</li> <li>• Prepare reports for submission to IDA, as required.</li> </ul>
PST responsibilities	<ul style="list-style-type: none"> <li>• Provide inputs to the TFSU as required for: <ul style="list-style-type: none"> <li>- Preparing bidding documents.</li> <li>- Preparing Request for Expressions of Interest.</li> <li>- Preparing shortlist evaluation report.</li> <li>- Responding to bidders' questions and clarification of Request for Proposals.</li> <li>- Preparing Bid Evaluation Reports for submission to IDA, as required.</li> <li>- Contract negotiations.</li> </ul> </li> <li>• Participate in RPEC.</li> <li>• Sign contracts.</li> <li>• Monitor contract progress.</li> <li>• Prepare reports for submission to IDA, as required.</li> </ul>

36. Procurement for the proposed Program would be carried out in accordance with the World Bank's "Guidelines: Procurement Under IBRD Loans and IDA Credits" dated January 2011; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated January 2011, and the specific provisions stipulated in the Grant Agreements.

37. **Procurement of Works:** Works will be procured through International Competitive Bidding (ICB) by using the World Bank's Standard Bidding Documents (SBD). Small value works less than US\$100,000 may be procured through Shopping. Because of a lack of contracting capacity in the participating countries, no National Competitive Bidding (NCB) procurement is planned, so NCB provisions are not included under the Program. The civil works to be procured under Phase 1 of the Program are shown in Table A2.5.

**Table A2.5: Phase 1 Civil Works by Country**

Description of Works	Package	Kiribati (US\$ m)	Tonga (US\$ m)	Tuvalu (US\$ m)	Total (US\$ m)
Airfield lighting and cabling	W-1	\$1.83	\$0.77	\$0.00	\$2.59
Security Fence	W-1	\$2.00	\$0.25	\$0.00	\$2.25
Resurface Runway and Markings	W-1	\$0.00	\$16.95	\$4.58	\$21.53
Airport Seawall and Construction of Bonriki Village Facilities	W-1	\$0.10	\$0.00	\$0.00	\$0.10
Terminal building improvements	W-2	\$2.50	\$0.88	\$2.00	\$5.38
Fire Tender Vehicle Shelter	W-2	\$0.13	\$0.00	\$0.00	\$0.13
Maintenance Equipment Building	W-2	\$0.15	\$0.00	\$0.00	\$0.15
Kiribati PST Accommodation	W-2	\$0.20	\$0.00	\$0.00	\$0.20
Resurfacing Road CXI-London	W-3	\$3.50	\$0.00	\$0.00	\$3.50
Emergency Infrastructure Repairs	W-4	\$0.05	\$0.05	\$0.05	\$0.15
	<b>Total</b>	<b>\$10.45</b>	<b>\$18.90</b>	<b>\$6.63</b>	<b>\$35.97</b>

38. **Force Account:** Small scale civil works may be undertaken using Force Account (FA) in order to ensure that airports are able to operate without disruption, for example to address emergency repairs due to storm damage, or to provide temporary repairs or runways until such a time as the large-scale civil works activities to rehabilitate the runway is completed. Failure to properly maintain these deteriorated runways could lead to 'Foreign Object Damage' (FOD) risks to aircraft, endangering aircraft safety.

39. During Phase 1, FA will be used at TRW to urgently patch some 325 m<sup>2</sup> of runway. There are no private contractors available in Tarawa to undertake such works, and the Kiribati MPWU successfully undertook FA works under the World Bank-financed KAP II project in previously. These works will be designed and supervised by the CXI-London road Design and Supervision Consultant, who is designing and supervising the NZAP-financed CXI runway rehabilitation.

40. The total aggregate amounts for use of FA in the three participating countries in Phase 1 will not exceed US\$150,000 with an estimated value of US\$50,000 for each country. Each case of FA is subject to IDA's prior review.

41. In all instances the IAs shall review each case of FA to ensure that the following requirements are satisfied: (i) the proposed FA unit has the capacity and experience to do the work; (ii) payments shall be made on an appropriate basis; (iii) unit rates shall be appropriate established; and, (iv) there shall be adequate quality assurance of the works.

42. **Procurement of Goods:** Goods estimated to cost US\$100,000 equivalent or more would be procured through ICB procedures. All ICB procurement will be done using the appropriate World Bank Standard Bidding Document (SBD). Off-the-shelf goods of small value of less than US\$100,000 may be procured through Shopping. Direct Contracting may be used, but only in exceptional circumstances as stated in paragraph 3.7 of the Procurement Guidelines. The goods to be procured under Phase 1 of the Program are shown in Table A2.6.

**Table A2.6: Phase 1 Goods by Country**

Description of Goods	Package	Kiribati (US\$ m)	Tonga (US\$ m)	Tuvalu (US\$ m)	Total (US\$ m)
Navigation Aids	G-1	\$0.27	\$0.06	\$0.00	\$0.33
Automatic weather station (AWS)	G-1	\$0.28	\$0.28	\$0.14	\$0.70
Automatic dependent surveillance-broadcast (ADS-B)	G-1	\$0.80	\$0.80	\$0.40	\$2.00
Security screening equipment	G-1	\$0.16	\$0.24	\$0.12	\$0.52
Air Traffic Control Equipment	G-1	\$0.24	\$0.00	\$0.25	\$0.49
Improved Power Supply	G-1	\$0.11	\$0.00	\$0.00	\$0.11
Pacific Aviation Safety Network (PASnet)	G-1	\$0.40	\$0.20	\$0.20	\$0.80
Fire Tender Vehicle	G-2	\$0.92	\$0.00	\$0.80	\$1.72
Fire Safety Equipment for Fire Crews	G-2	\$0.04	\$0.03	\$0.03	\$0.10
Airfield Maintenance Equipment	G-3	\$0.15	\$0.00	\$0.08	\$0.23
Laboratory/Testing Equipment	G-4	\$0.00	\$0.00	\$0.05	\$0.05
Fuelling Equipment	G-5	\$0.00	\$0.05	\$0.00	\$0.05
<b>Total</b>		<b>\$3.37</b>	<b>\$1.66</b>	<b>\$2.07</b>	<b>\$7.09</b>

43. **Contract Packaging:** In view of the isolated locations of the Program countries, the Program adopted a contract packaging strategy that consolidates, to the extent possible, similar bidding into single packages. This is being done for technical reasons, cost-effectiveness considerations, risk management and mobilization costs, and as a strategy to attract wider participation. For purpose of standardization and compatibility of equipment, similar goods required by the participating countries are packaged together and procured under a single package. Separate contracts will be signed by each country for the supply of works and goods. Table A2.7 shows the proposed Phase 1 packaging.

44. **Selection of Consultant Firms:** Consulting contracts expected to cost more than US\$200,000 equivalent per contract would use the Quality and Cost Based Selection (QCBS) or Quality Based Selection (QBS) in conformity with the Consultants Guidelines. Consulting services estimated under US\$200,000 equivalent per contract may follow the Selection Based on Consultants Qualifications (CQS). The Least-Cost Selection (LCS) would be used for assignment of auditor services and the Obstacle Limitation Surveys. Under the circumstances described in paragraph 3.9 of the Consultants Guidelines, consultants may be selected and awarded on a Single-Source Selection (SSS), subject to IDA's prior approval. The consultants to be procured in Phase 1 of the Program are shown in Table A2.8.

**Table A2.7: Proposed Phase 1 Packaging**

Package	Description	Items	Supply
1	Navigation Aids and Safety	Navigation Aids Automatic weather station (AWS) Automatic dependent surveillance-broadcast (ADS-B) Security screening equipment Air Traffic Control Equipment Pacific Aviation Safety Network (PASNet) Improved Power Supply	One package for all countries
2	Airport Infrastructure	Airfield lighting and cabling Security Fence Resurface Runway and Markings Airport Seawall Construction	Separate lots for each country
3	Airport Buildings	Terminal building improvements Fire Tender Vehicle Shelter Maintenance Equipment Building PMU Accommodation	Separate lots for each airport
4	Fire Safety	Fire Tender Vehicle Fire Safety Equipment for Fire Crews	One package for all countries
5		Airfield Maintenance Equipment	One package for all countries
6		Laboratory/Testing Equipment	Individual procurement
7		Fuelling Equipment for Vava'u Airport	Individual procurement
8		Resurfacing Road CXI-London	Individual procurement

**Table A2.8: Phase 1 Consulting Services**

Description of Consultancy	Procurement Method	Kiribati (US\$ m)	Tonga (US\$ m)	Tuvalu (US\$ m)	Regional <sup>1/</sup> (US\$ m)	Total (US\$ m)
Obstacle Limitation Survey	LCS	\$0.06		\$0.04		\$0.10
Design and Supervision of Kiritimati-London Road	SS	\$0.55				\$0.55
Design and Supervision Aviation Investments	QCBS	\$1.61	\$1.68	\$0.71		\$4.00
Support CAAs and Line Ministries	QCBS/CQS/IC	\$0.50	\$0.50	\$0.25		\$1.25
Implement Regulations	CQS	\$0.20				\$0.20
Air Transport Master Plan	CQS	\$0.20				\$0.20
Establishment of an Airports Authority Act for Tonga	IC		\$0.05			\$0.05
ICAO Baseline Audit	SS	\$0.05	\$0.05	\$0.05		\$0.15
PASO Safety and Security Oversight	SS	\$0.25	\$0.35	\$0.15		\$0.75
PASO Business Plan	CQS				\$0.20	\$0.20
Options for Regional Aviation Supply	QCBS				\$0.25	\$0.25
Long-Term Sustainability for Regional Aviation Infrastructure	CQS				\$0.20	\$0.20
Analysis of Flight Information Region (FIR)	IC				\$0.05	\$0.05
Kiribati Airport Management and Operations	QCBS	\$2.40				\$2.40
Funafuti Operations Options	CQS			\$0.20		\$0.20
Project Support Team	IC	\$0.36		\$0.20		\$0.56
Financial Audits	LCS	\$0.03	\$0.03	\$0.03		\$0.09
Tonga Project Manager	IC		\$0.24			\$0.24
TFSU - Consultants	IC	\$0.73	\$0.92	\$0.38		\$2.03
<b>Total</b>		<b>\$6.94</b>	<b>\$3.82</b>	<b>\$2.01</b>	<b>\$0.70</b>	<b>\$13.47</b>

Notes: 1/ The regional studies and PASO Business Plan will be managed by the TFSU on behalf of the Program and financed through provisions in Tonga's Grant Agreement.

45. **Single-Source Selection:** The following Single-Source cases were identified and are included in the Program: (i) a consulting firm was selected and contracted through Single-Source Selection for design and supervision of CXI-London Road Resurfacing in Kiribati in conformity with Para. 3.10 of the Consultants Guidelines (May 2010), i.e. the task was a continuation of the previous works for which the consulting firm was selected competitively and performed satisfactorily; (ii) ICAO will be Single-Sourced by the Program countries to provide aviation baseline audits because ICAO as an UN agency has unique experience in conformity with Para. 3.15 of the Consultants Guidelines; and, (iii) PASO will be Single-Sourced by the Program countries in accordance with the country's PICASST treaty commitments to provide the services of safety and security oversight in conformity with Para. 3.9 of the Consultants Guidelines. As described in Annex 1, the PASO activities mentioned in (iii) above are being financed by the GoA through PRIF, in part to assist PASO to achieve financial sustainability.

46. Individual consultants will be selected and contracts awarded in accordance with the provisions of Para. 5.1 through 5.5 of the Consultants Guidelines. Under the circumstances described in Para. 5.6 of the Consultants Guidelines, individual consultants may be selected and awarded on a Single-Source basis, subject to IDA's prior approval.

47. **Prior Review:** Prior review and procurement method thresholds for the Program are shown below and are included in the procurement plan.

Procurement Methods	Procurement Thresholds	Prior Review Thresholds
<b>Goods:</b>		
International Competitive Bidding	≥US\$100,000	All contracts subject to prior review
Shopping	<US\$100,000	First shopping contract subject to prior review
Direct Contracting		All contracts subject to prior review
<b>Works:</b>		
International Competitive Bidding	≥US\$100,000	All contracts subject to prior review
Shopping	<US\$100,000	First shopping contract subject to prior review
Force Account	Only apply to emergency repair works, but the total amount for each country not exceeding US\$50,000.	All FA works subject to prior review
<b>Selection of Consultants:</b>		
Selection Methods	Applicability	Prior Review Thresholds
Firms (QCBS, QBS, LCS, CQS and SSS)	In accordance with the World Bank's Consultants Guidelines	≥US\$100,000 (exception made to SSS, where all contracts under SSS subject to prior review)
Individuals		≥US\$50,000 (exception made to SSS, legal and procurement related assignments, where all contracts are subject to prior review)

48. **Frequency of Procurement Supervision:** In addition to the prior-review to be carried out by IDA, IDA procurement supervision missions will visit the field to carry out post-review of procurement activities every 12 months. The post review sampling ratio will be 50% of contracts.

49. **Procurement Plan:** The overall procurement plan under Phase 1 of the Program was prepared and agreed upon prior to negotiations and then finalized during negotiations. It will also be available in the Program's database and on the World Bank's external website. The procurement plan will be updated in agreement with IDA annually, or as required, to reflect Program implementation needs and improvements in institutional capacity. A summary of the Procurement Plan under Phase 1 of the Program is given in Tables A2.9 and A2.10. These do not include training activities.

50. **Advance Contracting and Retroactive Financing:** All advance procurement shall be conducted in accordance with the World Bank's Procurement Guidelines and the Consultants Guidelines and are subject to IDA's prior review. The advance contracts include: (i) the consulting contract for design and supervision of CXI-London road resurfacing in Kiribati which was contracted under Single-Source Selection with IDA's prior clearance; (ii) the emergency repair works at TRW with a cost estimate of up to US\$50,000 which would be carried out through FA; and (iii) TFSU consultants. Additional contracts which may be eligible, depending upon the date of signing of the Grant Agreements include: (i) the consulting contract for design and supervision for aviation infrastructure works (to be selected through QCBS); (ii) the works contract for resurfacing road CXI-London (to be procured through ICB); and (iii) the consulting contract for air transport master plan in Kiribati (to be selected through CQS). The eligible expenditures occurred before the date of grant signing and on or after March 1, 2011 for advance contracts in Phase 1 countries, up to a limit of SDR 630,557 per country, would be eligible for Bank retroactive financing.

### C. Environmental and Social

51. Annexes 7 to 9 describe the environmental and social impacts on the Phase 1 projects in detail. At this stage, the Program triggers two World Bank safeguard policies: (i) Environmental Assessment (OP4.01); and, (ii) Involuntary Resettlement (OP4.12). An ESMF was developed to outline the necessary safeguard protocols, which is consistent with World Bank safeguard policies and procedures. While the Operational Policy on Indigenous Peoples (OP4.10) has not been triggered, the ESMF includes appropriate measures for addressing potential impacts in the event indigenous peoples are identified during implementation. More details on the environment and social aspects of the Program are provided with the ESMF which is on file.

52. **Safeguards Implementation:** The Design and Supervision consultancy will be responsible for monitoring compliance with the EMP, and enforcing corrective actions, as necessary. It will also oversee implementation of the RPF (and Indigenous Peoples Plan, if applicable). Contractual requirements will include (quarterly) monitoring reports to the IA and to IDA. The IAs in each country, with support from their respective ministries responsible for social and environmental safeguards, will ultimately be responsible for monitoring compliance.

**Table A2.9: Summary of Procurement of Works and Goods – Phase 1**

Package	Description	Package Number	Kiribati (US\$ m)	Tonga (US\$ m)	Tuvalu (US\$ m)	Item Total (US\$ m)	Package Total (US\$ m)	Method	Prequal.	Review by Bank	Expected Bid Opening Date	Comments
<b>Works</b>												
Airport Infrastructure	Airfield lighting and cabling	W-1	\$1.83	\$0.77	\$0.00	\$2.59	\$26.47	ICB	No	Prior	Jul-12	One package with three lots (one per country)
	Security Fence	W-1	\$2.00	\$0.25	\$0.00	\$2.25						
	Resurface Runway and Markings	W-1	\$0.00	\$16.95	\$4.58	\$21.53						
	Airport Seawall and Construction of Bonriki Village Facilities	W-1	\$0.10	\$0.00	\$0.00	\$0.10						
Airport Buildings	Terminal building improvements	W-2	\$2.50	\$0.88	\$2.00	\$5.38	\$5.86	ICB	No	Prior	Feb-13	One package with three lots (one per country)
	Fire Tender Vehicle Shelter	W-2	\$0.13	\$0.00	\$0.00	\$0.13						
	Maintenance Equipment Building	W-2	\$0.15	\$0.00	\$0.00	\$0.15						
	Kiribati PST Accommodation	W-2	\$0.20	\$0.00	\$0.00	\$0.20						
CXI Road	Resurfacing Road CXI-London	W-3	\$3.50			\$3.50	\$3.50	ICB	No	Prior	Dec-11	Included under advanced contracting
Emergency	Emergency Infrastructure Repairs	W-4	0.05	0.05	0.05	\$0.15	\$0.15	FA	No	Prior	Dec-11	Included under advanced contracting. Separate package for each country
<b>Goods</b>												
Navigation Aids	Navigation Aids	G-1	\$0.27	\$0.06	\$0.00	\$0.33	\$4.95	ICB	No	Prior	Sep-12	Single package
	Automatic weather station (AWS)	G-1	\$0.28	\$0.28	\$0.14	\$0.70						
	Automatic dependent surveillance-broadcast (ADS-B)	G-1	\$0.80	\$0.80	\$0.40	\$2.00						
	Security screening equipment	G-1	\$0.16	\$0.24	\$0.12	\$0.52						
	Air Traffic Control Equipment	G-1	\$0.24	\$0.00	\$0.25	\$0.49						
	Improved Power Supply	G-1	\$0.11	\$0.00	\$0.00	\$0.11						
	Pacific Aviation Safety Network (PASNet)	G-1	\$0.40	\$0.20	\$0.20	\$0.80						
Fire Safety	Fire Tender Vehicle	G-2	\$0.92	\$0.00	\$0.80	\$1.72	\$1.82	ICB	No	Prior	Mar-12	Single package
	Fire Safety Equipment for Fire Crews	G-2	\$0.04	\$0.03	\$0.03	\$0.10						
Maint. Eq.	Airfield Maintenance Equipment	G-3	\$0.15	\$0.00	\$0.08	\$0.23	\$0.23	ICB	No	Prior	Mar-12	Single package
Lab. Eq.	Laboratory/Testing Equipment	G-4	\$0.00	\$0.00	\$0.05	\$0.05	\$0.05	SH	No	Prior	Mar-12	Single package
Fuel Eq.	Fuelling Equipment	G-5	\$0.00	\$0.05	\$0.00	\$0.05	\$0.05	SH	No	Prior	Mar-12	Single package
<b>Total</b>			<b>\$13.82</b>	<b>\$20.56</b>	<b>\$8.69</b>	<b>\$43.06</b>	<b>\$43.06</b>					



**Table A2.10: Summary of Selection of Consultants – Phase 1**

Description	Kiribati (US\$ m)	Tonga (US\$ m)	Tuvalu (US\$ m)	Item Total (US\$ m)	Selection Method	Review by Bank	Expected Proposal Submission Date	Comments
Obstacle Limitation Survey	\$0.06		\$0.04	\$0.10	LCS	Prior	Feb-12	
Design and Supervision of CXI-London Road	\$0.55			\$0.55	SS	Prior	Mar-11	Selected and contracted through Single-Source with IDA's prior clearance
Design and Supervision Aviation Investments	\$1.61	\$1.68	\$0.71	\$4.00	QCBS	Prior	Dec-11	Included under advance contracting
Support CAAs and Line Ministries	\$0.50	\$0.50	\$0.25	\$1.25	QCBS/CQS/IC	Prior	Apr-12	Specific selection method will be determined during the implementation based on characteristics of each assignment.
Implement Regulations	\$0.20	\$0.00	\$0.00	\$0.20	CQS	Prior	Oct-12	
Air Transport Master Plan	\$0.20	\$0.00	\$0.00	\$0.20	CQS	Prior	Dec-11	Included under advance contracting
Establishment of an Airports Authority Act for Tonga	\$0.00	\$0.05	\$0.00	\$0.05	IQ	Prior	Dec-12	
ICAO Baseline Audit	\$0.05	\$0.05	\$0.05	\$0.15	SS	Prior	Dec-11	In conformity with Para. 3.15 of the Consultants Guidelines (Selection of UN Agency)
PASO Safety and Security Oversight	\$0.25	\$0.35	\$0.15	\$0.75	SS	Prior	Dec-11	In conformity with Para. 3.9 of the Consultants Guidelines.
PASO Business Plan	\$0.00	\$0.20	\$0.00	\$0.20	CQS	Prior	Dec-11	
Options for Regional Aviation Supply	\$0.00	\$0.25	\$0.00	\$0.25	QCBS	Prior	Sep-12	
Long-Term Sustainability for Regional Aviation Infrastructure	\$0.00	\$0.20	\$0.00	\$0.20	CQS	Prior	Jan-12	
Analysis of Flight Information Region (FIR)	\$0.00	\$0.05	\$0.00	\$0.05	IC	Prior	Jan-12	
Kiribati Airport Management and Operations	\$2.40	\$0.00	\$0.00	\$2.40	QCBS	Prior	Jan-12	
Funafuti Operations Options	\$0.00	\$0.00	\$0.20	\$0.20	CQS	Prior	Mar-12	
Project Support Team	\$0.36	\$0.00	\$0.20	\$0.56	IC	Prior		
Financial Audits	\$0.03	\$0.03	\$0.03	\$0.09	LCS	Prior	Mar-12	
Tonga Project Manager	\$0.00	\$0.24	\$0.00	\$0.24	IC	Prior		
TFSU - PAIP Director	\$0.14	\$0.18	\$0.07	\$0.40	IC	Prior		
TFSU - Financial Manager	\$0.09	\$0.11	\$0.04	\$0.24	IC	Prior		
TFSU - Financial Advisor	\$0.02	\$0.03	\$0.01	\$0.06	IC	Prior		
TFSU - Accountant	\$0.04	\$0.05	\$0.02	\$0.12	IC	Prior		
TFSU - Lead Procurement Specialist	\$0.11	\$0.14	\$0.06	\$0.30	IC	Prior		
TFSU - PAIP Procurement Assistant	\$0.04	\$0.05	\$0.02	\$0.12	IC	Prior		
TFSU - Contract Manager	\$0.06	\$0.07	\$0.03	\$0.16	IC	Prior		
TFSU - Administration Assistant/Coordinator	\$0.03	\$0.04	\$0.01	\$0.08	IC	Prior		
TFSU - Aviation Procurement Specialist	\$0.05	\$0.07	\$0.03	\$0.15	IC	Prior		
TFSU - Environmental/Social Specialist	\$0.04	\$0.05	\$0.02	\$0.10	IC	Prior		
TFSU - Pavement Engineer	\$0.04	\$0.05	\$0.02	\$0.10	IC	Prior		
TFSU - Electrical Engineer	\$0.04	\$0.05	\$0.02	\$0.10	IC	Prior		
TFSU - Building Engineer	\$0.04	\$0.05	\$0.02	\$0.10	IC	Prior		
<b>Total</b>	<b>\$6.94</b>	<b>\$4.52</b>	<b>\$2.01</b>	<b>\$13.47</b>				

## **D. Monitoring & Evaluation**

53. The IAs will monitor the overall performance of their projects and their implementation. This includes: (i) the extent to which project objectives are being achieved; (ii) the administrative, physical and financial progress of implementation of the project components; and, (iii) the extent to which required implementation procedures, such as the EMP and RPF when applicable, are in compliance. These monitoring and reporting arrangements will be enumerated in detail in the POM. Monitoring will continue for three years after completion of the construction program and annual reports of the results of the survey program will be prepared. These reports will measure performance against the results indicators established in the results frameworks (Annexes 7 to 9). On completion of the monitoring period, a Final Project Review will be undertaken, to provide an overall evaluation of the project. These will be combined into a Final Program Review report.

54. The majority of the data for the monitoring and evaluation, including baseline data, will be gathered by the project's TFSU with support from the Design and Supervision Consultant. Baseline safety and security audits for each airport will be carried out at the beginning of each project. The costs of data collection are included as part of the Design and Supervision Consultant's TOR, and these costs are included in the project costs.

55. Data on compliance with the EMP will be collected by the Design and Supervision Consultant on specified monitoring forms as part of their regular duties. The costs of data collection are included as part of their TOR. Where there are continued violations of the EMP the Design and Supervision Consultant shall arrange training and identify other actions to be taken.

56. Compliance with the RPF, if applicable, will also be compiled by the Design and Supervision Consultant. This will include the preparation of RPs, as applicable, forms with payments of entitlements, and report on grievances.

57. The TFSU will submit to IDA: (i) quarterly Design and Supervision Consultant reports; and, (ii) quarterly progress reports in a format acceptable to IDA. There shall be annual audit reports.

## **E. Role of Partners**

58. **Asian Development Bank:** The ADB is providing parallel finance of US\$0.9 million for technical assistance to PASO and its member countries. The ADB technical assistance will "... increase aviation security and safety in member countries by ensuring that aviation laws, regulations, technical documentation, and procedures are current, compliant with ICAO requirements, and harmonized across the region. A fragmented system will be replaced with a consistent and proactive operating environment, thus improving security and safety and reducing costs. It will create economies of scale that allow PASO to become financially self-sustaining, while lowering costs and improving service quality". The activities are focused on helping the individual PASO countries. The goal of the activities on the PAIP—which were designed in close consultation with the ADB—are to complement these country activities by preparing a business plan for PASO, helping participating countries to finance PASO services, and assisting with drafting laws, regulations, manuals and their implementation, not covered under the ADB TA.

59. **Pacific Region Infrastructure Facility (PRIF):** PRIF is a multi-donor co-ordination mechanism comprised of AusAID, ADB, NZAP, EC/EIB and the World Bank. The GoA will provide a US\$3.19 million grant through PRIF for regional activities on the Program (all phases) to cover: (i) financing of PASO business plan; (ii) financing of ICAO and PASO safety and security oversight; (iii) the regional study into options for regional aviation supply; (iv) the regional study into the long-term sustainability of aviation infrastructure; and, (v) the analysis of the FIR. These funds will be provided to the Program by the GoA through the PRIF Trust Fund administered by the World Bank. The PRIF Grant Agreement is expected to be signed within the first year of Program implementation. An event of default is included should the agreement not be signed by December 31, 2013.

60. **Parallel Financing:** Although not included in the Program costs, the NZAP is providing NZ\$ 17 million in parallel finance for resurfacing the CXI runway. Taiwan, China has provided a loan of AU\$14 million towards resurfacing the TRW runway. The NZAP works will be completed by early 2012. The Taiwan, China works will be supervised under the PAIP project.

### Annex 3: Implementation Support Plan

1. The strategy for implementation support was developed based on the nature of the Program and its risk profile. Risks considered to be significant relate to capacity constraints within the implementing entities, commitment to institutional reforms and the quality of infrastructure to be built. The proposed mitigation measures to contain these risks are integrated into various Program design features and targeted technical assistance packages. Specifically, the strategic approach for implementation support includes the following measures:

- **Capacity Constraints:** The establishment of the TFSU to provide specialized technical expertise, including an Aviation Procurement Specialist, and coordinate all procurement and FM activities, charges a single IA with Program management. Service Agreements to be entered into between the TFSU and EAs will clearly define the roles and responsibilities. The TFSU will also be supported by the Design and Supervision Consultant financed through Program proceeds.
- **Commitment to Reform Agenda:** As the reform agenda represents a key Program outcome, the incorporation of an intermediate result indicator aligns the establishment of a passenger safety and security levy dedicated to financing the CAA and safety and security oversight expenses with the financial sustainability for restructuring PASO, which thereby creates an enabling environment for achieving the envisage sectoral reforms. Furthermore, the Program design includes specific technical assistance related to the reform agenda. Finally, demonstrated commitment to some key reforms is required for countries to be eligible to participate in the Program.
- **Delivery Quality:** In view of the isolated locations of the first three Program countries, and as a measure to attract wider participation, Phase 1 will adopt a contract packaging strategy that consolidates, to the extent possible, similar contracts into bid single packages, with specific lots and contracts signed between lowest evaluated bidders and the Grant recipients. This is being done for technical reasons, and should also result in greater cost-effectiveness due to improved risk management. For Phase 1, a single Design and Supervision Consultant will be competitively tendered and three separate contracts will be signed with each respective IA as a means to ensuring consistency in design quality and clear accountability for final specifications. Risks related to construction quality are mitigated through the use of a 24 month defect liability from the contractor.

#### Implementation Support Plan

2. The Program implementation will be supported by the task team based out of the World Bank's Sydney office. This will ensure that it is possible to rapidly organize field missions should the need arise. Formal missions will be conducted at least three times during the first two years year of implementation, and then at least semi-annually afterwards.

3. IDA's implementation plan is supported by a series of technical reviews and capacity building activities. In addition to periodic reviews by the task team and inputs from procurement, FM, and safeguards specialists, the plan identifies appropriate technical expertise (such as the Pavement Specialist for runways, Building Engineer for terminals) to be retained during critical implementation periods.

Time	Focus	Skills Needed	Resource Estimate (Staff Weeks)
First twelve Months	Technical review of the civil works bidding documents	Civil Engineer	2
		Building Engineer	2
		Pavement Specialist	2
		Procurement Specialist	4
	Technical review of aviation equipment bidding documents	Aviation Specialists	4
	Technical review of TA documents	Technical Specialists	4
	Environmental Monitoring	Environ. Specialist	4
	Resettlement Monitoring	Social Specialist	3
	Review of financial management	Financial Specialist	2
	Implementation Support	ACS	8
12-56 Months	Program Construction	TTL	20
		Civil Engineer	4
	Aviation Equipment Installation	Aviation Specialist	12
	Technical Reviews of TA Outputs	Technical Specialists	20
	Environmental Monitoring	Environ. Specialist	12
	Resettlement Monitoring	Social Specialist	12
	Review of procurement documents	Procurement Specialist	12
	Review of financial management	Financial Specialist	8
	Implementation Support	ACS	32
	Team Leadership	TTL	60

## I. Skills Mix Required

Skills Needed	Number of Staff Weeks	Number of Trips	Comments
ACS	40	4	
Aviation Specialist	16	4	
Building Engineer	1	2	
Civil Engineer	22	8	
Environ. Specialist	16	4	
Financial Specialist	10	5	
Pavement Specialist	2	1	
Procurement Specialist	16	5	
Social Specialist	15	4	
Technical Specialists	24	8	In various disciplines
TTL	82	16	

## II. Partners

Name	Institution/Country	Role
Robert Guild	Asian Development Bank	Director, Transport, Energy and Natural Resources Division
Sonya Cameron	New Zealand Aid Program	Development Program Manager - Kiribati

## Annex 4: Team Composition

### 1. World Bank staff and consultants who worked on the Program:

Name	Title	Unit
Christopher R. Bennett	Task Team Leader/Sr. Transport Specialist	EASNS
Christopher De Serio	Co-Task Team Leader/Operations Analyst	EASIN
Amin Mohammed	Team Assistant	EACNF
Charles E. Schlumberger	Lead Air Transport Specialist	TWTR
Anna L Wielogorska	Sr. Procurement Specialist	EAPPR
Cristiano Costa e Silva Nunes	Procurement Specialist	EAPPR
Daniel Toga	Team Assistant	EACNF
David Whitehead	Financial Management Specialist	EAPFM
Fiona Doube	Team Assistant	EACNF
Jinan Shi	Sr. Procurement Specialist	EAPPR
John Carter Scales	Lead Transport Specialist (Peer Reviewer)	EASC5
John Nyaga	Financial Management Specialist	EAPFM
Marta Molares-Halberg	Lead Counsel	LEGES
Michel Bellier	Lead Transport Specialist (Peer Reviewer)	MNASD
Rodrigo Archondo-Callao	Sr. Highway Engineer	ECSS5
Scott Jared Wilkinson	Junior Professional Associate	EASNS
Teresita Velilla	Program Assistant	EASIN
Tomás Serebrisky	Sr. Infrastructure Economist (Peer Reviewer)	LCSSD
Xioaxin Shi	Junior Professional Associate	EAPCO
Agnieszka Grudzinska	Financial Specialist	Consultant
Alex Visser	Pavement Engineer	Consultant
Andrew Ricover	Aviation Specialist	Consultant
Anil Somani	Environmental Specialist	Consultant
Asif Faiz	Highway Advisor	Consultant
Bernard Baratz	Environmental Specialist	Consultant
Colleen Butcher-Gollach	Infrastructure Specialist	Consultant
Imogene Jensen	Transport Economist	Consultant
Nanda Gasparini	Social Safeguards Specialist	Consultant
Renee Walmsley	Social Safeguards Officer	Consultant
Ron Allan	Transport Economist	Consultant
Sam Sesega	Social Safeguards Specialist	Consultant
Theuns Henning	Highway Engineer	Consultant
Vicki Brown	Aviation Terminal Specialist	Consultant

## **Annex 5: Economic and Financial Analysis**

### **A. Background**

1. Transport is a ‘derived demand’. For example, demand for transport by oil tanker derives from demand for oil. Users of transport consume transport service not because they benefit directly from that consumption (except in cases such as pleasure cruises) but because they wish to consume something else.
2. Aviation is not only a derived demand; it is a premium service competing with shipping to provide services to, from and between the islands of the PICs. Whichever transport service is used, its cost is part of the cost of goods and services being transported. That there is demand for these goods and services show the consumer is prepared to pay for the necessary transport. This suggests transport services can be self-funding. Why, then, is there a need to intervene in the market? Some possible answers are market failure, economies of scale, and pricing.
3. An example of market failure is externalities—which are consequences external to the person who decides whether to consume (a transport service). Usually the decision to fly is not influenced by the consequences of CO<sub>2</sub> emissions or airport noise. The effects of CO<sub>2</sub> emissions and noise are negative externalities.
4. Where there are economies of scale, the price that maximizes beneficial usage (i.e. price equal to marginal cost) will not produce enough revenue to recover the average cost (which is needed for commercial viability). A runway is costly to develop but, once built, the marginal cost per landing is small. To recover the investment, a commercial entity must charge a price much higher than marginal cost. Ironically, charging a high price will deter some users thereby reducing the benefit gained from building the costly runway.
5. Not all beneficiaries are obliged to pay. Users are usually identifiable and can be charged. Non-users are different. Even if air services are not used, their existence has an ‘option value’ since these services are available for use should the need arise—such as in a medical or civil emergency.
6. Remote sparsely-populated PICs scattered over vast tracts of ocean are different from the norm. Air services are more than just an adjunct to consumption of goods and services. They symbolize relief from isolation. Without air services, it would be more difficult to govern and to foster a sense of nationhood. Air services serve humanitarian functions—medical evacuation, SAR operations, disaster relief, and the like. Sea transport could only partly, and inadequately, serve these functions.
7. In accordance with the methodology developed by the MIT International Center for Air Transportation,<sup>38</sup> the economic benefits of air transport can be grouped along the following seven dimensions, all of them highly relevant to PICs:

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<sup>38</sup> Analysis of the Interaction Between Air Transportation and Economic Activity: a Worldwide Perspective, Mariya A. Ishutkina and R. John Hansman, March 2009, MIT International Center for Air Transportation, Department of Aeronautics & Astronautics, Massachusetts Institute of Technology.

- **Enabled Flows of Tourism:** Only limited niche tourism businesses would survive a further curtailment of air services to some of the more remote PICs and the loss of some destinations may have a negative knock-on effect on others;
- **Enabled Flows of Remittances:** Air transportation is extremely important for expatriate workers—it allows them to maintain contact with their families. Remittances, on which so many PIC economies are highly dependent, are typically far from one-sided and are heavily dependent on expectations of homeland-based family maintaining accessible base for family visits, celebrations, sending children back for school holidays etc.;
- **Enabled Flows of Labor:** For remote PICs, air transportation enables access to both low-skill and high-skill labor markets. Agriculture worker participating in New Zealand and Australia seasonal schemes and seafarers are all dependent on air transport;
- **Enabled Flows of Goods:** Air transport is essential to the development of high value and perishable exports which offer the best potential for local private business growth. Exports of tuna jerky, live marine animals and plants for aquariums would collapse without international air connectivity. Air transport is also essential for high value imports. A month or more can pass between the visits of cargo ships to some of the PICs and several months of lead time would be required to ensure the arrival of a one-off order. That leaves most PICs much more dependent on air delivery of essential spare parts, than most other countries. High costs of reduced air services are evident—such as keeping additional equipment on hand because if a spare part is needed the wait could be very long; stockpiling spare parts or just accepting economic losses from key equipment being out of action for extended periods of time;
- **Enabled Flows of Services:** Due to their geographic isolation and limited human resources PICs are uniquely dependent on air services for access to highly skilled professionals in most fields, including education and medicine;
- **Enabled Flows of Knowledge:** Air services enable access to knowledge through educational and training opportunities that cannot be provided locally;
- **Enabled Flows of Investment:** Although foreign investment flows in most PICs are very limited, and thus the impact of their drying up will not be substantial, it is still worth noting that air connectivity is an important prerequisite allowing investors an opportunity to oversee and monitor their investment.

8. All of the benefit flows mentioned above apply to country-specific benefits. In addition, there are significant regional benefits stemming from the regional public good nature of connectivity through aviation, especially critical in the remote expanses of the Pacific Ocean. These would include the following three dimensions:

- Enabling regional navigation;
- Enabling SAR operations; and,
- Enabling optimal long-distance routes to/from region through provision of ETOPS.

9. These benefits are real. The economic benefits of connectivity through international aviation, or rather the devastating costs that a loss of such connectivity would entail, filter through the entire economies of remote PICs. Their quantification, however, is exceedingly difficult. They could well be regarded as simply ‘the cost of doing business’ or maintaining



statehood. This is presumably the attitude taken towards the cost of membership of 34 international organizations, which is borne by Tonga's tiny population of some 106,000 people. Such memberships are not subject to economic assessment.

## B. Quantitative Analysis of Economic Benefits

10. It is not possible to quantify all of the benefits of the proposed Program. The aim of the following analysis is to quantify the benefits to the extent possible. Due to data limitations, it is not possible to quantify regional benefits, so the analysis is limited to country specific benefits.

11. The economic welfare approach, commonly the basis for cost benefit analysis, has a good pedigree in guiding decision making towards options that provide best value for money. Nevertheless, it is increasingly recognized that this approach does not take into account some beneficial impacts on GDP. The tallying of benefits such as journey time savings, cost benefit analysis captures many GDP gains, but not all. The additional GDP impacts were highlighted in the Eddington Transport Study<sup>39</sup> which noted that transport can have significant effects on GDP through, for example, enhancement of clusters and agglomerations, improving the working of labor markets, supporting international trade (so countries can focus on what they do best and buy the rest from others) and supporting foreign direct investment.

12. The main function of aviation services to PICs is to ferry visitors. Air freight is a minor user. Hence the main benefit of a Program to preserve aviation services is the value created by those visitors. Withdrawal or curtailment of aviation services would affect not only the travel industry; the whole economy would be affected by knock-on effects. Thus 'travel GDP for the whole economy' is the relevant measure of the effect of stopping aviation services.

13. The World Trade and Tourism Council's (WTTC) simulated 2010 Tourism Satellite Account (TSA) by Oxford Economics makes the following estimates (US\$):

Country	Direct travel industry GDP			Travel GDP for the whole economy		
	Amount	Share of GDP	Forecasted growth in the next decade	Amount (US\$ m)	Share of GDP	Forecasted growth in the next decade
Tonga	\$14m	4.9%	6.0 % pa	\$39.0	13.8%	4.8% pa
Kiribati	\$3m	3.2%	3.2% pa	\$10.0	11.9%	2.7% pa
Tuvalu <sup>1/</sup>			2.0% pa	\$1.4	4.0%	2.0% pa

Notes: 1/ Tuvalu was not expressly analyzed by Oxford Economics. The figure of 4% of GDP is considered to be a conservative estimate.

14. In a mixed economy that emulates the conventional economic model of productive activities competing for scarce factor inputs, a drop in activity in one sector will release resources for productive use in other sectors. Thus a drop in travel GDP would lead to resources switching to other sectors which would produce commensurately more GDP. For small island economies, however, offsetting lost production in one area by increased production in another is not possible. Lost production in the travel industry will not be made up elsewhere. The loss in travel GDP therefore measures the loss of economic welfare.

<sup>39</sup> "The Eddington Transport Study", The case for action: Sir Rod Eddington's advice to Government, HMSO 2006

## C. Assumptions

15. In the with-project case, the airports and runways are upgraded as soon as possible, i.e. within two years of the commencement of the project. Without-project, no action is taken until forced to do so, i.e. when airlines withdraw direct jet services to Tonga and Kiribati; or end turboprop services to Tuvalu. Were such a situation to arise it would be some time before the necessary action needing to be taken to reinstate services could be determined, planning and design work completed, funding secured, procurement organized and the work accomplished. By taking emergency action, it is assumed that this could be expedited in two years. During those two years travel GDP falls by an amount which takes into account the unique conditions in each country<sup>40</sup>. The assumed declines in travel GDP are: Kiribati—50%; Tonga—25%; Tuvalu—57%.

16. For Tuvalu there was a second impact considered: loss of remittances. Tuvalu's population is only some 10,500, but Tuvalu has a maritime training institute and about 400 active seafarers employed mainly on German ships. Remittances from seafarers and others engaged in seasonal work, such as in New Zealand's horticulture and viticulture sectors, make a significant contribution to the economy. Such work depends on regular air services and it is plausible that disruption of air services might wipe out these opportunities. Tuvalu's remoteness and the cost of air travel is already an impediment to employment of Tuvaluans. The analysis assumes that, during disruption of air services, remittances fall from US\$5 million to US\$3 million, which may be optimistic.

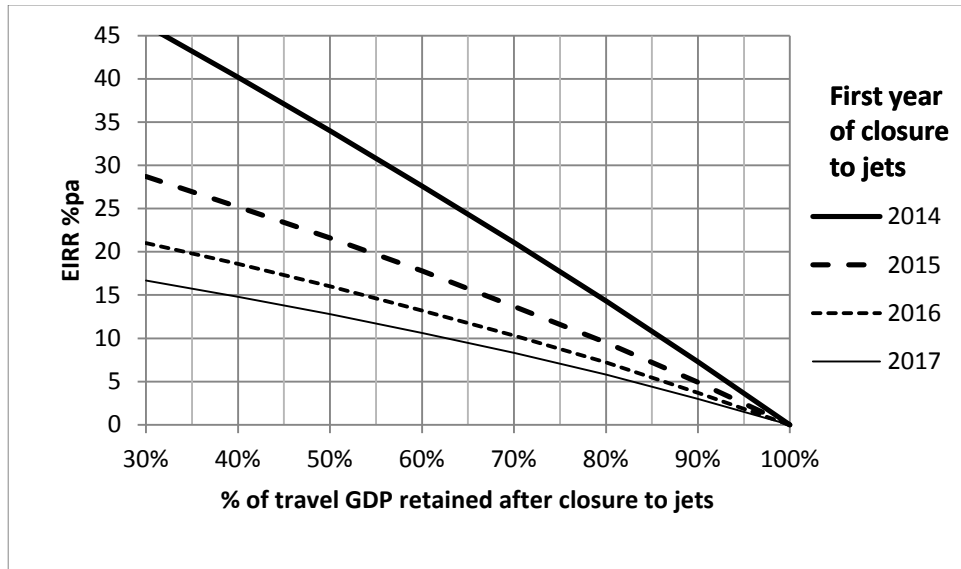
## D. Results

17. Using the above approach, the EIRR and Net Present Value (NPV) for the proposed investments were calculated to be as shown in the table below. The sensitivity of the EIRR to the year when service is interrupted and the impact on GDP (or GDP and remittances for Tuvalu) are also shown in the graphs below. These clearly show that the proposed investments are economically robust.

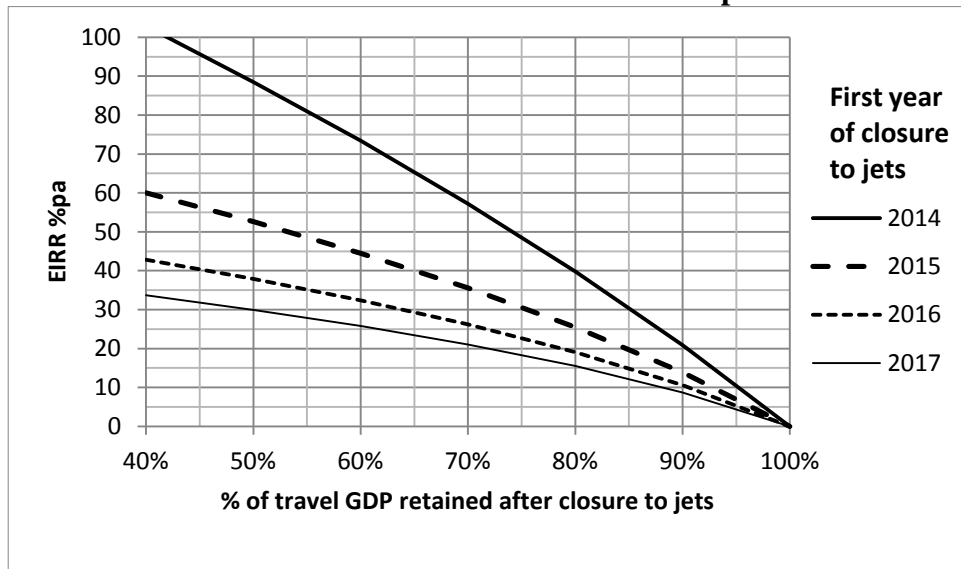
Country	EIRR and NPV (@12%) By Year of Service Interruption			
	2014		2016	
	EIRR (% pa)	NPV (US\$ m)	EIRR (% pa)	NPV (US\$ m)
Kiribati	34.0	\$5.7	16.0	\$2.0
Tonga	48.7	\$14.1	22.8	\$8.6
Tuvalu	38.3	\$4.2	17.7	\$1.8

18. The EIRR falls to 12% pa if disruption of air services is delayed until the following years: Kiribati—2017; Tonga—2019; Tuvalu—2018.

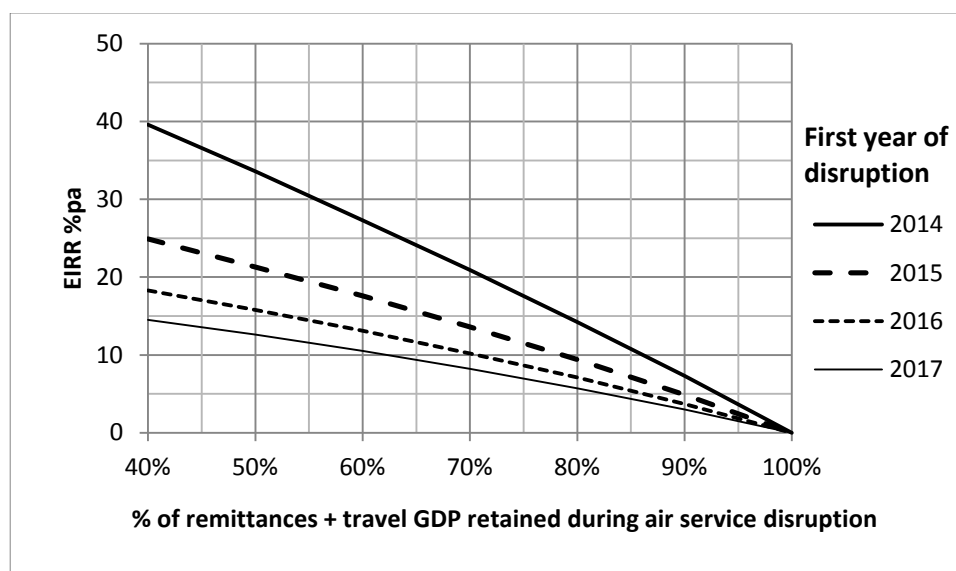
<sup>40</sup> Turboprop aircraft, which are more tolerant of runway conditions than jets, may partially compensate for the loss of jet services to Tonga airports. Such compensation is much less likely for Kiribati, due to its greater geographic isolation. Since Tuvalu is served only by turboprop aircraft there is no compensation there.



**Kiribati – EIRR vs. First Year of Disruption**



**Tonga – EIRR vs. First Year of Disruption**



**Tuvalu – EIRR vs. First Year of Disruption**

19. If project costs are 20% higher than estimated, the EIRRs fall as in the table below. All remain above 12% pa.

Country	EIRR (%pa) if costs are 20% higher			
	Service disrupted in 2014		Service disrupted in 2016	
	New EIRR	Fall in EIRR	New EIRR	Fall in EIRR
Kiribati	28.7	5.3	13.7	2.3
Tonga	41.3	7.4	19.7	3.1
Tuvalu	32.4	5.9	15.3	2.4

20. If project benefits are 20% less than estimated, the EIRRs fall as in the table below. All remain above 12% pa.

Country	EIRR (%pa) if benefits are 20% lower			
	Service disrupted in 2014		Service disrupted in 2016	
	New EIRR	Fall in EIRR	New EIRR	Fall in EIRR
Kiribati	27.6	6.3	13.2	2.8
Tonga	39.8	8.9	19.1	3.7
Tuvalu	31.2	7.1	14.8	2.9

21. The main costs affecting the outcome of the economic analysis were included in the above analysis. As a further refinement, the sensitivity of the analysis to operations and maintenance costs was evaluated. Assuming annual costs of US\$50,000 and a US\$4 million pavement overlay in 2024, the following is the impact on the EIRRs. All remain above 12% pa.

Country	EIRR (%pa) when O&M costs are included			
	Service disrupted in 2014		Service disrupted in 2016	
	New EIRR	Fall in EIRR	New EIRR	Fall in EIRR
Kiribati	32.5	1.5	13.9	2.1
Tonga	47.9	0.8	21.9	0.9
Tuvalu	36.1	2.2	14.6	3.1

22. It should be noted that for Kiribati the economic analysis results depend upon the way in which the contributions of New Zealand (NZ\$17 million) and Taiwan, China (AU\$14 million) are treated. These agreements were made prior to the PAIP identification mission and are therefore treated as committed—that is, they are regarded as sunk costs which can be ignored. Were one to include these additional costs in the economic analysis, the Kiribati EIRR is reduced to 11.7%pa if service is disrupted in 2014 and to 5.2%pa if service is disrupted in 2016.

## E. Financial Analysis of PASO

23. The GoA through PRIF has provided funding to the Program to assist PASO to be restructured and to attain financial sustainability. During Program preparation an analysis of PASO's operational and financial requirements was undertaken to evaluate options for a new structure that will enable it to perform its institutional mandate on a sustainable financial basis. The study assessed four alternative business models for PASO (one of which looked at four possible host locations: Vanuatu, New Zealand, Tonga and Samoa), and in relation to different funding mechanisms (e.g., membership fees based services, safety and security levy).

24. A financial model was developed to analyze alternative mechanisms for implementing a safety and security levy to fund PASO under two restructuring options, whereby PASO would conduct *Programmed Oversight*, in which it would design and implement an annual work plan according to each member country's needs, or with PASO as a *Full Technical Regulator*, whereby PASO would also have enforcement power in addition to its oversight functions.

25. The model was used to estimate PASO's operating expenses, including direct operating costs and overhead costs, in order to calculate the required level of revenues to guarantee a sustainable operation. All costing variables and parameters used were obtained from the current financial documents of PASO and consultations with their financial department. All assumptions for activity levels and costs were obtained from PASO's technical and financial staff. The same model was used as a tool to evaluate the impact of headquartering locations on the setting of the fee level. The model takes into account the estimated passenger traffic projections and assumed: (i) annual average traffic growth of 4%; and, (ii) oversight activities on each of the five areas in which PASO conducts regulatory oversight will increase by 0.25% for each 1% in traffic growth.

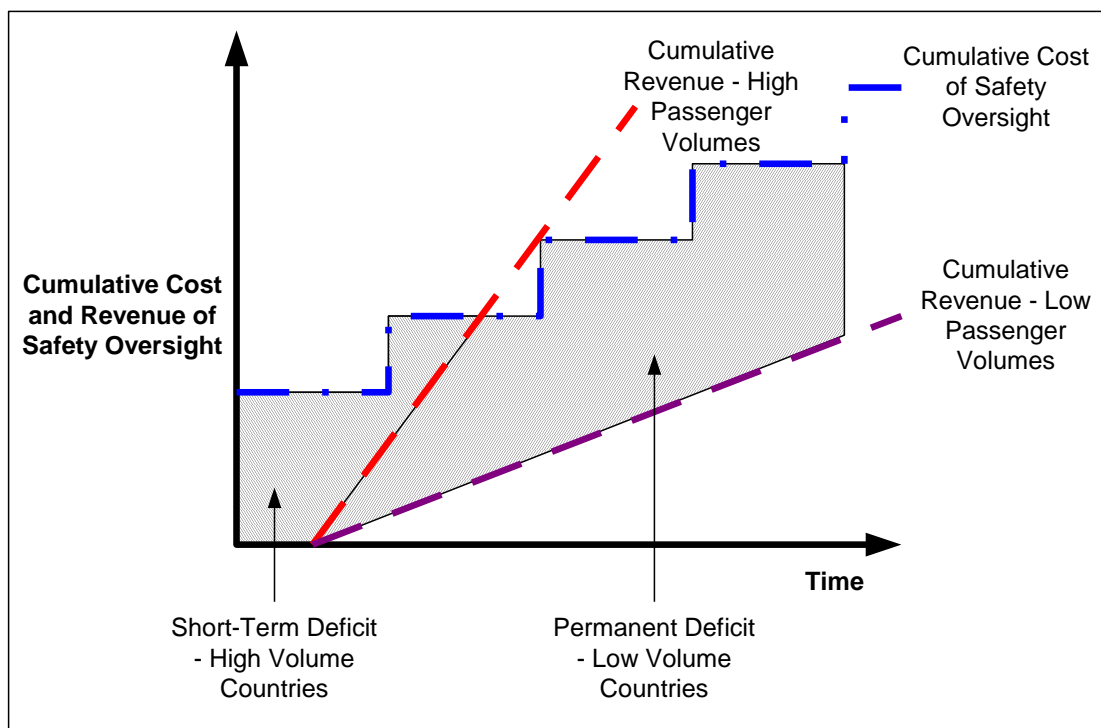
26. The calculation of the safety and security levy is based on the summary of all operating expenses and calculated as the fee per enplaned passenger required to support PASO's cost structure. The analysis took into account two options for imposing the safety and security levy: (i) charging the same for passengers of all PASO member countries; or, (ii) variable charges according to the contribution of each country to PASO's cost structure. In the first case, the safety and security levy is simply calculated by dividing the total expenses by the number of passengers. In the case that each country has a different safety and security levy, PASO's costs are allocated to each country according to the share of the costs for which each country is

responsible, and then divided by the number of passengers of that country. The analysis also evaluated three options related to type of passenger: (i) where the safety and security levy is calculated assuming that only international passengers pay; (ii) that domestic and international passengers pay the same; and, (iii) that international passengers pay twice as much as domestic passengers.

27. The conclusions of the analysis suggest that a Programmed Oversight business model, financed through a safety and security levy of AU\$1.65 per departing passenger, allows sufficient cost recovery for regulatory duties, and that no significant cost savings incur from relocating PASO headquarters.

28. Since proper implementation of aviation safety and security also requires that each country's CAA be properly financed, and that there be funds to cover the operating costs of equipment such as PASNet, the Program requires that participating countries place in escrow proceeds derived from a safety and security levy of AU\$5 equivalent per departing international passenger. This will provide income for participating countries to meet their ongoing ICAO safety and security oversight and management requirements.

29. One significant challenge is that some of the member countries will be unlikely to afford PASO's services even when a passenger safety and security levy is implemented. As shown in the figure below, for those countries with high passenger volumes, over time the safety and security levy should be sufficient to cover the costs of aviation safety and security oversight. However, for countries with low passenger volumes there may never be enough income to cover the cost of oversight. To that end, international donors need to consider how to assist with ensuring sufficient financing of the oversight. This issue will be addressed in the Program through the study into the long-term sustainability of aviation infrastructure.



## Annex 6: Rationale for Regional Approach

1. **Participating countries:** Phase 1 of the Program includes the three IDA countries of Kiribati, Tonga and Tuvalu with further IDA countries (Samoa, Solomon Islands and Vanuatu) expected to participate in future Phases. The benefits of the Program to each individual country are elaborated in Annexes 7 to 9. In addition to the individual country benefits, substantial spillover benefits are expected to accrue among the Program countries in the region (both IDA and non-IDA).
2. **Evidence of high level commitment to regional integration:** The PIC countries are geographically fragmented, small in size, ‘sea-locked’ and unique in their remoteness. According to the *World Development Report 2009* (World Bank 2009), the average PIC ranks 197<sup>th</sup> out of 218 countries on remoteness (compared to, for example, 100<sup>th</sup> in the case of the average Caribbean island). Distance is not just a physical concept but also an economic one. It is the ease or difficulty with which goods, services, labor, capital information and ideas move between places. Distance from world markets with associated high transport <sup>41</sup> and transaction costs and small local market size hugely disadvantages the countries both economically and socially, making it difficult for the island economies to compete in any but a few niche markets.
3. Reshaping the economic geography of the region and overcoming the diseconomies of isolation are seen as fundamental to achieving long term growth and poverty reduction. As pointed out by the 2009 World Development Report, people who are born far from economic opportunity can benefit from concentration of wealth in other places—through carefully planned economic integration. This strategy of planned economic integration is central to the World Bank’s own policy work regarding the Pacific futures<sup>42</sup> and for the governments of the region. It envisages a twofold approach: firstly, integration between the PIC countries and their nearest large markets (the Australia, New Zealand and USA) and secondly, integration among the PICs themselves along common/regional service delivery and making use of units of scale where feasible.
4. The Pacific Island Forum’s<sup>43</sup> *Pacific Plan for Strengthening Regional Cooperation and Integration* (2005) sets the goal of “stronger regional economic integration, starting with trade [including seasonal labor mobility], as a key element for economic growth and building a relationship with the rest of the world”. Similarly, the Forum’s *Principles on Regional Transport Services* (2004) explicitly states that “increased efforts should be made to implement regional or sub-regional solutions to problems in the transport sector”, through, for example:
  - Strategic alliances;
  - Agreement by Forum Island Countries (FIC’s) to regional cabotage, where FIC’s could benefit from more services and greater competition;

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<sup>41</sup> By way of comparison, on average, traveling from a Caribbean island to a metropolitan hub such as Miami or New York costs US\$545. A similar trip from a Pacific Island to Auckland, Sydney or San Francisco costs an average US\$1,300 (World Development Report 2009).

<sup>42</sup> For example, according to the World Bank’s CAS for Tonga, the long term viability of many PIC economies hinges not only on improving domestic growth but also on the extent to which they can integrate with each other and with larger economies.

<sup>43</sup> The Pacific Islands Forum is an inter-governmental organization comprising Australia, New Zealand and 15 Pacific island nations, of which eight are IDA countries (namely Kiribati, Tonga, Tuvalu, Papua New Guinea, Samoa, Solomon Islands, Timor-Leste and Vanuatu).

- Coordinated approaches to safety and security issues; better coordinated airline schedules; and,
- Training and capacity building.

5. Over the past decade, a number of significant advances were made in integrating aviation activities within the region. For example, PASO was established in (2004) by Kiribati, Tonga, Samoa and Vanuatu as a regional organization overseeing aviation safety and security oversight in the PICs using guidelines provided by ICAO. Amongst other advantages, this allows for coordinated business and inspection methods to minimize the costs of safety and security oversight to participating states and the aviation industry in dispersed locations, based on a common set of regional standards. There has also been consolidation of airline operators in the region and concomitantly, the closing of a number of loss-making, small national carriers<sup>44</sup>.

6. As a result, inter-country air travel was facilitated with, for example, daily flights (except Sunday) between Tongatapu (Tonga) and regional destinations, thrice weekly flights from Tarawa (Kiribati), and twice weekly flights from Funafuti (Tuvalu). Traffic in all these services is slowly building with the entry of new low cost carriers: Aircraft landings at TRW increased from 74 flights per month in the first quarter of 2009 to an average 163 flights per month in the fourth quarter of 2010 and even the Honolulu-CXI weekly flights enjoy loads of more than 65% during the high season. In Tonga, arriving and departing passengers at TBU rose 32% from 106,397 in 2002 to 140,193 in 2010. A recently completed Business Scenario Plan for TAL (prepared under the IDA-financed TSCP has projected a growth in international passenger numbers of between 2.9% to 5.4% over the period 2014/15 through 2019/20. New routes are also being opened, with flights from Fiji to Vava'u via TBU due to commence in early 2012 and a direct flight from Suva-Vava'u planned subject to adequate airport infrastructure being in place to accommodate the carrier.

7. **Investments are expected to generate significant cross-boundary benefits:** The expansion of markets for trade in goods and services is facilitated by a number of agreements, including the South Pacific Regional Trade and Economic Cooperation Agreement (SPARTECA), the Pacific Island Countries Trade Agreement (PICTA) the Pacific Agreement on Closer Economic Relations (PACER) and the Economic Partnerships Agreement (EPA).

8. The Program will complement these regional reforms and agreements for improving trade, labor mobility and competitiveness through improved logistics, by providing an adequate standard of infrastructure at the international airports of Kiribati, Tonga and Tuvalu to ensure the countries are able to accommodate ongoing capacity for air freight and passengers on wide bodied aircraft into the future. Regional carriers such as Air New Zealand, (to TBU) and Air Pacific (to CXI, FUN, TBU, and TRW) are gradually phasing out the B767 aircraft and replacing them with B777-200 and B787-900 aircraft. This means that the infrastructure at the international airports must facilitate the landing and takeoff of this type of aircraft. The pavement strength rating of the existing runways, now all 20-30 years old, would be exceeded by the new B777 aircraft<sup>45</sup>. Infrastructure investment in key areas such as pavement strength, terminal

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<sup>44</sup> For example, the closing of Royal Tongan Airlines in April 2004; the association of PolyBlue and Virgin; Air Pacific and Qantas; Air New Zealand cooperation partnerships with (among others) Air Pacific and Air Vanuatu, and Air Kiribati and Air Nauru combining to form Our Airline. Inter Island Airways is working to expand its regional destinations and operate air services from Pago Pago to Vava'u and Tongatapu.

<sup>45</sup> BECA International Consultants Ltd. 2008. "Tonga Airports Pavement Inspections", Report prepared for TAL.



buildings and navigational aids is required. Aircraft will facilitate Kiribati, Tonga and Tuvalu's air freight and passenger capability and development to/from economically important regional neighbors such as Fiji, Samoa and Solomon Islands. They also will facilitate direct services between the countries benefitting from the IDA Program and their larger international markets in Australia, New Zealand and the USA.

9. Vava'u Airport is well positioned to facilitate international regional air transport linkages but requires investment in key infrastructure, including pavement overlay of the runway, terminal building improvements and new navigational aids.

10. As shown in Table A6.1, an important characteristic of the air passengers in PICs is the significant number of returning residents and/or visiting friends and relatives. For example, from 2003 through 2007, the number of foreign visitors to Kiribati's international airports (CXI and TRW) was a fairly constant 4,700. However, over the same period, the number of returning residents rose by 15% from 4,756 in 2003 to 5,465 in 2007. Similar trends hold for Tonga and Tuvalu. The reason behind this is the importance of labor mobility to the economies of the PICs. In Tuvalu, 15% of the male workforce is employed as seafarers on foreign vessels, contributing 6.4% of annual GDP. Opportunities for overseas, seasonal work are increasing. In 2007, New Zealand launched a Regional Seasonal Employer (RSE) Scheme that allows 5,000 seasonal workers from PICs to undertake seasonal work in horticulture and viticulture in New Zealand, and increasing to 8,000 laborers in 2011. In 2008, Australia launched a similar program employing 2,500 seasonal PIC workers; and the USA allows workers from nine PICs to fill temporary or seasonal jobs under H-2A (agricultural work) and H-2B (non-agricultural work) visas. Labor mobility, by means of air travel to the employment markets (e.g., foreign vessels and agricultural areas), is a fundamental economic sector in PICs, as shown in Table A6.1.

**Table A6.1: Official remittances at a percentage of GDP**

	Resident population	Migrants as % of resident population	Remittances as % GDP	Main destination of migrants
Tonga	106,000	31.1	39.2	New Zealand
Kiribati	101,000	2.4	12.0	USA
Marshall Islands	53,000	13.0	N/A	USA
Micronesia	125,000	12.2	N/A	USA
Palau	20,000	20.2	N/A	USA
Samoa	178,000	35.1	14.2	New Zealand
Solomon Islands	457,000	0.5	0.9	Australia
Vanuatu	210,000	1.0	3.3	Australia

Source: Remittances in the Pacific, Table 1, David McKenzie, The World Bank, Paper for 2005-2006 Werner Sichel Lecture-Seminar Series, delivered 15 February 2006. Remittances and population taken from World Development Indicators

11. The Program investments will facilitate not only long term inter-regional labor mobility but also the inter-regional travel of senior Government politicians, officials and scientists giving rise to a flow of ideas and combined policy development between the IDA Program countries of the Region. For example, in November 2010, Tarawa hosted the Tarawa Climate Change

Conference that resulted in the Ambo Declaration on Climate Change signed by representatives from Kiribati, Maldives, Marshall Islands, Solomon Islands and Tonga, as well as New Zealand, Australia, Brazil, China, Cuba, Fiji, Japan with observers from the USA, UK and Canada. Without TRW operational this meeting would have been impossible.

12. Similarly, representatives from Kiribati, Tonga, Tuvalu and other countries of the region travel (by air) to and actively participate in the Pacific Islands Forum Fisheries Agency (located in Honiara) with the aim of strengthening national capacity and regional solidarity for sustainable tuna fisheries, including training of officers in monitoring, control and surveillance of fishing operations in the region.

13. Many airports serve as launching points for SAR operations beyond national borders. Should a natural disaster strike, reliably run airports capable of servicing international flights will be indispensable to any humanitarian relief campaign. This was evidenced in October 2011 when in response to critical water shortages, New Zealand flew in relief supplies and desalination units to Tuvalu through FUN—the country’s only airport.

14. Some PIC airports serve as ExTended OPERations (formally known as extended-range twin-engine operations, ETOPS) facilitating scheduled air travel between third country destinations. Rules for ETOPS require that the aircraft must remain within a prescribed flying time, from an adequate airport at an approved one-engine-inoperative cruise speed under standard conditions in still air. ETOPS requires twin-engine aircraft to operate (60 minutes for twin jets or 120-180 minutes for three- and four-engine jets<sup>46</sup>) from an “en route” alternative airport. Boeing 767s are the most widely used aircraft for ETOPS but the ETOPS rules also apply to Boeing 737, 757, 767, 777 and MD-80 aircraft. Aircraft operators should ensure that en route alternate airports are both ‘adequate’ and ‘suitable’.

15. As shown in Figure A6.1, since the closure of Johnston Atoll and Midway a few years ago, CXI on Kiritimati Island has taken on a strategic role for flights from the US west coast and Honolulu to Australian and New Zealand destinations.

16. The following are the key airport provisions in order for CXI to meet the requirements for planned diversion use, as will be supported under the PAIP:

- Must be certificated under FAR Part 139, or meet equivalent criteria if outside FAA jurisdiction;
- Must be suitable to safely operate the aircraft, i.e. runway of sufficient length, width and strength (ref FAR Part 121);
- Must have minimum of ARFF Index A (FAA) or Category 4 (ICAO) response capability within 30 minutes;
- Must have field reporting conditions (NOTAMS), hourly weather reporting (METARS) and an instrument approach other than GPS; and,
- Airport must be available but does not need to be continuously open (plan in place to reopen key airport services in case of aircraft emergency).

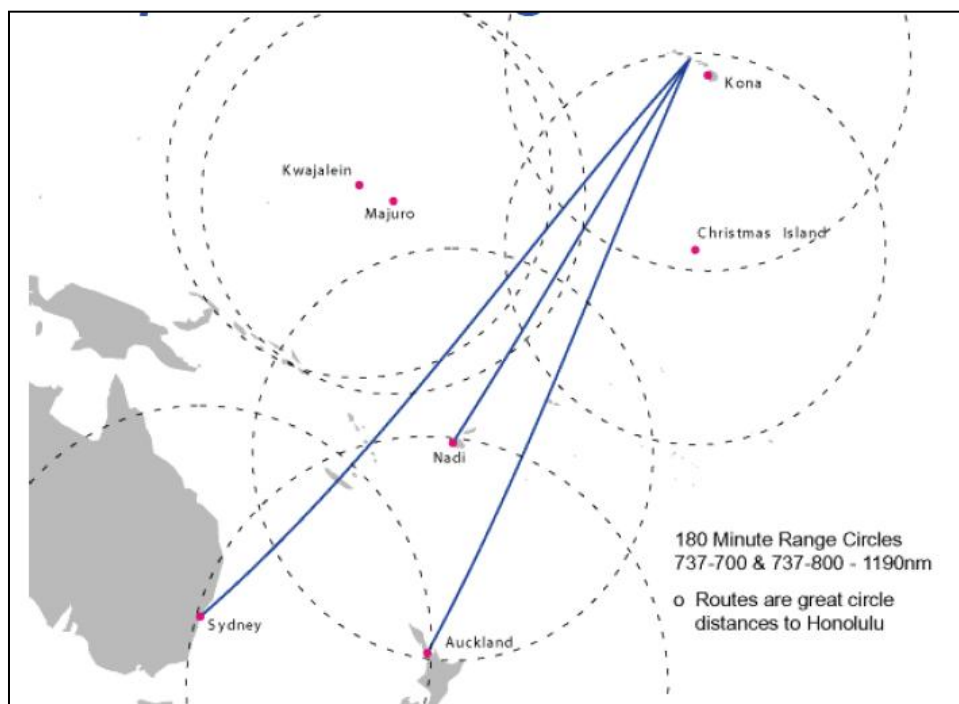
17. The minimum rescue fire fighting capability requirements are as follows:

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<sup>46</sup> The regulations allow an airliner to have ETOPS-120 rating on its entry into service. ETOPS-180 is only possible after 1 year of trouble-free 120-min ETOPS experience.

- For ETOPS up to 180 minute diversion length, alternates must have rescue fire fighting capability equivalent to that specified by ICAO Category 4;
- For Two-Engine, 207 Minute operations, alternates must have rescue fire fighting capability equivalent to that specified by ICAO Category 4. In addition, at least one adequate airport within the 207 minute diversion time must have rescue fire fighting capability equivalent to that specified by ICAO Category 7; or,
- For all other ETOPS operations beyond 180 minutes, alternates must have rescue fire fighting capability equivalent to that specified by ICAO Category 7.

**Figure A6.1: ETOPS for Trans-Pacific Flights**



Source: Boeing - Safety ETOPS Flight Tracks 2003. Retrieved July 30, 2011 from <http://www.boeing.com/commercial/airports/faqs/etopseropenroutealt.pdf>.

18. **Platform for harmonization of regional aviation policy and standards:** Regional IDA resources will support the financing of costly investments in airport infrastructure and will enable coordinated implementation timing of the envisaged improvements. This will effectively elevate ICAO compliance scores across the region, in addition to ensuring needed provision of critical emergency airfield assets and apparatus. Further, the operability of the air traffic monitoring and communications equipment (PASNet) is dependent on an integrated system-wide roll out that will bring visibility and connectivity across the region.

19. Connectivity through international aviation, essential for each of the PICs in its own right, is also a regional public good. Air navigation plans formulated by the Regional Air Navigation Meetings and approved by ICAO set forth the facilities, services and procedures required for international air navigation within a region. Such plans form the basis on which each country plans their provision of air navigation facilities and services and assume a reliance on

facilities and services furnished in accordance with the plan by other countries. Air service operators require a network of international airports meeting ICAO safety and security standards to be financially viable.

## **Annex 7: Kiribati Aviation Investment Project Under the Regional Pacific Aviation Investment Program**

### **I. Strategic Context**

#### **A. Country Context**

1. The Republic of Kiribati is one of the most remote and geographically dispersed countries in the world. It consists of 32 low lying atoll islands and one raised limestone island all located in three main island groups scattered over 3.5 million km<sup>2</sup> of the central and western Pacific. Most of the islands are less than 2 km wide and not more than 6 m above sea level. Twenty one of the islands are inhabited by the national population of around 101,000 people, with the bulk of the population residing on the western Gilberts Group islands. Approximately 47% of the country's population lives in the capital South Tarawa (within the Gilberts)—a magnet for internal migration from the outer islands. The capital provides opportunities for cash employment and consumption, as well as access to higher education and specialist social services not available elsewhere in Kiribati.

2. The central Phoenix Group islands are equally important owing to their unique features, although only one, Kanton, is inhabited<sup>47</sup>. The Phoenix Island Protected Area (PIPA), a 408,250 km<sup>2</sup> expanse of marine and terrestrial habitats, is the largest designated Marine Protected Area in the world and is a World Heritage listed site. PIPA conserves one of the world's largest intact oceanic coral archipelago ecosystems, together with 14 known underwater sea mounts (presumed to be extinct volcanoes) and other deep-sea habitats. Potentially it is an area of unique tourist attractions.

3. Three of the eastern Line Group islands are permanently inhabited. The largest, Kiritimati (Christmas) Island, (388 km<sup>2</sup>) constitutes over half of Kiribati's landmass. It is situated 1,200 km south of Hawaii and 3,300 km to the east of the capital of South Tarawa.

4. Overall, the islands of Kiribati extend about 3,900 km from west to east and about 2,100 km from north to south, an area roughly the size of Europe. Kiribati faces many challenges in developing and maintaining sustainable internal, regional and international transport and communication linkages, all of which are crucial to the economic development and social well-being of its remote and scattered population.

5. Only some 18% of the population is in permanent employment, and over half of these work for the government. National revenues primarily derive from five main sources: (i) the sale of fishing licenses (access fees account for more than 50% of annual government revenue and add about 22% to the GDP); (ii) official development assistance from overseas; (iii) the Kiribati Revenue Equalization Reserve Fund (RERF); (iv) general taxation; and, (v) tariffs paid by households for services<sup>48</sup>. A high dependency on donor contributions and a vulnerability to external economic and environmental factors add to the challenges faced by the country, and more specifically the infrastructure sector. Major long term concerns include environmental

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<sup>47</sup> Kanton airport was once an important trans-Pacific refueling strip before long-range jet aircraft. It was abandoned after serving briefly as a USA missile-tracking station. In the 2010 census only 24 people lived on Kanton. The Government of New Zealand is assisting with pest eradication on the islands.

<sup>48</sup> "Kiribati: Infrastructure Sector Review" (September 2009). The Pacific Region Infrastructure Facility (PRIF), Sydney.

degradation, the capacity of the islands to support a growing population with little coordination of the settlement patterns (particularly in Tarawa), the impending vulnerability to climate change, and general long term sustainability issues.

## **B. Sectoral and Institutional Context**

6. Aviation plays a vital economic and social role in Kiribati's development. There are two international airports: TRW on South Tarawa and CXI on Kiritimati Island, that serve as the main links to the Gilbert and Line Island groups, respectively. As described in Annex 6, due to its location, CXI also is an alternate/emergency landing site (ETOPS) for aircraft operating on many of the South Pacific to Hawaii/North America routes. It provides an important diversion capability to support all flights operations, regardless of the number of engines on the aircraft. Recent ICAO audits have identified many significant safety and security deficiencies at CXI and TRW. The runways are in increasingly poor condition and navigational aids are basic or missing. In mid-2011 the NZAP financed a grant of NZ\$ 17 million for the CXI runway rehabilitation with civil works to be completed by early 2012. The Government of Taiwan, China has provided an AU\$14 million loan for the TRW runway rehabilitation.

7. There are also 19 domestic airstrips<sup>49</sup> which are essential for inter-island travel, representing about 60% of total air travel in Kiribati. International passenger numbers are small: in 2009 there were 3,114 visitors at TRW and 1,660 visitors at CXI, some 43% on business. Despite these modest figures, air transportation plays a crucial role in the small island state<sup>50</sup>. The regional integration of the population living in the Gilbert Group and the connection between the two extremities of the country are both important for this widely dispersed island nation. The international connections in CXI and TRW are also absolutely essential for the country's economic development and linkages to the global markets. Given the large distance between the main islands and the closest international commercial hubs, only air travel can be considered a viable mode of transportation. In addition, any response to a major emergency, such as natural disasters, depends heavily on air transport infrastructure that meets minimum standards.

8. CXI and TRW serve as transit point for seafarers working on foreign fishing vessels, which are one of the largest sources of employment for the country. Kiritimati attracts high-end bone fishing and bird watching tourists. Tarawa is the launching point for outer islands eco-resorts. Newly developing high value added exports of tuna jerky, live fish and farmed clams suffer greatly from any international flight service interruptions. International air links supplement Kiribati's limited human resources in specialized skill areas and facilitate the national strategy of expanding overseas employment opportunities for I-Kiribati nationals. They

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<sup>49</sup> Namely: In the Gilbert Group: Abaiang, Abemama, Aranuka, Arorae, Beru, Butaritari, Kuria, Makin, Maiana, Marakei, Nikunau, Nonouti, Onotoa, Tabiteuea North, Tabiteuea South and Tamana. In the Line Group: Tabuaeran, Teeraina; and Banaba.

<sup>50</sup> From September 2008 to June 2010 jet services to Kiritimati ceased due to the state of the runway. Until the runway received temporary repairs, the weekly return service Nadi-CXI-Honolulu service by B737 was replaced by a 19-seat Gulfstream G1 turboprop of 1960s vintage flying Honolulu-CXI. This service cost the GoK US\$1.3 million annually. The consequence of this hiatus was described thus: "the tourism industry on the island...collapsed over night creating a massive reduction in income to the island". The cost of fresh produce and other perishable goods became unaffordable.

are important for any form of sophisticated medical treatment where patients have to go to Fiji or further afield.

9. The aviation sector within Kiribati is very small. The two carriers (Air Kiribati, government owned, and Coral Sun Airways, privately owned) operate five aircraft. There are two international carriers serving the country: Air Pacific from Fiji, which flies to TRW twice per week and CXI once<sup>51</sup>; and Our Airline from Nauru which flies to TRW twice per week. There is a monthly air freight flight from Honolulu-CXI.

10. **Policy and Regulatory Framework:** The MCTTD is responsible for both administration and regulation of civil aviation and operation of the airports. The primary aviation law of Kiribati is established in terms of the Civil Aviation Act of 2004. Following the enactment of this law, in which the Minister of Transport is empowered to adopt aviation regulations, the technical regulatory framework of New Zealand was declared binding for Kiribati by an adoption statement in 2005<sup>52</sup>. However, despite the fact that the adoption of the New Zealand regulations may be legally sufficient to establish the regulatory basis for the Directorate of Civil Aviation (DCA), no specific text version or technical handbooks exist in the country, which would guide operators and inspectors for regulatory compliance. In addition, no local differences to the New Zealand regulations have ever been developed or stated.

11. The DCA is organized in four units, which consist of: (i) Safety Oversight, (ii) Aviation Security; (iii) Air Traffic Services; and, (iv) Airport Operations in CXI and TRW. The Director of Civil Aviation is directly responsible for safety oversight. Airworthiness inspections, as well as oversight of safety, airport operations, and security, are supported by PASO. Combining regulatory and airport operator roles in the DCA creates a potential for conflicts of interest and is out of step with ICAO air safety oversight recommendations and Kiribati's own Civil Aviation Act of 2004.

12. Recent ICAO audits have identified many safety and security deficiencies at CXI and TRW. These include: (i) inadequate security fencing permitting intrusions by pedestrians, vehicles and animals; (ii) inadequate or absent runway lighting; (iii) inadequate runway markings; (iv) poor navigation aids; (v) insufficient fire safety services (TRW); (vi) insufficient terminal security; and, (vii) terminals with inadequate capacity/services. Both CXI and TRW runway pavements have failed. As noted earlier, poor infrastructure affects the provision of services: in 2009 air traffic services were suspended for two weeks at TRW and 12 months at CXI, effectively isolating the country. Airlines are not forbidden to fly if ICAO safety and security standards are not met. The decision to fly is up to individual airlines, but noncompliance with ICAO safety and security standards will influence airlines' decisions and potentially liability in case of an accident.

### **C. Higher Level Objectives to which the Project Contributes**

13. The project would directly address the Government of Kiribati's (GoK's) priorities as set out in the Kiribati Sustainable Development Plan 2008-2011. The Plan specifically identifies the

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<sup>51</sup> In 2008 the GoK subsidized the service by \$3.8 million annually. The only other alternative for travel to Kiritimati from Tarawa is a 12 day boat trip.

<sup>52</sup> Kiribati is a signatory state of the PIASST, which requires its member states to harmonize their domestic laws (Civil Aviation Acts) by adopting the New Zealand Civil Aviation Act 1990 as a regional legislative model.

fisheries and tourism sectors as “the backbone and mainstay” of the national economy and fundamental to fostering and securing robust economic growth in the country. “Poor and inadequate transport” is identified as a key hindrance to growth on the outer islands. The national strategy calls for all sectors to “Develop and improve economic infrastructures, (e.g. airports, terminals, shipping, telecommunication, utilities, etc.)”.

14. The Kiribati Country Assistance Strategy (CAS), presented to the World Bank’s Board on March 1, 2011, specifically identifies airport rehabilitation and adherence to safety and security measures as critical for air services necessary to maintaining connectivity to continue operating.

15. The project has two additional higher level objectives, which include the improvement of air transport services for the sustainable development of tourism, as well as guaranteed accessibility by air in case of natural disaster.

16. **Beneficiaries:** The project will benefit the population of Kiribati by ensuring that its international air travel connections are not affected by inadequate aviation infrastructure. Individual travelers will benefit through the provision of safer international and domestic air travel, and more efficient operations in the airport terminals. The Government will benefit by having significant reductions in their operating costs for the terminals through more energy efficient and environmentally sustainable terminals, as well as more efficient airport management.

## II. Project Description

### A. Project Development Objective

17. The project development objective is to improve operational safety and oversight of international air transport infrastructure.

### B. Components

18. **Component A: International Airport Infrastructure Investments (US\$17.16 million including contingencies).** This component will invest in the aviation infrastructure at CXI and TRW. The project investments will complement parallel financing provided by NZAP grant (NZ\$ 17 million) for the resurfacing of the CXI runway and by a Taiwan, China loan (AU\$14 million) for resurfacing the TRW runway. The investments include:

- **Navigation Aid Improvements:** The implementation of: (i) ADS-B at CXI and TRW; and, (ii) NDB at CXI.
- **Weather Monitoring:** Automatic Weather Observation Stations for CXI and TRW.
- **Terminal Building Improvements:** A new pre-fabricated terminal building for CXI and improvements to the existing TRW terminal.
- **Security Fence:** A security fence for TRW.
- **Fire Safety:** Provision of a fire tender for TRW, and equipment for firemen at CXI and TRW (jackets, oxygen, etc.).
- **Airfield Maintenance Equipment:** Equipment for grass cutting and other basic maintenance at CXI and TRW.
- **Security Improvements:** Improved security screening equipment for CXI and TRW.



- **Upgrading of Runway Lighting:** The existing CXI lighting and cabling will be replaced with low power consumption LED fixtures, reducing the energy demand by 90%. Approach light improvements at TRW.
- **Air Traffic Control Equipment:** Provision of ceilometers, signal lamps, radios, backup generator, along with the necessary communication and surveillance equipment for CXI and TRW.
- **Obstacle Limitation Survey:** A WGS84 survey at CXI to identify obstacles.
- **Fire Tender Vehicle Shelter:** A simple shelter at CXI for housing the fire tenders.
- **Maintenance Equipment Building:** A simple shelter at CXI for housing maintenance equipment.
- **Improved Power Supply:** Enhanced power supply for CXI and the surrounding village.
- **PASNet:** Provision of the PASNet secure communications system to CXI and TRW.
- **Seawall:** Completion of the seawall at TRW that was partially constructed under the Kiribati Second Climate Adaptation Project.
- **Resurfacing of the Road CXI-London:** Provision of a new surface and minor safety improvements to the main road on Kiritimati.
- **Consulting Services:** The Design and Supervision Consultants for: (i) the CXI-London road; and, (ii) the aviation investments. The latter includes the resurfacing of the TRW runway to be financed by Taiwan, China.

19. There is also provision under this component for possible land acquisition and resettlement costs at TRW which will be financed by the GoK.

20. Table A7.1 shows the investments for each airport.

21. **Component B: Sector Reform and Training (US\$1.57 million including contingencies).** This component will finance technical assistance to the MCTTD, including: (i) support to the MCTTD to strengthen its capabilities with aviation sector management, policy, safety and security oversight; (ii) assist the GoK with implementing aviation regulations, including development of civil aviation technical regulations and manuals; (iii) preparation and adoption of an Air Transport Master Plan (including a policy road map for separating the roles of regulator and airport operator) that addresses measures for airport security strengthening (through penal code amendments and public awareness campaign), projections for air traffic demand, including over-flights, identifying sources of revenue, public service obligations and gap financing, as well as identification and prioritization of domestic airstrip needs; (iv) a training program, including seconding of staff for industry experience; (v) a baseline audit of the project airport safety and security and review progress in the implementation of the ICAO Corrective Action Plan by the Recipient; and, (vi) ongoing safety and security oversight by PASO (financed by the GoA through PRIF).

22. **Component C: Strengthening airport operations and management capacity (US\$2.59 million including contingencies).** An independent public entity 'Kiribati Airports Management and Operations' (KAMO) will be created to for the management and operation of Kiribati's international and domestic airports. The project will: (i) support the MCTTD to establish KAMO for the management and operation of Kiribati's airports; (ii) technical assistance will be provided to operate KAMO in a way that would allow airport operations to be run on a more commercial and efficient basis, with regular performance monitoring. The design

will reflect best practice models from other small countries and lessons learned from Kiribati public infrastructure operators such as the Ports Authority and Utilities Board; and, (iii) due to the acute lack of local specialized capacity to operate international airports capable of meeting ICAO safety and security standards, KAMO will initially contract management expertise and on-site training capacity through a three-year management contract covering the operations of CXI and TRW. The contract will include local staff development and preparation of a transition plan in the last year of the contract. The assignment will also include technical assistance to support KAMO with the implementation of the transition plan at the end of the management contract.

**Table A7.1: Kiribati Investments by Airport**

Description	TRW	CXI
Navigation Aids		
Automatic weather station (AWS)		
Automatic dependent surveillance-broadcast (ADS-B)		
Terminal building improvements		
Security screening equipment		
Airfield lighting and cabling		
Air Traffic Control Equipment		
Obstacle Limitation Survey		
Fire Tender Vehicle Shelter		
Resurfacing Road CXI-London		
Maintenance Equipment Building		
Airfield Maintenance Equipment		
Improved Power Supply		
Security Fence		
Fire Tender Vehicle		
Fire Safety Equipment for Fire Crews		
Pacific Aviation Safety Network (PASNet)		
Design and Supervision of CXI-London Road		
Design and Supervision Aviation Investments		
Airport Seawall and Construction of Bonriki Village Facilities		
Land Acquisition and Resettlement		

23. **Component D: Project Support (US\$1.92 million including contingencies).** This component will finance the support required by that various parties involved in the project:

- **Incremental Operating Costs:** The incremental operating costs incurred by the GoK for the project;
- **Support to the Technical and Fiduciary Services Unit (TFSU):** Grant resources will be used to support the hiring of key technical specialists and consultants in the TFSU to support Kiribati, including operating costs such as office space and equipment;
- **Project Support Team:** The cost of hiring staff for the Kiribati PST;
- **PST Accommodation:** The provision of accommodation for the PST on Tarawa;
- **Project Financial Audit:** The cost of financial audits; and,

- **PASNet Annual Subscription:** The cost of annual subscriptions for the operation of the PASNet infrastructure.

### III. Key Risks and Mitigation Measures

24. The ORAF in Annex A7.2 contains the key Program and project level risks and mitigation measures. Specific risks to the project outcomes in Kiribati relate to community support for the improvement of TRW. To mitigate this risk, small scale local community development programs were included after recommendations from the public consultation process.

### IV. Appraisal Summary

#### A. Economic Analysis

25. Failure to address the safety and security deficiencies at Kiribati's international airports will result in the withdrawal of international air services, and eventually even domestic services would be affected<sup>53</sup>. As noted earlier, in 2009 Air Pacific suspended air traffic services for two weeks at TRW and 12 months at CXI due to safety considerations and under the status quo the risk for future suspensions of services remain very real. The withdrawal of air services would affect not only the travel industry, but also the entire economy would be affected by the knock-on effects on flows of goods, labor, remittances, and services. There would be other costs—political integration, social cohesion, emergency evacuation, etc., would all suffer—but these are almost impossible to quantify.

26. The World Travel and Tourism Council's (WTTC) simulated 2010 TSA by Oxford Economics makes the following estimates for Kiribati.<sup>54</sup>

Direct travel industry GDP	\$ 3 million
	3.2% of GDP
	3.2%pa real growth in next decade
Whole economy GDP	\$10 million
	11.9% of GDP
	2.7%pa real growth in next decade

27. The economic analysis was undertaken using the assumption that travel GDP as measured by the Kiribati TSA would fall to 50% of the GDP with loss of jet services<sup>55</sup>. The current situation is such that jet services would cease by 2014 unless immediate actions are taken. This results in an EIRR of 34.0%, with a NPV of US\$5.7 million. Further details are presented in Annex 5.

28. **CXI-London Road:** The economic analysis for the road resealing from CXI to London was conducted using HDM-4. The Economic Internal Rate of Return (EIRR) for the investment

<sup>53</sup> As evidenced by the crash of the Concorde in Paris, FOD is a major risk for jet aircraft. However, even turboprop aircraft movements will cease if the runways are not repaired.

<sup>54</sup> [http://www.wttc.org/eng/Tourism\\_Research/Economic\\_Research/Country\\_Reports/Kiribati/](http://www.wttc.org/eng/Tourism_Research/Economic_Research/Country_Reports/Kiribati/)

<sup>55</sup> A case could be made for a much greater loss but the 50% figure assumes that, as happened in 2009 with Kiritimati when it was closed, some fishing and diving enthusiasts would not be deterred by having to fly by turboprop.

was 18.4%, with an NPV of US\$1.53 million. A sensitivity analysis showed the investment to be economically viable with 20% variations in costs and/or benefits. In order to have an EIRR equal to 12%, project costs would need to increase by 55% or project benefits would need to decrease by 35%.

## **B. Technical**

29. The project investments will be at CXI and TRW, as well as on the road linking CXI to the main Kiritimati settlement at London.

30. CXI has a single asphalt runway with dimensions of approximately 2103 x 30 meters. As note earlier, the airport plays an important role as an emergency landing airfield for trans-Pacific flights. The airport has only limited security facilities, including security fencing<sup>56</sup>. There are very limited navigational aids, and the lighting does not meet appropriate standards for an emergency airport. The existing terminal building is a small, single-story wooden building which has passed the end of its service life. The runway has also passed the end of its service life, and in 2011 NZAP financed rehabilitation of the runway. The project's investments are seen as key to realizing all the potential benefits from the NZAP's investment.

31. TRW has a single asphalt runway, measuring approximately 2011 x 45 meters. As the main international and domestic airport of Kiribati, it has the most operational activity and passenger numbers. It services both domestic and international traffic. The runway has failed and is in urgent need of rehabilitation works to restore it to an acceptable serviceable standard. There is no security fencing, the previous four fences having been vandalized and stolen. There are only very limited security facilities, and no operational runway lighting. There are very basic navigation aids. There is only one operational fire tender so the airport does not meet minimum standards. The existing terminal is poorly laid out and insufficient for the proper processing of passengers and meeting security requirements.

32. From a technical point of view the project is very straight forward. It consists of improving infrastructure at the project airports so that they meet well defined international safety and security standards. The project will implement ADS-B at both airports, and NDB at CXI. ADS-B is a satellite-based technology for monitoring aircraft which is becoming the primary surveillance method for aircraft around the world. It enhances safety by making an aircraft visible, in real time, to air traffic control and to other appropriately equipped ADS-B aircraft with position and velocity data transmitted every second.

33. Both airports will also be provided with PASNet, an aviation safety and security network to enable Regional CAA and air transport organizations to communicate essential safety and security communications in a secure and timely manner. Satellite ground stations are installed at the airports beside the control tower. The ground stations are linked by satellite in a full mesh closed network, with ground equipment housed within each control tower. Airport internal connectivity is by underground lines or radio links to provide connections directly to Air Traffic Control, CAA and airline data system access points.

34. Other investments include upgrading of terminal facilities and buildings, the provision of new runway lighting for CXI, approach lighting for TRW, automatic weather stations, improved

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<sup>56</sup> Even though such fencing is mandatory under Annex 14 of ICAO standards, given the rural nature of the airport and the low traffic levels, the lack of fencing is not considered to be a major issue compared to others.

fire safety equipment and a security fence for TRW. The outcome of the investments will be both airports able to serve the aviation needs to Kiribati in a safe and efficient manner.

### **C. Social (including safeguards)**

35. The project will directly benefit the people of Kiribati (I-Kiribati) who will be able to take advantage of improved and safer airports. This will benefit I-Kiribati who travel overseas, or those travelling domestically in Kiribati by providing improved airport infrastructure and safer travel. Improved aviation infrastructure could lead to an increase in tourism which can generate revenues and employment. It will also facilitate the movement of goods, something essential for a country as remotely located as Kiribati. The improved safety and security will also reduce, if not eliminate, the potential loss of jet travel to Kiribati which would have disastrous social and economic consequences.

36. The land located at TRW is either government owned or government leased. Land leasing is a common occurrence in Kiribati, given the lack of land available in the country. Land leases are paid annually, and are updated every three years. People in Kiribati are generally well informed about the land lease process, including grievance mechanisms in place. This was confirmed by an IDA-commissioned social due diligence report prepared as part of project preparation. However, there is currently a dispute regarding the ownership of some land where the TRW terminal is located, and whether this is privately or government owned. A decision by the Magistrates Court will be needed before any project works commence in this area. Depending upon the outcome of the Magistrates Court decision, the Resettlement Policy Framework (RPF) prepared for the project and disclosed July 11, 2011 at InfoShop and July 25, 2011 in-country will provide the basis for any land acquisition and preparation and implementation of RAPs/ARPs if needed. All land acquisition will be financed with counterpart funds.

37. There are several communities living close to TRW. These and other people use the airport grounds for recreational activities such as soccer and bicycle riding. In addition, given the absence of a perimeter security fence, some people in the nearby villages cross the runway to access parts of their land including crops and trees, or to access the airport's small vendors. By installing a security fence—which is essential for aviation safety—people's access could be restricted both for recreational activities, travel distance to reach their crops would increase, and airport vendors could be negatively affected. In order to mitigate this, the security fence will have gates so that people can access the airport grounds it does not interfere with aviation safety and security. Access will be restricted when airplanes are landing/taking-off due to safety and security concerns. The project will also ensure the communities benefit from airport improvements: wherever practical they will be offered a direct stake in airport upgrading activities, security improvements, employment opportunities and public lighting, especially beneficial to women. The project will also consider small-scale community developments, such as toilets and recreational facilities. Ongoing community consultations will be important to ensure the communities can benefit from airport improvements and can comment on the provision and location of access gates.

38. The land at CXI is government owned and no persons live close to the area of the airport. The project will be resealing the road from CXI to London and therefore no land acquisition is envisioned. However, there may be people living close to or along the road from CXI to London

that could have crops, trees or other assets that could be impacted by the project. These impacts would be covered by the RPF.

39. The RPF provides guidance for the process and intended outcomes of RAPs/ARPs. It seeks to ensure that those people whose assets or livelihoods are directly affected by the project can share project benefits and be able to improve or at least restore their standard of living to the level prior to the beginning of project implementation. Compensation will be paid, and any other resettlement entitlements provided, before any impacts are experienced. In addition, the RPF will apply to the Taiwan, China loan that will be providing assistance to rehabilitate the TRW runway and to the assistance from the NZAP to rehabilitate the CXI. Given that these projects are contemporaneous with the IDA-financed project, in the same location, and required to achieve the PDO, they are considered linked projects and therefore OP 4.12 applies.

40. The Ministry of Environment, Land and Agricultural Development (MELAD) is the lead agency in Kiribati responsible for coordinating planning and implementation of land acquisition and resettlement. The MELAD formulates and manages the resettlement budget and pays compensation to the affected people after the Lands Management Division (LMD) has carried out a survey of the affected assets on the site. The LMD has rates in place to pay compensation for various types of assets and to lease land when appropriate. The LMD reviews land lease rates at least every three years. In 2011 with finance from IDA-financed Kiribati Road Rehabilitation Project, a consultant reviewed compensation rates for assets such as trees and crops. The recommended new rates, with minor modifications, were formally adopted by the GoK in late-2011.

41. The GoK has in place legislation for payment of compensation and resettlement procedures that are in line with the World Bank's policies. The MELAD has the expertise to assess RAPs/ARPs in line with IDA's resettlement procedures—particularly if done on a small scale. MELAD, in conjunction with other GoK stakeholders, will have the responsibility for reviewing the RAPs/ARPs that may be needed and their implementation. The MCTTD will be the entity responsible for preparing the necessary RAPs/ARPs, together with the Design and Supervision Consultant.

42. People in Kiribati are well informed about compensation processes and grievance redress mechanisms, as land leasing and land compensation is quite frequent given the lack of land in Kiribati. The GoK has in place a grievance mechanism that allows people to file complaints at the Magistrates Court and make appeals at the High Court. In outer islands the system is similar, with initial concerns being presented to the unimane (council of elders) and thereafter referred to the local Magistrates Court. However, the aim will be to resolve grievances as quickly as possible and therefore the Design and Supervision Consultant, as well as MCTTD, will be the first point of contact.

43. It is the responsibility of the GoK to make an assessment to determine that the objectives of the RPF were achieved. The GoK will undertake internal monitoring of the project's progress. In addition, the independent NGO procured for the IDA-financed Kiribati Road Rehabilitation Project will monitor the implementation of the RPF as they are already overseeing the improvement of the road at the Bonriki airport village. IDA will also assess the implementation of the RPF and other associated activities during implementation support.

44. **Indigenous Peoples:** People in the project area in Kiribati are not considered indigenous as per the World Bank's Indigenous Peoples Policy (OP 4.10). The people of Kiribati are mainly

a homogenous group of people from the Gilbert group. They have a common language, traditions and do not consider themselves indigenous or separate to others in Kiribati.

#### **D. Environment (including safeguards)**

45. **Safeguard Issues:** The project will be Category B. An EMP was prepared and disclosed on July 11, 2011 at InfoShop and July 25, 2011 in-country. The EMP covers the entire project, with separate mitigation measures for each individual airport. It will also apply to the investments financed by NZAP and Taiwan, China as these are considered linked projects. The implementation of the EMP shall be monitored by the Design and Supervision Consultant on behalf of MCTTD. MELAD shall oversee environmental compliance.

46. Safeguard measures will be incorporated in the project during the design phase to allow the designers to incorporate the EMP—updated as appropriate—in the project design, technical specifications and contract documents. During the construction phase the contractor will construct the project as per the design and technical specifications and implement the EMP with supervision provided by the Design and Supervision Consultant. During the operation/maintenance phase, the period starting with the issuing of the ‘Certificate of Completion’ the onus for the upkeep and long term maintenance of the airport facilities falls on the airport operators.

47. **Environmental Impacts:** The environmental impacts associated with the project are: (i) excavation of runways in selected locations to remove and replace unsuitable material with suitable replacement material; (ii) removal of existing terminals structures; (iii) transportation of excess waste material and backfill materials; (iv) dust pollution during excavation and construction; (iv) incidental loss of bitumen/asphalt during runway works; (v) disposal of excess excavated materials; and, (vi) drainage during construction, etc. In all cases the impacts are expected to be minor, temporary, readily mitigated and in most cases easily reversible.

48. Contaminated drainage and sedimentation will be controlled by scheduling construction to limit disturbance to large areas during rainy seasons, avoiding direct discharge of contaminated water to the adjacent land or water courses and installing silt traps at the onset of the construction.

49. To minimize dust generation, all trucks transporting friable materials and all material stockpiles will be covered. Waste dump sites will be chosen in consultations with the appropriate authorities and the local communities to promote future uses of waste materials.

50. To minimize noise impacts on schools, hospitals, churches near the airports, where possible, noisy activities will be carried out during normal working time and completed as soon as possible. The impacted institutions and communities will be advised when there will be unavoidable noisy construction activities in their areas.

51. **Source of Materials:** Aggregates for the civil works will largely be sourced from environmentally licensed local private suppliers, and in some instances may need to be imported from overseas if no appropriate local supplies are available. Construction trucks will be required to respect load limits set by the governments to reduce potential damage to roads from heavily loaded trucks. Finer aggregates and sand will be transported to the construction site during off peak traffic hours, in covered transport vehicles, with water sprayed to minimize dust generation.

## **V. Project Execution**

### **A. Implementation Arrangements**

52. The EA for the project will be the Recipient through the MFED. The IA for the project will be the Recipient through the MCTTD. Line Ministries (Ministries of Finance and Economic Development, Public Works and Utilities, Environment, Land and Agricultural Development, and Line and Phoenix Development or any successors thereto) will be supported in activities for which they will be responsible for implementation. There will be a NSC that will oversee the project and monitor the project's implementation as well as advising the GoK on any concerns or issues that may arise with regards to project implementation. A representative of the NSC will also participate in a PSC at the regional level. Annex 2 provides details of the regional implementation arrangements.

53. The TFSU will support the overall Program management. These services are to cover planning, budgeting, engineering design, procurement, contract management, FM, monitoring and evaluation, and reporting requirements. A Kiribati PST, comprised of a Project Manager, Accountant/Contracts Officer and Administrative Assistant will liaise with the TFSU, provide country-based oversight and management, including inputs and reporting, as required. The PST will support the MCTTD in monitoring implementation progress, signing of contracts, providing authorization for contract payments, and providing information for progress reporting.

54. For Phase 1, a consulting firm will be selected and employed to provide the services of design and supervision for all infrastructure investment activities. The Design and Supervision Consultant will: (i) prepare the designs and detailed engineering; (ii) prepare work plans and bidding documents required for the procurement of civil works and goods and support the TFSU with procurement processing; (iii) provide assistance to the RPEC at bid evaluation and contract negotiation; and, (iv) handle project management activities, including supervision of civil works and goods. Provision of training to TFSU and the IAs will be included in the TOR for the design and supervision consulting contract.

### **B. Financial Management, Financial Reports and Audits**

55. The FM, reporting and audit arrangements are described in detail in Annex 2.

### **C. Disbursements**

56. The disbursement arrangements are described in Para. 32 of Annex 2.

### **D. Withdrawal of the Proceeds and Financing**

57. Table A7.2 shows the project withdrawal table.



**Table A7.2: Project Withdrawal Table**

Category	Amount of the Financing Allocated (expressed in SDR)	Percentage of Expenditures to be Financed (exclusive of Taxes)
(1) Goods, works, Training, Operating Costs, TFSU Costs and consultants services for all Parts of the Project other than for Parts B (f) <sup>2/</sup> and C (a) (ii) thereof	14,250,000	100% of the TFSU Costs <sup>1/</sup> paid as per the terms of the Service Agreement and 100% of all other Eligible Expenditures
(2) Consultants Services for Part C (a) (ii) of the Project <sup>3/</sup>	250,000	100%
<b>TOTAL AMOUNT</b>	14,500,000	

Notes: 1/ TFSU Costs means (i) the costs of consultants services of the TFSU providing services: (a) to Kiribati, Tonga and Tuvalu, prorated between each of the said countries based on the percentage of financing for the Program provided by IDA to each country relative to the Program's total costs which are as follows: Kiribati 37%; Tonga 44% and Tuvalu 19%; and, (b) for specific activities in a country at full cost to the respective country; and, (ii) the applicable TFSU operating costs.

2/ Financed by GoA through PRIF.

3/ Conditional to KAMO being established to the satisfaction of IDA.

58. The GoA through PRIF will provide a Grant of US\$0.28 million to finance activity B(f): PASO safety and security oversight costs.

## **E. Procurement**

59. Annex 2 gives a detailed explanation of the procurement process to be adopted under the Program.

60. **Procurement of Works:** The works to be procured under the project for Kiribati include airport buildings and related facilities, lighting, security fencing, resurfacing the CXI-London road, and completion of the TRW airport seawall. Details of these procurements are presented in the Procurement Plan in Annex 2 and summarized for Kiribati in Table A7.3.

61. **Procurement of Goods:** Goods required under the project for Kiribati include navigation aids, fire safety, and security equipment. Details of these procurements are presented in the Procurement Plan in Annex 2 and summarized for Kiribati in Table A7.3.

62. **Selection of Consultants:** Thresholds and selection methods are described in Annex 2. Details of the selection of Consultant services required for Kiribati are presented in the Procurement Plan in Annex 2 and summarized in Table A7.4.

63. **Procurement Plan:** The draft procurement plan was finalized at the time of negotiations. It will also be available in the Program's database and on the World Bank's external website. The plan shows that there will not be any pre-qualification or NCB. The procurement plan will

be updated in agreement with IDA annually, or as required, to reflect project implementation needs and improvements in institutional capacity.

**Table A7.3: Kiribati Procurement of Works and Goods**

Description	Procurement Package Number	Procurement Method	Prequal.	Review by Bank	Expected Bid Opening Date	Estimated Cost (US\$ m)
<b>Works</b>						
Airfield lighting and cabling	W-1	ICB	No	Prior	Jul-12	\$1.83
Security Fence	W-1					\$2.00
Airport Seawall and Construction of Bonriki Village Facilities	W-1					\$0.10
Terminal building improvements	W-2	ICB	No	Prior	Feb-13	\$2.50
Fire Tender Vehicle Shelter	W-2					\$0.13
Maintenance Equipment Building	W-2					\$0.15
Kiribati PST Accommodation	W-2					\$0.20
Resurfacing Road CXI-London	W-3	ICB	No	Prior	Dec-11	\$3.50
Emergency Infrastructure Repairs	W-4	FA	No	Prior	Dec-11	\$0.05
<b>Sub-Total</b>						<b>\$10.45</b>
<b>Goods</b>						
Navigation Aids	G-1	ICB	No	Prior	Sep-12	\$0.27
Automatic weather station (AWS)	G-1					\$0.28
Automatic dependent surveillance-broadcast (ADS-B)	G-1					\$0.80
Security screening equipment	G-1					\$0.16
Air Traffic Control Equipment	G-1					\$0.24
Improved Power Supply	G-1					\$0.11
Pacific Aviation Safety Network (PASNet)	G-1					\$0.40
Fire Tender Vehicle	G-2	ICB	No	Prior	Mar-12	\$0.92
Fire Safety Equipment for Fire Crews	G-2					\$0.04
Airfield Maintenance Equipment	G-3	ICB	No	Prior	Mar-12	\$0.15
<b>Sub-Total</b>						<b>\$3.37</b>
<b>Total</b>						<b>\$13.82</b>

64. **Prior Review:** Thresholds were set for the Program (see Annex 2).

## F. Monitoring, Reporting and Evaluation

65. **Project Reports:** The TFSU, with assistance from MCTTD, will be responsible reporting on the Results Framework to IDA, and will monitor and review the technical performance and the oversight of the implementation of the components and sub-components. The MCTTD will be responsible for collecting and reporting requisite data for monitoring progress, with support from the TFSU. The following reports will also be used for purposes of monitoring and evaluation:

- Quarterly/Annual progress reports are to be submitted to PSC, NSCs, IDA and Program donors on the fourth week after the end of a fiscal quarter/calendar year to report on completed work, work to do in the next quarter/year-end results of implementation of the previous annual work program and plan, and recommendations if any;

- Implementation Completion and Results Report; and,
- Reports on particular topics will be prepared as may be necessary.

**Table A7.4: Kiribati Selection of Consultants**

Description	Selection Method	Review by Bank	Expected Proposal Submission Date	Estimated Cost (US\$ m)
Obstacle Limitation Survey	LCS	Prior	Feb-12	\$0.06
Design and Supervision of CXI-London Road <sup>1/</sup>	SS	Prior	Mar-11	\$0.55
Design and Supervision Aviation Investments	QCBS	Prior	Dec-11	\$1.61
Support CAAs and Line Ministries	QCBS/CQS/IC	Prior	Apr-12	\$0.50
Implement Regulations	CQS	Prior	Oct-12	\$0.20
Air Transport Master Plan	CQS	Prior	Dec-11	\$0.20
ICAO Baseline Audit	SS	Prior	Dec-11	\$0.05
PASO Safety and Security Oversight <sup>2/</sup>	SS	Prior	Dec-11	\$0.25
Kiribati Airport Management and Operations	QCBS	Prior	Jan-12	\$2.40
Project Support Team	IC	Prior		\$0.36
Financial Audits	LCS	Prior	Mar-12	\$0.03
<b>Total</b>				<b>\$6.21</b>

Notes: 1/ Single-Source Selection was cleared by IDA on May 2, 2011.

2/ Under the PICASST treaty, signatories are committed to using PASO for these services. The GoA through PRIF has provided finance for the purchase of services from PASO to support the long-term financial sustainability of PASO.

## G. Project Covenants

66. The following covenants are included in the Grant Agreement:

Covenant	When	Comments
The Recipient shall establish and thereafter maintain a Program Steering Committee comprised of the Chairmen of the National Steering Committees (or a designated representative) from each of the Program Countries, PASO's General Manager (or a designated representative), the Director of the TFSU, and others as appropriate, to meet at least on a quarterly basis to review and evaluate Program implementation progress	Within 60 days of effectiveness	Required for the effective regional co-ordination of the Program
The Recipient nominate its member to the Program Steering Committee, with terms of reference and qualifications satisfactory to the Association	Within 60 days of effectiveness	Required for the effective regional co-ordination of the Program
The Recipient shall establish and thereafter maintain at all times throughout the Project implementation period, the National Steering Committee with powers and composition satisfactory to the Association	Within 60 days of effectiveness	Required for the effective national co-ordination of the project

The Recipient shall establish and thereafter maintain at all times throughout the Project implementation period, the Regional Procurement Evaluation Committee with powers satisfactory to the Association and comprising representatives from TAL, Kiribati and Tuvalu as well as members of the TFSU	Within 60 days of effectiveness	Required for effective regional procurement
The Recipient shall establish and thereafter maintain throughout the Project implementation period, the Project Support Team with powers and composition satisfactory to the Association	Within 60 days of effectiveness	Required for Kiribati to properly implement the project
The Recipient shall enter into a service agreement with TAL under terms and conditions which shall have been approved by the Association	Within 60 days of effectiveness	Required for the TFSU to provide services to Kiribati for the project and payment share.
The Recipient shall adopt and thereafter carry out the Project in accordance with a Program Operations Manual, satisfactory to the Association	Within 60 days of effectiveness	The manual clearly defines the operational and FM procedures on the project.
The Recipient shall collect from departing international air passengers a five Australian Dollars (AU\$5) equivalent levy for use to pay aviation safety and security expenditures incurred by the Recipient.	December 31, 2012	The safety and security levy is essential to ensuring financial sustainability of safety and security investments.
The Recipient shall transfer fire tender assets from its Police Department to the Bonriki International airport	June 30, 2012	Currently, the Police Department has full control over the fire tender, even though it is owned and stationed at the airport. By transferring responsibility to the airport it will be ensured that the fire tender is focused on its primary responsibility: ensuring aviation safety and security.
The Recipient shall apply revenues from user fees charged from airplanes using the Recipient's upper airspace to finance aviation safety and security expenditures	June 30, 2012	Required to ensure long-term financial sustainability of the aviation investments.
The Recipient shall collect departure tax through airlines operating in the Recipient's territory	June 30, 2012	This will improve the efficiency of revenue collection by having the departure tax collected by the airline at the same time as the safety and security levy.
The Recipient shall allocate 50% of the Recipient's aviation revenues towards aviation safety and security and operations	June 30, 2012	Will provide further revenue towards meeting the costs of aviation safety and security
No disbursements will be made out of the grant proceeds allocated for the operation of KAMO unless KAMO has been established in form an substance satisfactory to the Association	N/A	Condition of disbursement. KAMO must be established in an appropriate manner for the project to support it.

## Annex A7.1: Results Framework and Monitoring

<b>Program Development Objective (PDO): “to improve operational safety and oversight of international air transport infrastructure”</b>												
PDO Level Results Indicators*	Core	Unit of Measure	Baseline	Cumulative Target Values**					Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition etc.)
				YR 1	YR 2	YR3	YR 4	YR5				
<b>Indicator One:</b> Regulatory certification of safety and security at project airports <sup>1/</sup>	<input type="checkbox"/>	N/A	Neither CXI nor TRW certified.					Certification of both airports in accordance with ICAO standards	Aligned with PASO oversight schedule	ICAO audits	CAA/TFSU	regulatory capacity of aviation sector
<b>Indicator Two:</b> State requirements for safety and security reaches global ICAO average	<input type="checkbox"/>	N/A	95% (see Note 2)					49%	Post-PASO oversight schedule	Implementing Agency	CAA/TFSU	Institutional oversight functions being performed
<b>Indicator Three:</b> Modernization of air traffic management	<input type="checkbox"/>	N/A	No PASNet or ADS-B			PASNet and ADS-B operational			once	Implementing Agency	CAA/TFSU	Enhanced safety and efficiency
<b>Indicator Four:</b> Implementation of a regional safety and security levy for international passengers	<input type="checkbox"/>	N/A	No levy		AU\$5 collected from each departing international passenger				once	Executing Agency	CAA/TFSU	Sustainable finance mechanism in place

Notes: 1/ At the onset of the Program, audits of all project airports will be done by ICAO to assess the safety and security standards.  
2/ Baseline value assumed based on Tonga.

INTERMEDIATE RESULTS												
PDO Level Results Indicators*	Core	Unit of Measure	Baseline	Cumulative Target Values**					Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition etc.)
				YR 1	YR 2	YR3	YR 4	YR5				
Intermediate Result (Component A):												
Intermediate Result indicator One: Navigation and safety aids fully operational	<input type="checkbox"/>	%	0				100% of project-financed infrastructure		once	MCTTD	DCA/TFSU	Improved operational safety
Intermediate Result indicator Two: CXI and TRW terminals upgraded	<input type="checkbox"/>	%	0		25%	66%	100%		annually	MCTTD	DCA /TFSU	Improved operational safety
Intermediate Result indicator Three: Achievement of Fire Safety Standards at CXI and TRW	<input type="checkbox"/>	Category	Cat 3			Cat 6			once	MCTTD	DCA /TFSU	Improved operational safety
Intermediate Result (Component B):												
Intermediate Result indicator One: Adoption of an Air Transport Master Plan	<input type="checkbox"/>	N/A	N/A			Plan adopted			once	MCTTD	DCA/TFSU	Sector Reforms
Intermediate Result indicator Two: Separation of civil aviation regulatory functions from operations	<input type="checkbox"/>	N/A	MCTDD performs all functions		Regulatory functions separated				once	MCTTD	DCA /TFSU	Sector Reforms
Intermediate Result indicator Three: Successful implementation of agreed training plan	<input type="checkbox"/>	N/A	No training plan					Training plan completed	End-of-project	MCTTD	DCA /TFSU	Capacity Development
Intermediate Result (Component C):												
Intermediate Result indicator One: Award of contract for airport management and operations support	<input type="checkbox"/>		Airport operated by MCTDD		Contract awarded and operational					MCTTD	DCA /TFSU	Commercial operation in place

## Annex A7.2: Operational Risk Assessment Framework (ORAF)

### Program/Project Development Objective(s)

To improve operational safety and oversight of international air transport infrastructure

- PDO Level Results Indicators:
1. Regulatory certification of safety and security at project airports
  2. State requirements for safety and security reaches global ICAO average
  3. Modernization of air traffic management
  4. Implementation of a regional safety and security levy for departing international passengers

1. Project Stakeholder Risks	Rating	Moderate		
Lack of community support for the improvement of the airport.	<b>Risk Management:</b> Local Community will be offered a stake in maintaining key airport security assets. Small scale local community development programs will provide further benefits to the community.			
Airport fire safety is provided by the Police Force with little effective control by airport management. Airport fire safety equipment is considered a community asset.	<b>Resp:</b> GoK	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Note Yet Due
	<b>Risk Management:</b> Aviation fire safety will be brought under direct airport management.			
	<b>Resp:</b> GoK	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Note Yet Due
	<b>Risk Management:</b> Design and Supervision Consultant to identify implementation schedule that minimizes potential disruptions.			
Air service operators and passengers object to potential disruptions during implementation.	<b>Resp:</b> GoK	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Note Yet Due
3. Implementing Agency Risks (including fiduciary)				
3.1 Capacity	Rating	High		
<b>Description:</b> Lack of regional coordination among implementing agencies leads to poor outcome.	<b>Risk Management:</b> There shall be a ‘service Agreement’ between the TFSU and the EA. A Regional Procurement Evaluation Committee will be established under the framework of the Service Agreement.			
The TFSU will become overwhelmed by the demands of the regional project.	A single Design and Supervision Consultants will be used to provide the necessary support during implementation.			
PASO will not be able to provide the enhanced technical support to the participating countries.	PASO will provide guidance to implementing agencies throughout implementation and will contract staff as needed to ensure it can meet the technical demands.			
Project Support Team lacks technical skills and financial resources to undertake the projects.	<b>Resp:</b> GoK	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
Implementing agencies do not have effective processes and controls to meet IDA procurement and FM standards.	<b>Risk Management:</b> The project includes major financing towards the strengthening of capacity in the participating agencies.			
	<b>Resp:</b> GoK	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
	<b>Risk Management:</b> Regular and intensive technical, procurement and FM supervision missions to provide support to participating agencies.			
	<b>Resp:</b> IDA	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing

	<b>Risk Management:</b> The project will undertake all major procurements using ICB. Direct payments will be made to the contractors and suppliers. A Project Operation Manual that includes a FM Manual with agreed FM reporting formats will be adopted.			
	<b>Resp:</b> GoK	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
	<b>Risk Management:</b> Centralized procurement of works and equipment through TFSU and Regional Bid Committee to address the capacity risk will reduce the risk of fraud and corruption in project procurement. Detailed complaints handling mechanism shall be included in the TFSU Services Agreement.			
	<b>Resp:</b> GoK	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
<b>3.2 Governance</b>	<b>Rating</b>	<b>High</b>		
<b>Description:</b> Government fails to deliver on promised sector reforms, project implementation support and financing of airport operations and maintenance.	<b>Risk Management:</b> A NSC shall be established to monitor and advise the implementing agencies on the project and to ensure stakeholder support.			
	<b>Resp:</b> GoK	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
<b>4. Project Risks</b>				
<b>4.1 Design</b>	<b>Rating</b>	<b>Moderate</b>		
<b>Description:</b> The project is technically complex involving sizeable civil works investments for runways, navigation aids, and other specialized equipment.	<b>Risk Management:</b> The project will hire an international consulting firm with experience in the design and supervision of airports. Using the same consultant for both design and supervision will minimize problems.			
	<b>The TFSU will provide overall technical guidance to the project, helping ensure consistency and high technical standards. PASO will also advise on appropriateness of specifications to ensure future oversight compliance.</b>			
	<b>Resp:</b> GoK	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
<b>4.2 Social &amp; Environmental</b>	<b>Rating</b>	<b>Low</b>		
<b>Description:</b> Unforeseen circumstances may arise regarding social and environmental safeguards.	<b>Risk Management:</b> An Environmental and Social Framework was developed for the Program and used to develop an Environmental Management Plan (EMP) for the project. A Resettlement Policy Framework (RPF) was prepared and disclosed. A consultant undertook independent social due diligence during project preparation on behalf of IDA to confirm social issues identified by the Recipient.			
	<b>Resp:</b> GoK	<b>Stage:</b> Preparation	<b>Due Date:</b> NA	<b>Status:</b> Complete
	<b>Risk Management:</b> The Detailed Design and Supervision contract is to include environment and social monitoring in its scope of work. The EMP will be included with bid documents and form part of contract. The contracts will include clear penalty clauses for non-compliance with the EMP by the contractors.			
	<b>Resp:</b> GoK	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
	<b>Risk Management:</b> Training budget apportioned for capacity building of implementing agency staff for environment and social safeguard monitoring.			
	<b>Resp:</b> GoK	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
There is dissatisfaction over the current land lease arrangements for TRW.	<b>Risk Management:</b> The project will consider small scale developments for the benefit of the local community.			
	<b>Resp:</b> GoK	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Complete
	<b>Risk Management:</b> No civil works will begin until after the announcement of the Magistrate's Court decision on land lease arrangements.			
	<b>Resp:</b> GoK	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Not yet Due



4.3 Program & Donor	Rating	Low		
<b>Description:</b> Program is unable to meet demand for investments.  Other donor programs promote an incompatible approach or duplicate effort.  Parallel investments in one airport may lead to logistical difficulties for contractors.	<b>Risk Management:</b> Confirmation of availability and scale of IDA funding for Program.			
	<b>Resp:</b> IDA	<b>Stage:</b> Preparation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
	<b>Risk Management:</b> Close donor coordination will continue throughout project preparation and implementation with other donors invited to participate in joint missions.			
	<b>Resp:</b> IDA	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
4.4Delivery Monitoring & Sustainability	Rating:	Moderate		
<b>Description:</b> Project airports are not able to meet ICAO standards or, having met these standards, are unable to maintain them.	<b>Risk Management:</b> The quality of the physical investments will be assured by: (i) using the same firm for design and supervision which will ensure consistency and quality; (ii) having a 24 month defect liability period on the runway repairs as well as for other key technologies.			
	<b>Resp:</b> GoK	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
	<b>Risk Management:</b> Passenger safety and security levy will provide income to cover safety oversight and help finance regulatory compliance.			
	<b>Resp:</b> GoK	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
	<b>Risk Management:</b> Project design includes preparation of Civil Aviation Master Plan for Kiribati and development of new revenue sources.			
	The use of a management contracts for transitioning Kiribati’s airport operations and management will provide a phased and well supported path towards commercialization of the airport.			
	<b>Resp:</b> GoK	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
	<b>Implementation Risk Rating: Substantial</b>			
	<b>Comments:</b> Although the proposed infrastructure investments are technically straightforward, the very weak institutional capacity in Kiribati means that there will be challenges with project implementation. The restructuring of the sector in Kiribati will be very difficult; therefore, the project includes the mobilization of a three-year management contract that will support the transition. Project implementation capacity constraints will be alleviated through the use of TFSU for procurement, FM and technical support.			

## **Annex 8: Tonga Aviation Investment Project Under the Regional Pacific Aviation Investment Program**

### **I. Strategic Context**

#### **A. Country Context**

1. With its remote location, small size and dispersed islands setting, Tonga faces many challenges in developing and maintaining sustainable internal, regional and international transport and communication linkages, all of which are crucial to the economic development and social well-being of its estimated 106,000 population. The country is faced with limited capital resources, asset deterioration due to neglect of maintenance, and financial and administrative constraints, that were exacerbated by the recent global financial crisis. Aviation connects Tonga with its large expatriate community: some 40% of passengers are visiting friends and relatives. Due to Tonga's geographic location within the region, its airports also play a key role in SAR missions covering the Cook Islands, Fiji, Samoa and New Zealand.

#### **B. Sectoral and Institutional Context**

2. Recognizing the key place of transport in the economic and social fabric of the country, the GoTg, with IDA Economic and Sector Work (ESW) support, undertook a series of reviews from 2004 through 2006, including a comprehensive analysis of the multi-modal transport sector and options for rationalizing the aviation sector. Many of the recommendations arising from this work were adopted by GoTg through its national Strategic Development Plan.

3. In March 2006, the Ministries of Civil Aviation and Marine and Ports were merged into the Ministry of Transport (MoT) with additional responsibilities for some aspects of land transport. In July 2007, the regulator and operator functions in the aviation sector were formally separated. The regulatory functions remained in the Department of Civil Aviation (DCA), MoT, while the operator was corporatized as TAL. On December 12, 2008, the TSCP (Grant No. H416-TO) for SDR 3.4million (~ US\$5.44 million) became effective. The development objective of TSCP was: (i) to establish and consolidate the operations of the newly-created MoT as a unified transport sector-policy, planning and regulatory ministry; and, (ii) to improve the level of compliance of the civil aviation and maritime subsector entities with international safety and security standards.

4. The aviation components<sup>57</sup> of the TSCP were highly successful and the proposed project will finance a number of additional high priority safety and security requirements at the two main airports: TBU and VAV. These investments are required to meet ICAO safety and security standards and recommended practices (SARP), as well as airline safety and security standards, ensuring that Tonga's access to international markets and tourism can be maintained. Moreover, the proposed investments will preserve and extend the service life of existing infrastructure assets as well as reduce the energy consumption, thus helping to address the challenge of air

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<sup>57</sup> The TSCP investments consisted of: (i) Aviation Sector Strategic Development Plan; (ii) TAL Airports future investment study; (iii) Aviation sector regulatory surveillance and compliance obligations review and support; (iv) TBU PAPI navigational aid, supply installation and commissioning; (v) provision of a TBU fire tender; (vi) TBU hand-baggage screening X-ray machine; (vii) emergency power upgrades at TBU and VAV; (viii) new TBU rescue fire station; (ix) TBU upgrade to passenger screening and transit facility; and, (x) TBU CCTV and access control.

transport and climate change. The project will also provide support the GoTg to establish TAL as an Airports Authority, which will give it the long-term autonomy required to sustainably manage Tonga's airports.

### **C. Higher Level Objectives to which the Project Contributes**

5. The Tonga CAS presented to the World Bank's Board on October 19, 2010, points to the need to mainstream disaster risk reduction and climate change adaptation into infrastructure planning and management. Addressing climate change by providing energy efficient airport facilities are part of this investment program, as are investments in alternative and sustainable energy efficient technologies. This will help ensure that the airports are operated in an environmentally sustainable manner.

6. The project has two additional higher level objectives, which include the improvement of air transport services for the sustainable development of tourism, which is a major contributor to Tonga's GDP, as well as guaranteed accessibility by air in case of natural disaster. The improvements to the airports—particularly the support for PASNet and ADS-B—will help to ensure that they are fully functional during disasters.

7. **Beneficiaries:** The project will benefit the population of Tonga by ensuring that its international air travel connections are not reduced due to the failure to provide services in accordance with ICAO requirements. Individual travelers will benefit through the provision of safer international and domestic air travel, and more efficient operations in the airport terminals. TAL will benefit by having significant reductions in operating costs for the terminals through more energy efficient and environmentally sustainable terminals.

8. The GoTg is committed to the success of TAL as it sees a successful international tourism industry as a key contributor to future economic development. The MPE is equally committed to the project and will provide the necessary support to the project.

## **II. Project Description**

### **A. Project Development Objective**

9. The project development objective is to improve operational safety and oversight of international air transport infrastructure.

### **B. Components**

10. **Component A: Aviation Infrastructure Improvements (US\$24.43 million including contingencies):** This component will invest in the aviation infrastructure at the TBU and VAV airports so that they are able to meet the ICAO safety and security standards, while preserving and extending the service life of existing airport assets. The activities include:

- **Navigation Aid Improvements:** The implementation of: (i) ADS-B at TBU and VAV; and, (ii) NDB at TBU.
- **Weather Monitoring:** Automatic Weather Observation Stations for TBU and VAV.
- **Terminal Building Improvements:** These include: (i) improvements to both terminals to reduce electrical consumption through both passive and technological means; (ii)

implementation of discrete photovoltaic power source for generation of on-site power at VAV<sup>58</sup> that is carbon-neutral during operation. This will not only significantly reduce airport operating costs, but do so using a non-polluting, renewable, and importantly, reliable energy source. Potentially, excess energy could be supplied to the national grid, thereby reducing the diesel fuel demands and their related CO<sub>2</sub> effects; (iii) facilities will be provided at both terminals to collect and store rain water from roof areas to significantly reduce the potable water demand and preserve natural water resources. The water will be used to service all sanitary demands and provide required collections for fire water for Crash Fire Rescue demands, and ground vehicle maintenance. Water consumption will be reduced by utilizing fixtures and valves within the terminal buildings that are high efficiency/low consumption.

- **Security Improvements:** Improved fencing, access control, building management system, Flight Information Display System and CCTV for TBU; X-ray minor terminal improvements and equipment for hand baggage inspection at VAV.
- **Upgrading of Runway Lighting:** The existing TBU lighting and cabling will be replaced with low power consumption LED fixtures, reducing the energy demand by 90%. Minor improvements will be made to lighting at VAV.
- **Resurface Runway and Markings:** The project will rehabilitate the runways, taxiways and aprons and at the two airports. At TBU this will see the existing surfaces milled (if needed) and replaced with asphalt concrete, surface dressing, cement concrete and/or interlocking concrete/stone pavers as appropriate, with proper attention to airfield drainage to prevent ponding on shoulders, aprons and other critical areas. A surface dressing will be used for VAV.
- **Fire Safety:** Provision of fire equipment for firemen at VAV (jackets, oxygen, etc.).
- **PASNet:** Provision of the PASNet secure communications system to VAV.
- **Portable Fuelling:** Provision of a portable fuelling tank for VAV.
- **Consulting Services:** The aviation Design and Supervision Consultant.

11. Table A8.1 shows the investments for each airport.

12. **Component B: Aviation Sector Reform and Training (US\$1.70 million including contingencies).** Tonga has already embarked on major aviation sector reform, to which TSCP has contributed. The reform process will continue and be supported under the project. This support will likely include a civil aviation advisor to CAD and the drafting of an Airport Authority Act clearly defining TAL's operations for the long-term. This would be similar to the Ports Authority Act of 1998 and the Tonga Communication Corporation Act of 2000, as well as other primary level legislation that other State Owned Enterprises (SOEs) operate under. Other activities include: (i) a training program, including secondment of staff for industry experience; (ii) a baseline audit of the project airport safety and security and review progress in the implementation of the ICAO Corrective Action Plan by the Recipient; and, (iii) ongoing safety and security oversight by PASO (financed by the GoA through PRIF).

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<sup>58</sup> Solar power generation is not under consideration for TBU because the currently planned large scale commercial solar facilities will place demands on the grid to the extent that additional capacity from TBU would either not be utilizable or could overload the grid.

**Table A8.1: Tonga Investments by Airport**

Description	TBU	VAV
Navigation Aids		
Automatic weather station (AWS)		
Automatic dependent surveillance-broadcast (ADS-B)		
Terminal building improvements		
Security screening equipment		
Airfield lighting and cabling		
Security Fence		
Fire Safety Equipment for Fire Crews		
Pacific Aviation Safety Network (PASNet)		
Design and Supervision Aviation Investments		
Fuelling Equipment		

13. The project will also support the reform of PASO under this component. To that end it will finance<sup>59</sup>: (i) a Business Plan for PASO which will clearly define the business structure and operations required for it to help improve the overall regional safety and security levels; and, (ii) any restructuring costs associated with implementing the business plan's recommendations. These activities are financed by the GoA through PRIF.

14. **Component C: Strengthening Airport Operations and Management Capacity (US\$0.55 million including contingencies).** During Phase 1 of the Program, this project will coordinate the following regional studies:

- **Options for Regional Aviation Supply:** A study into the options for the regional aviation market. This will consider the current and future travel demand patterns in the region, for passengers and freight, and the types of aviation services that would be most appropriate to meet these demands.
- **Long-Term Sustainability of Aviation Infrastructure:** With the often very low levels of demand, many countries in the region do not have the revenue to ensure that future operations and maintenance needs can be financed. This study will review the options for countries in the region for sustainable long-term financing and operations of key aviation infrastructure, and ways in which this financing can realistically be met.
- **Analysis of Flight Information Region (FIR):** Each country has a FIR through which aircraft travel. This study will review the revenue received by the participating countries for access to the FIR and consider options for improvements to the current approach.

15. **Component D: Program Support (US\$1.85 million including contingencies).** This component will finance the support required by of various parties involved in the Program:

- **Incremental Operating Costs:** The incremental operating costs incurred by the GoTg and TAL for the project;

<sup>59</sup> The Project Agreement contains a covenant that TAL shall, prior to the implementation of any activity on behalf of PASO, enter into a cooperation agreement with PASO, under terms and conditions which shall have been approved by IDA.

- **Support to the Technical and Fiduciary Services Unit (TFSU):** Grant resources will be used to support the hiring of key technical specialists and consultants in the TFSU to support Tonga, including operating costs such as office space and equipment;
- **Project Manager:** A project manager to oversee the investment activities in Tonga and to support the PAIP director as the TFSU Manager;
- **Project Financial Audit:** The cost of financial audits; and,
- **PASNet Annual Subscription:** The cost of annual subscriptions for the operation of the PASNet infrastructure.

### III. Key Risks and Mitigation Measures

16. The ORAF in Annex A8.2 contains the key Program and project level risks and mitigation measures. Specific risks to the project outcomes in Tonga relate to continuity of project management functions being performed for an existing project and the implementation horizon of the proposed aviation project. The performance of the TFSU as regional coordinator will place additional demands on TAL, a SOE under the MPE. To mitigate this risk, the recruitment of staff to the TFSU commenced during preparation, and the Lead Procurement Specialist and Account from the TSCP PMU were to be transferred from the MOT to the MPE by December 31, 2011.

### IV. Appraisal Summary

#### A. Economic Analysis

17. Failure to address the safety and security deficiencies at TBU airport will result in the withdrawal of international air services, and eventually even domestic services would be affected. Tonga is not a tourist destination on the scale of Fiji, which has a far larger land mass and population and which is a hub for air travel in the South Pacific. It is not even on the scale of Vanuatu—a more comparable group of islands albeit with a population over double that of Tonga—which has a highly developed tourist industry. Nevertheless, expenditure by international holiday makers does contribute significantly to Tonga's economy and employment.

18. WTTC's simulated 2010 TSA by Oxford Economics makes the following estimates for Tonga (US\$).<sup>60</sup>

Direct travel industry GDP	\$14 million
	4.9% of GDP
	6.0%pa real growth in next decade
Whole economy GDP	\$39 million
	13.8% of GDP
	4.8%pa real growth in next decade

19. The economic analysis was undertaken using the assumption that travel GDP as measured by the Tonga TSA would fall to 75% of the GDP with loss of jet services. Assuming the interruption happens in 2014, this results in an EIRR of 48.7%, with a NPV of US\$14.1 million. Further details are presented in Annex 5.

<sup>60</sup> [http://www.wttc.org/eng/Tourism\\_Research/Economic\\_Research/Country\\_Reports/Tonga/](http://www.wttc.org/eng/Tourism_Research/Economic_Research/Country_Reports/Tonga/)

## **B. Technical**

20. The project investments will be at TBU and VAV airports. Located on Tongatapu (the main island of Tonga), TBU has a main runway of 2681 x 45 meters. The runway was extended by 600 meters and all pavements resurfaced with asphalt concrete in 1989/90. Although the pavement works were done to a very high standard, some fatigue cracking is beginning to emerge. Runway testing was undertaken in 2010 at TBU and has required the reclassification of its PCN from 45 to 42 which now impacts on the size and weight of aircraft operating into TBU and, coupled with future aircraft operating types, will impact on wide bodied aircraft operations. For these reasons the runway requires strengthening to meet future traffic demands. There is low intensity runway and apron edge lighting which have reached the end of their service life. They will be replaced with energy efficient lighting.

21. The current terminal building is approximately 4000 meters<sup>2</sup> with an expansion currently underway for additional screening and departures holding area. The project will provide a range of building improvements, particularly with regard to improving building efficiency and improving sustainability.

22. VAV a single 1705 x 30 meter runway which was constructed in the early 1990s using a chip seal on a coral aggregate base. The pavements received an additional chip seal in 1999. The surfacing is showing signs of deterioration, particularly in areas where aircraft turn, and also due to fuel leakages. These constitute significant FOD risks to aircraft so the surface requires urgent replacement. The taxiway will need to be widened to 15 meters to comply with aerodrome standards, while turning nodes (10 meters x 40 meters) are required at runway ends to facilitate the turning movements of the larger aircraft without damaging the pavement surface. There are currently PAPIs installed, but no airfield lighting at this time.

23. The existing terminal building was constructed in approximately 2002 and is adequately sized for the demand. However, it requires maintenance and upgrades to increase energy and water use efficiency, and some replacement of fixtures due to corrosion. Use of renewable energy and rainwater supports a more sustainable operation of the terminal.

24. From a technical point of view the project is very straight forward. It consists of improving infrastructure at the project airports so that they meet well defined international safety and security standards. The project will implement ADS-B at both airports. ADS-B is a satellite-based technology for monitoring aircraft which is becoming the primary surveillance method for aircraft around the world. It enhances safety by making an aircraft visible, in real time, to air traffic control and to other appropriately equipped ADS-B aircraft with position and velocity data transmitted every second. An NDB will also be supplied for TBU to cater for non-ADS-B equipped aircraft.

25. VAV will be provided with PASNet (it is already at TBU), an aviation safety and security network to enable Regional CAA and air transport organizations to communicate essential safety and security communications in a secure and timely manner. Satellite ground stations are installed at the airports beside the control tower. The ground stations are linked by satellite in a full mesh closed network, with ground equipment housed within each control tower. Airport internal connectivity is by underground lines or radio links to provide connections directly to Air Traffic Control, CAA and airline data system access points.

26. Other investments include upgrading of terminal facilities and buildings, the provision of new runway lighting, automatic weather stations, and improved fire safety. The outcome of the investments at VAV will enable it to operate again as an international airport while TBU will be 'future proofed' to ensure that the main gateway to Tonga can cater for future aviation demands.

### **C. Social (including safeguards)**

27. The project will benefit the people of Tonga who will be able to take advantage of better airports. This will benefit Tongans who travel overseas, or those travelling domestically in Tonga by providing better airport infrastructure and safer travel. It will also potentially benefit Tongans more broadly since improved aviation infrastructure could lead to an increase in tourism which can generate revenues for people in the country. It will also facilitate the movement of goods.

28. The project will not have an impact on people's lands, assets, access to assets or livelihoods in any way. Investments are taking place on existing airports, and therefore no land acquisition or resettlement is envisioned. These lands are not used by persons outside the airports, as all airports are fenced and secure and are used for aviation operations only. The GoTg has confirmed that businesses in both airports will not be affected by the project. The lands where the two airports are located are already leased by GoTg. In early 2011 negotiations were completed with lease holders at Fua'amotu and Vava'u Airports to renew lease agreements with the GoTg. These negotiations resulted in major increases in the annual lease rates. The GoTg agreed it would hold these agreements and sub-lease to TAL. This sub-leasing is to be formalized by August 1, 2012.

29. People in the project area in Tonga are not considered indigenous as per the World Bank's Indigenous Peoples Policy (OP 4.10). The 2006 Census for the Kingdom of Tonga showed that over 96% of the Tongan population is Tongan (Polynesian).

### **D. Environment (including safeguards)**

30. **Safeguards:** Based on the identified scale and significance of potential impacts and sensitivity of project areas, the proposed project is designated Category B for environmental assessment purposes. All civil works are on the existing airport lands and will not lead to any additional land acquisition. An EMP was prepared and disclosed on February 28, 2011 in-country and June 1, 2011 at InfoShop. The implementation of the EMP shall be monitored by the Design and Supervision Consultant on behalf of TAL. The Ministry of the Environment shall oversee environmental compliance. The EMP summarizes the anticipated environmental impacts and their associated mitigation measures during the design, construction and operational phases, and incorporates a range of environmental and social impact activities and aspects including stakeholder consultation, land and building acquisition, resettlement, and chance find procedures for potential physical cultural resources. It makes reference to the relevant law and contract documents, approximate location, timeframe, mitigation costs, and the responsibility for its implementation and supervision.

31. Safeguard measures will be incorporated in the project during the design phase to allow the designers to incorporate the EMP in the project design, technical specifications and contract documents. During the construction phase the contractor will construct the project as per the design and technical specifications and implement the EMP with supervision provided by the



Design and Supervision Consultant. During the operation/maintenance phase, the period starting with the issuing of the 'Certificate of Completion' the onus for the upkeep and long term maintenance of the airport facilities falls on the respective airport operators.

32. **Environmental Impacts:** The environmental impacts associated with the project are: (i) excavation of runways in selected locations to remove and replace unsuitable material with suitable replacement material; (ii) transportation of excess waste material and backfill materials; (iii) dust pollution during excavation and construction; (iv) incidental loss of bitumen/asphalt during runway works; (v) disposal of excess excavated materials; (vi); drainage during construction, etc. However, in all cases the impacts are expected to be minor, temporary, readily mitigated and in most cases easily reversible.

33. Contaminated drainage and sedimentation will be controlled by scheduling construction to limit disturbance to large areas during rainy seasons, avoiding direct discharge of contaminated water to the adjacent land or water courses and installing silt traps at the onset of the construction.

34. To minimize dust generation, all trucks transporting friable materials and all material stockpiles will be covered. Waste dump sites will be chosen in consultations with the appropriate authorities and the local communities to promote future uses of waste materials.

35. To minimize noise impacts on schools, hospitals, churches near the airports, where possible, noisy activities will be carried out during normal working time and completed as soon as possible. The impacted institutions and communities will be advised when there will be unavoidable noisy construction activities in their areas.

36. **Source of Materials:** Aggregates for the civil works will largely be sourced from local private suppliers, and in some instances may need to be imported from overseas if no appropriate local supplies are available. Construction trucks will be required to respect load limits set by the governments to reduce potential damage to roads from heavily loaded trucks. Finer aggregates and sand will be transported to the construction site during off peak traffic hours, in covered transport vehicles, with water sprayed to minimize dust generation.

## **VI. Project Execution**

### **A. Implementation Arrangements**

37. The EA for the project will be the Recipient through the MFNP. The IA for the project will be TAL which is a legally autonomous SOE under the MPE. Line Ministries (Ministries of Transport, Finance and National Planning, Public Enterprises, Works and Environment and any successors thereto) will be supported in activities for which they will be responsible for implementation. There will be a NSC that will oversee the project and monitor the project's implementation as well as advising the GoTg on any concerns or issues that may arise with regards to project implementation. A representative of the NSC will also participate in a PSC at the regional level. Annex 2 provides details of the regional implementation arrangements.

38. The TFSU will support the overall project management of the Program. The TFSU is to be comprised of consultants drawn from the PMU for the TSCP, along with additional consultants. TAL will provide technical guidance to the Program. The TFSU will provide services to other countries participating in the Program in the areas of planning, budgeting,

engineering design, procurement, contract management, FM, monitoring and evaluation, and reporting requirements.

39. In addition to the Program, for Tonga, the TFSU will also function as their PST—under the TFSU Manager/Tonga Project Manager—and be responsible for monitoring implementation progress, signing of contracts, providing authorization for contract payments, and providing information for progress reporting.

40. A consulting firm will be selected and employed to provide the services of design and supervision for all infrastructure investment activities. The Design and Supervision Consultant will: (i) prepare the designs and detailed engineering; (ii) prepare work plans and bidding documents required for the procurement of civil works and goods and support the IA with procurement processing; (iii) provide assistance to the RPEC at bid evaluation and contract negotiation; and, (iv) handle project management activities, including supervision of civil works and goods. Provision of training to TFSU and the IAs will be included in the TOR for the design and supervision consulting contract.

## **B. Financial Management, Financial Reports and Audits**

41. The FM, reporting and audit arrangements are described in detail in Annex 2.

## **C. Disbursements**

42. The disbursement arrangements are described in Para. 32 of Annex 2. .

## **D. Withdrawal of the Proceeds and Financing**

43. Table A8.2 shows the project withdrawal table.

44. The GoA through PRIF will provide a Grant of US\$1.32 million to finance: B(e): PASO safety and security oversight costs; B(f): the costs of the PASO Business Plan; B(g): the cost of restructuring PASO; C(a): the study into options for regional aviation supply; C(b): the study into the long-term sustainability of regional aviation infrastructure; and, C(c): the analysis of the FIR.

## **E. Procurement**

45. Annex 2 gives a detailed explanation of the procurement process to be adopted under the Program.

46. **Procurement of Works:** The works to be procured under the project for Tonga include improvements to the terminals at TBU and VAV, repairs to the TBU security fence, and resurfacing of the TBU and VAV runways. Details of these procurements are presented in the Procurement Plan in Annex 2 and summarized for Tonga in Table A8.3.

47. **Procurement of Goods:** Goods required under the project for Tonga include navigation aids, lighting, fire safety, and security equipment. Details of these procurements are presented in the Procurement Plan in Annex 2 and summarized for Tonga in Table A8.3.

**Table A8.2: Project Withdrawal Table**

Category	Amount of the Financing Allocated (expressed in SDR)	Percentage of Expenditures to be Financed (exclusive of Taxes)
Goods, works, Training, Operating Costs, TFSU Costs and consultants services for all Parts of the Project other than for Part B (e) through (g) and C thereof <sup>2/</sup>	17,200,000	100% of the TFSU Costs <sup>1/</sup> paid as per the terms of the Service Agreement and 100% of all other Eligible Expenditures
<b>TOTAL AMOUNT</b>	17,200,000	

Notes: 1/ TFSU Costs means (i) the costs of consultants services of the TFSU providing services: (a) to Kiribati, Tonga and Tuvalu, prorated between each of the said countries based on the percentage of financing for the Program provided by IDA to each country relative to the Program's total costs which are as follows: Kiribati 37%; Tonga 44% and Tuvalu 19%; and, (b) for specific activities in a country at full cost to the respective country; and, (ii) the applicable TFSU operating costs.

2/ Financed by GoA through PRIF.

**Table A8.3: Tonga Procurement of Works and Goods**

Description	Procurement Package Number	Procurement Method	Prequal.	Review by Bank	Expected Bid Opening Date	Estimated Cost (US\$ m)
<b>Works</b>						
Airfield lighting and cabling	W-1	ICB	No	Prior	Jul-12	\$0.77
Security Fence	W-1					\$0.25
Resurface Runway and Markings	W-1					\$16.95
Terminal building improvements	W-2	ICB	No	Prior	Feb-13	\$0.88
Emergency Infrastructure Repairs	W-4	FA	No	Prior	Dec-11	\$0.05
<b>Sub-Total</b>						<b>\$18.90</b>
<b>Goods</b>						
Navigation Aids	G-1	ICB	No	Prior	Sep-12	\$0.06
Automatic weather station (AWS)	G-1					\$0.28
Automatic dependent surveillance-broadcast (ADS-B)	G-1					\$0.80
Security screening equipment	G-1					\$0.24
Pacific Aviation Safety Network (PASNet)	G-1					\$0.20
Fire Safety Equipment for Fire Crews	G-2	ICB	No	Prior	Mar-12	\$0.03
Fuelling Equipment	G-5	SH	No	Prior	Mar-12	\$0.05
<b>Sub-Total</b>						<b>\$1.66</b>
<b>Total</b>						<b>\$20.56</b>

48. **Selection of Consultants:** Thresholds and selection methods are described in Annex 2. Consultant services to be procured by Tonga are presented in the Procurement Plan in Annex 2 and summarized for Tonga in Table A8.4. Tonga will also manage the three regional studies (Options for Regional Aviation Supply; Long-Term Sustainability of Aviation Infrastructure; Analysis of Flight Information Region).

**Table A8.4: Tonga Selection of Consultants**

Description	Selection Method	Review by Bank	Expected Proposal Submission Date	Estimated Cost (US\$ m)
Design and Supervision Aviation Investments	QCBS	Prior	Dec-11	\$1.68
Support CAAs and Line Ministries	QCBS/CQS/IC	Prior	Apr-12	\$0.50
Establishment of an Airports Authority Act for Tonga	IQ	Prior	Dec-12	\$0.05
ICAO Baseline Audit	SS	Prior	Dec-11	\$0.05
PASO Safety and Security Oversight <sup>1/</sup>	SS	Prior	Dec-11	\$0.35
PASO Business Plan	CQS	Prior	Dec-11	\$0.20
Options for Regional Aviation Supply	QCBS	Prior	Sep-12	\$0.25
Long-Term Sustainability for Regional Aviation Infrastructure	CQS	Prior	Jan-12	\$0.20
Analysis of Flight Information Region (FIR)	IC	Prior	Jan-12	\$0.05
Financial Audits	LCS	Prior	Mar-12	\$0.03
Tonga Project Manager	IC	Prior		\$0.24
<b>Total</b>				<b>\$3.60</b>

Notes: 1/ Under the PICASST treaty, signatories are committed to using PASO for these services. The GoA through PRIF has provided finance for the purchase of services from PASO to support the long-term financial sustainability of PASO.

49. **Procurement Plan:** The draft procurement plan was finalized at the time of negotiations. It will also be available in the project's database and on the World Bank's external website. The plan shows that there will not be any pre-qualification or NCB. The procurement plan will be updated in agreement with IDA annually, or as required, to reflect project implementation needs and improvements in institutional capacity.

50. **Prior Review:** Thresholds were set for the Program (see Annex 2).

## F. Monitoring, Reporting and Evaluation

51. **Project Reports:** The TFSU will be responsible reporting on the Results Framework to IDA, and will monitor and review the technical performance and the oversight of the implementation of the components and sub-components. The TFSU will be responsible for collecting and reporting requisite data for monitoring progress. The following reports will also be used for purposes of monitoring and evaluation:

- Quarterly/Annual progress reports are to be submitted to the PSC, NSCs, IDA and project donors on the fourth week after the end of a fiscal quarter/calendar year to report on completed work, work to do in the next quarter/year-end results of implementation of the previous annual work program and plan, and recommendations if any;
- Implementation Completion and Results Report; and,

- Reports on particular topics will be prepared as may be necessary.

## G. Project Covenants

52. The following covenants are included in the Grant Agreement and Project Agreement:

Covenant	When	Comments
Recipient and TAL shall sign a Subsidiary Agreement between them.	Effectiveness	
Recipient shall promptly establish and thereafter maintain a Program Steering Committee comprised of the Chairmen of the National Steering Committees (or a designated representative) from each of the Program Countries, PASO's General Manager (or a designated representative), the Director of the TFSU, and others as appropriate, to meet at least on a quarterly basis to review and evaluate Program implementation progress	Within 60 days of effectiveness	Required for the effective regional co-ordination of the Program
Recipient shall nominate its member to the Program Steering Committee, with terms of reference and qualifications satisfactory to the Association	Within 60 days of effectiveness	Required for the effective regional co-ordination of the Program
Recipient shall establish and thereafter at all times maintain throughout the Project implementation period, the National Steering Committee with powers and composition satisfactory to the Association	Within 60 days of effectiveness	Required for the effective national co-ordination of the project
The Recipient shall collect from departing international air passengers a five Australian Dollars (AU\$5) equivalent levy for use to pay aviation safety and security expenditures incurred by TAL and the Ministry of Transport;	December 31, 2012	The safety and security levy is essential to ensuring financial sustainability of safety and security investments.
Recipient shall sublease the Fua'amotu and Vava'u airport lands to TAL in accordance with the terms of the leases currently in effect with the Ministry of Transport	August 1, 2012	This shall put TAL in control of the land upon which the airports are operated.
Recipient shall ensure that all times during the Project implementation TAL manages all revenues associated with the aviation sector and accounts for such revenues in a satisfactory manner	Continuous	This shall ensure that TAL has sufficient revenue for sustaining its operations and the project investments.
The Project Implementing Entity shall establish and thereafter maintain at all times throughout the Project implementation period, a Technical and Fiduciary Services Unit with staffing, powers and responsibilities satisfactory to the Association	Within 60 days of effectiveness	Required for managing the regional Program's FM and procurement and providing technical oversight to the project.
The Project Implementing Entity shall establish and thereafter maintain at all times throughout the Project implementation period, the Regional Procurement Evaluation Committee with powers satisfactory to the Association, and comprising representatives from TAL, Kiribati and Tuvalu as well as members of the TFSU	Within 60 days of effectiveness	Required for effective regional procurement
The Project Implementing Entity shall appoint the TFSU Program Director, TFSU Finance Manager and TFSU Manager/Tonga Project Manager, with terms of reference and qualifications satisfactory to the	Within 60 days of effectiveness	Required for managing the FM, procurement and providing technical oversight for the Program.

Association		
The Project Implementing Entity shall enter into a service agreement with each of Kiribati and Tuvalu, under terms and conditions which shall have been approved by the Association	Within 60 days of effectiveness	Required for the TFSU to provide services to Kiribati and Tuvalu for the Program and for shared payments of costs by signatories
The Project Implementing Entity shall enter into a cooperation agreement with PASO, under terms and conditions which shall have been approved by the Association	Prior to implementation of any PASO activities	Required for managing activities involving PASO on the Program
The Project Implementing Entity shall adopt and thereafter carry out the Project in accordance with a Program Operations Manual, satisfactory to the Association	Within 60 days of effectiveness	The manual clearly defines the operational and FM procedures on the project.

## Annex A8.1: Results Framework and Monitoring

<b>Program Development Objective (PDO): “to improve operational safety and oversight of international air transport infrastructure”</b>												
PDO Level Results Indicators*	Core	Unit of Measure	Baseline	Cumulative Target Values**					Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition etc.)
				YR 1	YR 2	YR3	YR 4	YR5				
<b>Indicator One:</b> Regulatory certification of safety and security at project airports <sup>1/</sup>	<input type="checkbox"/>	N/A	TBU currently certified; VAV not.					Certification of both airports in accordance with ICAO standards	Aligned with PASO oversight schedule	ICAO audits	CAA/TFSU	regulatory capacity of aviation sector
<b>Indicator Two:</b> State requirements for safety and security reaches global ICAO average	<input type="checkbox"/>	N/A	90.7%					49%	Post-PASO oversight schedule	Implementing Agency	CAA/TFSU	Institutional oversight functions being performed
<b>Indicator Three:</b> Modernization of air traffic management	<input type="checkbox"/>	N/A	PASNet only at TBU. No ADS-B			PASNet and ADS-B operational at TBU and VAV			once	Implementing Agency	CAA/TFSU	Enhanced safety and efficiency
<b>Indicator Four:</b> Implementation of a regional safety and security levy for departing international passengers	<input type="checkbox"/>	N/A	No levy		AU\$5 collected from each departing international passenger				once	Executing Agency	CAA/TFSU	Sustainable finance mechanism in place

Notes: 1/ At the onset of the Program, audits of all project airports will be done by ICAO to assess the safety and security standards.

INTERMEDIATE RESULTS												
PDO Level Results Indicators*	Core	Unit of Measure	Baseline	Cumulative Target Values**					Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition etc.)
				YR 1	YR 2	YR3	YR 4	YR5				
Intermediate Result (Component A):												
Intermediate Result indicator One: Navigation and safety aids fully operational	<input type="checkbox"/>	%	0				100% of project-financed infrastructure		once	TAL	TFSU	Improved operational safety
Intermediate Result indicator Two: Rehabilitation of TBU and VAV runways	<input type="checkbox"/>	%	0			100%			once	TAL	TFSU	Improved operational safety
Intermediate Result indicator Three: Energy efficient runway lighting fully operational and compliant at TBU	<input type="checkbox"/>	N/A	0			Fully operational			once	TAL	TFSU	Improved operational safety
Intermediate Result (Component B):												
Intermediate Result indicator One: Preparation of necessary legislation for establishment of Tonga Airports Authority	<input type="checkbox"/>	N/A	No legislation	Legislati on Prepared					End-of-project	CAA	TFSU	Capacity Development
Intermediate Result indicator One: Successful implementation of agreed training plan	<input type="checkbox"/>	N/A	No training plan					Training plan completed	End-of-project	CAA	TFSU	Capacity Development



## Annex A8.2: Operational Risk Assessment Framework (ORAF)

### Program/Project Development Objective(s)

To improve operational safety and oversight of international air transport infrastructure

**PDO Level Results Indicators:**

1. Regulatory certification of safety and security at project airports
2. State requirements for safety and security reaches global ICAO average
3. Modernization of air traffic management
4. Implementation of a regional safety and security levy for departing international passengers

1.Project Stakeholder Risks		Rating	Moderate	
Air service operators and passengers object to potential disruptions during implementation.	Risk Management: Design and Supervision Consultant to identify implementation schedule that minimizes potential disruptions.			
	Resp: GoTg	Stage: Implementation	Due Date: NA	Status: Not Yet Due
3. Implementing Agency Risks (including fiduciary)				
3.1 Capacity	Rating	High		
<p><b>Description:</b> Lack of regional coordination among implementing agencies leads to poor outcome.</p> <p>The TFSU will become overwhelmed by the demands of the regional project.</p> <p>PASO will not be able to provide the enhanced technical support to the participating countries.</p> <p>Project Support Team lacks technical skills and financial resources to undertake the projects.</p> <p>Implementing agencies in participating countries lack technical skills and financial resources to undertake the projects and do not have effective processes and controls to meet IDA procurement and FM standards.</p>	Risk Management: There shall be a ‘service Agreement’ between the TFSU and the EA. A Regional Procurement Evaluation Committee will be established under the framework of the Service Agreement.			
	A single Design and Supervision Consultant will be used to provide the necessary support during implementation.			
	PASO will provide guidance to implementing agencies throughout implementation and will contract staff as needed to ensure it can meet the technical demands.			
	Resp: GoTg	Stage: Implementation	Due Date: NA	Status: Ongoing
	Risk Management: The TFSU will be further strengthened with dedicated Project staff including Project Advisors and Aviation Procurement Specialist. Project Support Component includes funding for services rendered by the TFSU.			
	Resp: GoTg	Stage: Implementation	Due Date: NA	Status: Ongoing
	Risk Management: Regular and intensive technical, procurement and FM supervision missions to provide support to participating agencies.			
	Resp: IDA	Stage: Implementation	Due Date: NA	Status: Ongoing
	Risk Management: Centralized procurement of works and equipment through TFSU and Regional Bid Evaluation Committee to address the capacity risk will reduce the risk of fraud and corruption in project procurement. Detailed complaints handling mechanism shall be included in the TFSU Service Agreement.			
	Resp: GoTg	Stage: Implementation	Due Date: NA	Status: Ongoing

	<b>Risk Management:</b> The project will undertake all major procurements using ICB. Direct payments will be made to the contractors and suppliers. A Project Operation Manual that includes a FM Manual with agreed FM reporting formats will be adopted.			
	<b>Resp:</b> GoTg	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
<b>3.2 Governance</b>	<b>Rating</b>	<b>High</b>		
<b>Description:</b> Government fails to deliver on promised sector reforms, project implementation support and financing of airport operations and maintenance.	<b>Risk Management:</b> A NSC shall be established to monitor and advise the implementing agencies on the project and to ensure stakeholder support.			
	<b>Resp:</b> GoTg	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
<b>Description:</b> Level of commitment for sectoral reforms is not sufficient to meet objectives.	<b>Risk Management:</b> Results Framework includes formalization of TAL as operator			
	<b>Resp:</b> GoTg	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
<b>4. Project Risks</b>				
<b>4.1 Design</b>	<b>Rating</b>	<b>Moderate</b>		
<b>Description:</b> The project is technically complex involving sizeable civil works investments for runways, navigation aids, and other specialized equipment.	<b>Risk Management:</b> The project will hire an international consulting firm with experience in the design and supervision of airports. Using the same consultant for both design and supervision will minimize problems.  The TFSU will provide overall technical guidance to the project, helping ensure consistency and high technical standards. PASO will also advise on appropriateness of specifications to ensure future oversight compliance.			
	<b>Resp:</b> GoTg	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
<b>4.2 Social &amp; Environmental</b>	<b>Rating</b>	<b>Low</b>		
<b>Description:</b> Unforeseen circumstances may arise regarding social and environmental safeguards.	<b>Risk Management:</b> An Environmental and Social Framework was developed for the Program and used to develop an Environmental Management Plan (EMP) for the project. A Resettlement Policy Framework (RPF) was prepared and disclosed. A consultant undertook independent social due diligence during project preparation on behalf of IDA to confirm social issues identified by the Recipient.			
	<b>Resp:</b> GoTg	<b>Stage:</b> Preparation	<b>Due Date:</b> NA	<b>Status:</b> Complete
	<b>Risk Management:</b> The Detailed Design and Supervision contract is to include environment and social monitoring in its scope of work. The EMP will be included with bid documents and form part of contract. The contracts will include clear penalty clauses for non-compliance with the EMP by the contractors.			
	<b>Resp:</b> Recipients/IDA	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
	<b>Risk Management:</b> Training budget apportioned for capacity building of implementing agency staff for environment and social safeguard monitoring.			
	<b>Resp:</b> GoTg	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
<b>4.3 Program &amp; Donor</b>	<b>Rating</b>	<b>Low</b>		
<b>Description:</b> Program is unable to meet demand for investments.	<b>Risk Management:</b> Confirmation of availability and scale of IDA funding for Program.			
	<b>Resp:</b> IDA	<b>Stage:</b> Preparation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
Other donor programs promote an incompatible approach or duplicate effort.	<b>Risk Management:</b> Close donor coordination will continue throughout project preparation and implementation with other donors invited to participate in joint missions.			
Parallel investments in one airport may lead to logistical difficulties for contractors.	<b>Resp:</b> IDA	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing

4.4Delivery Monitoring & Sustainability	Rating:	Moderate		
Description: Project airports are not able to meet ICAO standards or, having met these standards, are unable to maintain them.	Risk Management: The quality of the physical investments will be assured by: (i) using the same firm for design and supervision which will ensure consistency and quality; (ii) having a 24 month defect liability period on the runway repairs as well as for other key technologies.			
	Resp: Recipient/IDA	Stage: Implementation	Due Date: NA	Status: Ongoing
	Risk Management: Passenger safety and security levy will provide income to cover safety oversight and help finance regulatory compliance.			
	Resp: GoTg	Stage: Implementation	Due Date: NA	Status: Ongoing
	Implementation Risk Rating: Substantial			
	Comments: Although the proposed infrastructure investments are technically straightforward, the very weak institutional capacity in Kiribati and Tuvalu will require TAL’s expertise and guidance during implementation of Phase 1 of the Program. Project implementation capacity constraints will be alleviated through the use of select specialists to support the TFSU on technical aviation matters and procurement handling.			

## **Annex 9: Tuvalu Aviation Investment Project Under the Regional Pacific Aviation Investment Program**

### **I. Strategic Context**

#### **A. Country Context**

1. Tuvalu joined is the World Bank Group's newest member, joining in June 2010. Tuvalu is a group of nine islands (4 reef islands and 5 coral atolls) with a land area of 26 km<sup>2</sup> and maximum elevation of 4.5 meters. Few atolls are more than 800 meters wide. Roughly half the country's population of some 10,500 lives on the main atoll, Funafuti. All nine islands are inhabited by at least one or two villages. On the outer islands three-quarters of the people still live in traditional-style housing.

2. Tuvalu's gross domestic product is around US\$35 million a year<sup>61</sup> and is the smallest of any independent state. Tuvalu has no foreign debt and is financially sound due to fiscal prudence, aid, remittances, and a series of unique monetary arrangements. The government employs some 40.7% of the work force, retail trade 5.6% and construction 5.5%. The unemployment rate was 6.5% in 2002 (latest official data). Industry barely exists. There is small-scale processing of timber (sourced locally or from New Zealand) and handicrafts. Small numbers of Tuvaluans work in the tourism industry. Tuvalu's economy is highly dependent on remittances and is considered one of the most economically and environmentally vulnerable countries in the world.

3. Farming is subsistence and productivity is low due to poor soils, limited use of fertilizer, small plot size, lack of access to credit, inadequate market infrastructure, and the lack of mechanization. Only coconuts and pandanus grow naturally. Banana, papaya and breadfruit are cultivated and a variety of taro is grown in pits excavated from coral rock. Reef fish and tuna are the main dietary protein. Tuvalu is a net food importer and three-quarters of the food consumed on Funafuti is imported.

4. Food, alcohol and tobacco are the major imports (32%) followed by fuel (18%). Imports reached US\$18 million in 2010 but exports are usually around half a million dollars annually, mainly copra and handicrafts.

#### **B. Sectoral and Institutional Context**

5. **Sector Context.** Funafuti International Airport (FUN) is the Tuvalu's only airport. While the FUN would be considered functional for its purpose, there are significant safety and security issues that need to be addressed. Most urgent of these include upgrading of both the terminal and the control tower and a resurfacing of the runway. Emergency fire service coverage is inadequate and the lack of perimeter security is also a safety concern.

6. The current runway dimensions are capable of handling turbo-prop ATR type aircraft, typically having 40 seats. With only two flights a week, by Air Pacific operating from Suva, Fiji, additional capacity could be added by having more flights arriving instead of accommodating larger aircraft. There is a potential for expansion of the service for a third flight per week to be

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<sup>61</sup> Source: IMF Country Report No. 11/46 (Tuvalu), Table 1, February 2011

added during peak times (November to March) when there are waiting lists and passenger demand sometimes cannot be met.

7. **Strategic Importance of Air Connectivity:** Whereas most other PICs rely on their airports for bringing tourists to their countries; FUN is Tuvalu's strategic life-line.

- **Travel for work:** Given the shortage of work opportunities in Tuvalu, there is a significant migrant work culture. Mostly men spend extended periods overseas earning an income from a variety of professions of which maritime work would be the most popular. These migrant workers often use air travel to reach their work destinations since shipping is very infrequent.
- **Education:** Most of Tuvalu's tertiary students travel to countries such as New Zealand, Australia, United Kingdom and Fiji for their education.
- **Health:** Tuvalu has one hospital situated in Funafuti. Simple procedures can be performed but patients in need of major treatment are relocated to hospitals in Fiji or New Zealand. During 2010 a total of 129 patients (approximately 10 per month) were relocated to hospitals elsewhere.
- **Tourism:** Over the past four years, Funafuti has experienced an increased aviation passenger demand of just over 30%, with tourism accounting for roughly half of arrivals. Tourism itself has increased by more than 40% over the same period. The passenger numbers account for an average occupancy of over 70% of an ATR aircraft servicing Tuvalu.
- **Family Connections:** Approximately 10% of all travel (inbound and outbound) is related to family visits. Tuvalu citizens have family spread over the whole Pacific region, with most families situated in Fiji and New Zealand.

8. **Institutional Context.** The Department of Civil Aviation (DCA) is under the Ministry of Transportation and Communications (MTC). The DCA is divided into three divisions and is responsible for the whole of the aviation sector in Tuvalu, including both regulatory and operational matters. In addition, the DCA plays the role of commercial airlines' agency, carrying out their operations activities and acting as a point of contact for the airlines in the country. The DCA Annual Report (2010) outlines the departmental work plan, which is aligned with its Five Year Strategic Plan and was formulated in accordance with the Tuvalu National Strategic Plan.

### C. Higher Level Objectives to which the Project Contributes

9. As a new member, Tuvalu does not yet have a CAS. However, the government has confirmed the importance of this project to Tuvalu's economic and social development and this project forms a cornerstone of the CAS to be presented to the World Bank Board at the same time as the project.

10. The project has two additional higher level objectives, which include the improvement of air transport services for the sustainable development of tourism, which is a growing contributor to Tuvalu's GDP, as well as guaranteed accessibility by air in case of natural disaster.

11. **Beneficiaries:** The project will benefit the population of Tuvalu by ensuring that its international air travel connectivity is not reduced due to the failure to provide safe aviation infrastructure. Individual travelers will benefit through the provision of safer air travel, and more secure and efficient operations in the airport terminal.

## II. Project Description

### A. Project Development Objective

12. The project development objective is to improve operational safety and oversight of international air transport infrastructure.

### B. Components

13. **Component A: Aviation Infrastructure Improvements (US\$10.23 million including contingencies):** This component will invest in the aviation infrastructure at Funafuti (FUN) airport so that it is able to meet minimum ICAO safety and security standards, while preserving and extending the service life of existing airport assets. The activities include:

- **Rehabilitation of Airport Pavement:** The project will rehabilitate the FUN runway, taxiway and apron. This will see the existing surfaces milled (if needed) and replaced with asphalt concrete, surface dressing, cement concrete and/or interlocking concrete/stone pavers as appropriate, with proper attention to airfield drainage to prevent ponding on shoulders, aprons and other critical areas. The potential for storing runway runoff will be considered.
- **Terminal Building and Control Tower:** Construction of a new terminal and control tower.
- **Air Traffic Control Equipment:** Provision of ceilometers, signal lamps, radios, backup generator, along with the necessary communication and surveillance equipment, including ADS-B.
- **PASNet:** Provision of the PASNet secure communications system.
- **Airfield Maintenance Equipment:** Equipment for grass cutting and other basic maintenance.
- **Automatic Weather Station:** Equipment to permit the automatic monitoring and transmitting of weather data.
- **Obstacle Limitation Survey:** WGS84 Obstacle survey for instrument approach;
- **Security Improvements:** Provision of X-Ray equipment and screen facilities for both hold baggage and carry-on baggage.
- **Laboratory/Testing Equipment:** Supply of testing equipment for testing of materials during construction.
- **Fire Safety:** Provision of a fire tender; provision of fire equipment for firemen (jackets, oxygen, etc.).
- **Consulting Services:** The aviation Design and Supervision Consultant.

14. **Component B: Aviation Sector Reform and Training (US\$0.62 million including contingencies):** This component will finance technical assistance to the MTC, including: (i) support to the MTC to strengthen its capabilities with aviation sector management, policy, safety and security oversight; (ii) a training program, including seconding of staff for industry experience; (iii) a baseline audit of the project airport safety and security and review of progress in the implementation of the ICAO Corrective Action Plan by the Recipient; and, (iv) ongoing safety and security oversight by PASO (financed by the GoA through PRIF).

15. **Component C: Strengthening Airport Operations and Management Capacity (US\$0.22 million including contingencies):** The project will assist Tuvalu to establish appropriate operating structures through a study to identify options for creating separate operating company for operating Funafuti airport. Financing and support for the implementation of the recommended framework is not currently included in the project.

16. **Component D: Project Support (US\$0.95 million including contingencies):** This component will finance the support required by various parties involved in the Program:

- **Incremental Operating Costs:** The incremental operating costs incurred by the Government of Tuvalu (GoTv) for the project;
- **Support to the Technical and Fiduciary Services Unit (TFSU):** Grant resources will be used to support the hiring of key technical specialists and consultants in the TFSU to support Tuvalu, including operating costs such as office space and equipment;
- **Project Support Team:** The hiring of staff for the PST;
- **Project Financial Audit:** The cost of financial audits; and,
- **PASNet Annual Subscription:** The cost of annual subscriptions for the operation of the PASNet infrastructure.

### III. Key Risks and Mitigation Measures

17. The ORAF in Annex A9.2 contains the key Program and project level risks and mitigation measures. Specific risks to the project outcomes in Tuvalu relate to institutional capacity constraints. To mitigate these risks, the TFSU will be responsible for supporting the DCA throughout implementation. The TFSU will provide technical advisory services on a cost recovery basis. The project will hire an experienced international consulting firm with experience in the design and supervision of airports. Using the same consultant for both activities will minimize problems.

### IV. Appraisal Summary

#### A. Economic Analysis

18. Failure to address the safety and security deficiencies at FUN airport will result in the withdrawal of international air services as the runway will continue to deteriorate to the point where it cannot be safely used. Whilst Tuvalu is not known as a leisure tourist attraction, when leisure, business and visiting friends and relatives travel are combined Tuvalu generates a respectable amount of air traffic in relation to its tiny population and economy.

19. It was assumed that travel and tourism contributes to the Tuvalu economy to one-third of the extent of Kiribati, namely 4% of GDP or US\$1.4 million annually. Of more importance are annual remittances, which are on the order of US\$5 million annually. Disruption of air services might wipe out remittances from seamen and those on seasonal work schemes in New Zealand and elsewhere. Remittances from Tuvalu's diasporas would tend to survive. For analysis, remittances were assumed to fall from US\$5 million to US\$3 million, but the actual loss may be higher. Half of the travel GDP was assumed to be lost. The total annual loss is therefore US\$3.7 million each year until full services are reinstated. Only 42.2% of the former total benefit survives.

20. On the basis of the above assumptions, and using the methodology described in Annex 5, were services to be interrupted in 2014 without the project, the EIRR for the project would be 38.3%, with an NPV of US\$4.2 million. If the interruption was not until 2016 the economic returns of the project would be an EIRR of 17.7% and an NPV of US\$1.8 million.

## **B. Technical**

21. The runway at FUN is 1520 x 30 meters with a paved surface. Paving was reportedly undertaken in 1994. The existing pavement has reached the end of its service life and is suffering from fatigue cracking and potholing. This leads to a FOD risk to aircraft. There are no runway lights, nor security fence. There are very basic navigation aids, but a NDB has recently been installed. The control tower is in a building which is falling down and needs urgent replacement. The passenger terminal is very small and poorly laid out to service passengers.

22. Alternative design considerations included extending the current runway to allow for jet aircraft to use FUN. However, this would result in the need to widen the current 30 meter width to 45 meters, requiring land acquisition, including both prominent buildings and other affected households. There would also be environmental impacts associated with filling over coral reef areas. For these reasons, the existing runway dimensions will not be modified and only pavement resurfacing will be undertaken. Increased passenger numbers can be achieved through an increase in flight frequency.

23. The project will implement ADS-B at Funafuti airport. ADS-B is a satellite-based technology for monitoring aircraft which is becoming the primary surveillance method for aircraft around the world. It enhances safety by making an aircraft visible, in real time, to air traffic control and to other appropriately equipped ADS-B aircraft, with position and velocity data transmitted every second.

24. PASNet, an aviation safety and security network to enable Regional CAA and air transport organizations to communicate essential safety and security communications in a secure and timely manner, will also be provided at FUN. Satellite ground stations are installed at the airports beside the control tower. The ground stations are linked by satellite in a full mesh closed network, with ground equipment housed within each control tower. Airport internal connectivity is by underground lines or radio links to provide connections directly to Air Traffic Control, CAA and airline data system access points.

25. Other investments at FUN include construction of a new terminal with appropriate security screening and related equipment, a new control tower and air traffic control equipment, improved fire safety equipment, and an Automatic Weather Observation station.

## **C. Social (including safeguards)**

26. The project will benefit the people of Tuvalu who will be able to take advantage of a better airport and facilitate the movement of goods. It will also potentially benefit people in Tuvalu more broadly since improved aviation infrastructure could lead to an increase in tourism which can generate important revenues and employment opportunities for people in the country.

27. Consultations with government officials, local households, site inspection, as well as review of land registration and lease payment records with the Department of Lands and Surveys confirmed that no land acquisition will be necessary and the Project will not result in either the



physical displacement of people or the economic displacement of livelihoods, or the involuntary restriction of public access to parks or protected areas. The existing FUN land and the two adjacent sites considered as possible alternative locations for the terminal building and the control tower are formally leased to the Government from customary landowners. There are no outstanding lease payments and lease rates—reviewed and adjusted in 2011—are in compliance with IDA’s policy of compensation at current market value/replacement cost.

28. **Indigenous Peoples:** The population of Tuvalu is primarily Polynesian (about 96%) with the rest ethnically Micronesian. There are no indigenous peoples in Tuvalu or in the vicinity of the project area; therefore OP 4.10 on Indigenous People is not triggered.

#### **D. Environment (including safeguards)**

29. **Safeguard Issues:** Based on the identified scale and significance of potential impacts and sensitivity of project areas, the proposed Project is designated Category B for environmental assessment purposes. All civil works are on the existing airport or government lands and will not lead to any additional land acquisition. An EMP was prepared and disclosed on September 15, 2011 at InfoShop and September 19, 2011 in-country. The EMP addresses all construction related environmental impacts, including fuel and oil spills and waste disposal (including sanitary) related to airport operations, with associated mitigation measures. Air and noise pollution from aircraft operations are not likely to constitute a significant environmental impact, given the relatively low frequency of aircraft operations. Proper attention will be given to storm water drainage including its use for groundwater recharge. The EMP will also ensure compliance with ICAO environmental standards for airport operations. The implementation of the EMP shall be monitored by the Design and Supervision Consultant on behalf of MTC. The Ministry of Foreign Affairs, Trade, Tourism, Environment and Labour shall oversee environmental compliance.

30. The provisions of the EMP are to be incorporated into the bidding documents and contracts of all civil works. The EMP summarizes the anticipated environmental impacts and their associated mitigation measures during the design, construction and operational phases, and incorporates a range of environmental and social impact activities and aspects including stakeholder consultation, land and building acquisition, resettlement, and chance find procedures for potential physical cultural resources. It makes reference to the relevant law and contract documents, approximate location, timeframe, mitigation costs, and the responsibility for its implementation and supervision.

31. Safeguard measures will be incorporated in the project during the design phase to allow the designers to incorporate the EMP in the project design, technical specifications and contract documents. During the construction phase the contractor will construct the project as per the design and technical specifications and implement the EMP with supervision provided by the Design and Supervision Consultant. During the operation/maintenance phase, the period starting with the issuing of the ‘Certificate of Completion’ the onus for the upkeep and long term maintenance of the airport facilities falls on the airport operator.

32. **Environmental Impacts:** The environmental impacts associated with the project are: (i) excavation of runway in selected locations to remove and replace unsuitable material with suitable replacement material; (ii) removal of existing control tower; (iii) transportation of excess waste material and backfill materials; (iv) dust pollution during excavation and construction; (v)

incidental loss of bitumen/asphalt during runway works; (vi) disposal of excess excavated materials; and, (vii) drainage during construction, etc. However, in all cases the impacts are expected to be minor, temporary, readily mitigated and in most cases easily reversible.

33. Contaminated drainage and sedimentation will be controlled by scheduling construction to limit disturbance to large areas during rainy seasons, avoiding direct discharge of contaminated water to the adjacent land or water courses and installing silt traps at the onset of the construction.

34. To minimize dust generation, all trucks transporting friable materials and all material stockpiles will be covered. Waste dump sites will be chosen in consultations with the appropriate authorities and the local communities to promote future uses of waste materials.

35. To minimize noise impacts on schools, hospitals, and churches near the airports, where practical, noisy activities will be carried out during normal working time and completed as soon as possible. The impacted institutions and communities will be advised when there will be unavoidable noisy construction activities in their areas.

36. **Source of Materials:** Aggregates for the civil works will largely be sourced from local private suppliers, and in some instances may need to be imported from overseas if no appropriate local supplies are available. Construction trucks will be required to respect load limits set by the governments to reduce potential damage to roads from heavily loaded trucks. Finer aggregates and sand will be transported to the construction site during off peak traffic hours, in covered transport vehicles, with water sprayed to minimize dust generation.

## **VII. Project Execution**

### **A. Implementation Arrangements**

37. The EA for the project will be the Recipient through the Ministry of Finance and Economic Development (MFED). The IA for the project will be the Recipient through the MTC, who will be supported by the DCA. There will be a NSC that will oversee the project and monitor the project's implementation as well as advising on any concerns or issues that may arise with regards to project implementation. A representative of the NSC will also participate in a PSC at the regional level. Annex 2 provides details of the regional implementation arrangements.

38. The TFSU will support the overall Program management. These services are to cover planning, budgeting, engineering design, procurement, contract management, FM, monitoring and evaluation, and reporting requirements. A Tuvalu PST, comprised of a Project Manager, Accountant/Contracts Officer and Administrative Assistant will liaise with the TFSU, provide country-based oversight and management, including inputs and reporting, as required. The PST will support the MTC in monitoring implementation progress, signing of contracts, providing authorization for contract payments, and providing information for progress reporting.

39. A consulting firm will be selected and employed to provide the services of design and supervision for all infrastructure investment activities. The Design and Supervision Consultant will: (i) prepare the designs and detailed engineering; (ii) prepare work plans and bidding documents required for the procurement of civil works and goods and support the IA with procurement processing; (iii) provide assistance to the RPEC at bid evaluation and contract

negotiation; and, (iv) handle project management activities, including supervision of civil works and goods. Provision of training to TFSU and the IAs will be included in the TOR for the design and supervision consulting contract.

## **B. Financial Management, Financial Reports and Audits**

40. The FM, reporting and audit arrangements are described in detail in Annex 2.

## **C. Disbursements**

41. The disbursement arrangements are described in Para. 32 of Annex 2.

## **D. Withdrawal of the Proceeds and Financing**

42. Table A9.1 shows the project withdrawal table.

**Table A9.1: Project Withdrawal Table**

<b>Category</b>	<b>Amount of the Financing Allocated (expressed in SDR)</b>	<b>Percentage of Expenditures to be Financed (exclusive of Taxes)</b>
Goods, works, Training, Operating Costs, TFSU Costs and consultants services for all Parts of the Project other than for Part B (d) thereof <sup>2/</sup>	7,500,000	100% of the TFSU Costs <sup>1/</sup> paid as per the terms of the Service Agreement and 100% of all other Eligible Expenditures
<b>TOTAL AMOUNT</b>	7,500,000	

Notes: 1/ TFSU Costs means (i) the costs of consultants services of the TFSU providing services: (a) to Kiribati, Tonga and Tuvalu, prorated between each of the said countries based on the percentage of financing for the Program provided by IDA to each country relative to the Program's total costs which are as follows: Kiribati 37%; Tonga 44% and Tuvalu 19%; and, (b) for specific activities in a country at full cost to the respective country; and, (ii) the applicable TFSU operating costs.

2/ Financed by GoA through PRIF.

43. The GoA through PRIF will provide a Grant of US\$0.17 million to finance activity B(d): PASO safety and security oversight costs.

## **E. Procurement**

44. Annex 2 gives a detailed explanation of the procurement process to be adopted under the Program.

45. **Procurement of Works:** The works to be procured under the project for Tuvalu consist of a new terminal building with control tower and the resurfacing of the runway. The specific

procurements and the costs are shown in the Procurement Plan in Annex 2 and summarized in Table A9.3.

**Table A9.3: Tuvalu Procurement of Works and Goods**

Description	Procurement Package Number	Procurement Method	Prequal.	Review by Bank	Expected Bid Opening Date	Estimated Cost (US\$ m)
<b>Works</b>						
Resurface Runway and Markings	W-1	ICB	No	Prior	Jul-12	\$4.58
Terminal building improvements	W-2	ICB	No	Prior	Feb-13	\$2.00
Emergency Infrastructure Repairs	W-4	FA	No	Prior	Dec-11	\$0.05
<b>Sub-Total</b>						<b>\$6.63</b>
<b>Goods</b>						
Automatic weather station (AWS)	G-1	ICB	No	Prior	Sep-12	\$0.14
Automatic dependent surveillance-broadcast (ADS-B)	G-1					\$0.40
Security screening equipment	G-1					\$0.12
Air Traffic Control Equipment	G-1					\$0.25
Pacific Aviation Safety Network (PASnet)	G-1					\$0.20
Fire Tender Vehicle	G-2	ICB	No	Prior	Mar-12	\$0.80
Fire Safety Equipment for Fire Crews	G-2					\$0.03
Airfield Maintenance Equipment	G-3	ICB	No	Prior	Mar-12	\$0.08
Laboratory/Testing Equipment	G-4	SH	No	Prior	Mar-12	\$0.05
<b>Sub-Total</b>						<b>\$2.07</b>
<b>Total</b>						<b>\$8.69</b>

46. **Procurement of Goods:** Goods to be procured under the project for Tuvalu include automatic weather monitoring equipment, improved navigation and air traffic control equipment, as well as a new fire tender and fire safety equipment for the crews. The specific procurements and the costs are shown in the Procurement Plan in Annex 2 and summarized in Table A9.3.

47. **Selection of Consultants:** Thresholds and selection methods are described in Annex 2. The specific Consultant services required and the costs are shown in the Procurement Plan in Annex 2 and summarized in Table A9.4.

48. **Procurement Plan:** The draft procurement plan was agreed at the time of negotiations. It will also be available in the project's database and on the World Bank's external website. The plan shows that there will not be any pre-qualification or NCB. The procurement plan will be updated in agreement with IDA annually, or as required, to reflect project implementation needs and improvements in institutional capacity.

49. **Prior Review:** Thresholds were set for the Program (see Annex 2).

**Table A9.4: Tuvalu Selection of Consultants**

Description	Selection Method	Review by Bank	Expected Proposal Submission Date	Estimated Cost (US\$ m)
Obstacle Limitation Survey	LCS	Prior	Feb-12	\$0.04
Design and Supervision Aviation Investments	QCBS	Prior	Dec-11	\$0.71
Support CAAs and Line Ministries	QCBS/CQS/IC	Prior	Apr-12	\$0.25
ICAO Baseline Audit	SS	Prior	Dec-11	\$0.05
PASO Safety and Security Oversight	SS	Prior	Dec-11	\$0.15
Funafuti Operations Options	CQS	Prior	Mar-12	\$0.20
Project Support Team	IC	Prior		\$0.20
Financial Audits	LCS	Prior	Mar-12	\$0.03
<b>Total</b>				<b>\$1.63</b>

Notes: 1/ Under the PICASST treaty, signatories are committed to using PASO for these services. The GoA through PRIF has provided finance for the purchase of services from PASO to support the long-term financial sustainability of PASO.

## F. Monitoring, Reporting and Evaluation

50. **Project Reports:** The TFSU, with assistance from the DCA, will be responsible reporting on the Results Framework to IDA, and will monitor and review the technical performance and the oversight of the implementation of the components and sub-components. The DCA will be responsible for collecting and reporting requisite data for monitoring progress, with support from the TFSU. The following reports will also be used for purposes of monitoring and evaluation:

- Quarterly/Annual progress reports are to be submitted to PSC, NSCs, IDA and project donors on the fourth week after the end of a fiscal quarter/calendar year to report on completed work, work to do in the next quarter/year-end results of implementation of the previous annual work program and plan, and recommendations if any;
- Implementation Completion and Results Report; and,
- Reports on particular topics will be prepared as may be necessary.

## G. Project Covenants

51. The following covenants are included in the Grant Agreement:

Covenant	When	Comments
The Recipient shall establish and thereafter maintain a Program Steering Committee comprised of the Chairmen of the National Steering Committees (or a designated representative) from each of the Program Countries, PASO's General Manager (or a designated representative), the Director of the TFSU, and others as appropriate, to meet at least on a quarterly basis to review and evaluate Program implementation progress	Within 60 days of effectiveness	Required for the effective regional co-ordination of the Program

The Recipient shall nominate its member to the Program Steering Committee, with terms of reference and qualifications satisfactory to the Association	Within 60 days of effectiveness	Required for the effective regional co-ordination of the Program
The Recipient shall establish and thereafter maintain at all times throughout the Project implementation period, the National Steering Committee with powers and composition satisfactory to the Association	Within 60 days of effectiveness	Required for the effective national co-ordination of the project
The Recipient shall establish and thereafter maintain at all times throughout the Project implementation period, the Regional Procurement Evaluation Committee with powers satisfactory to the Association and comprising will include the participation of representatives from TAL, Kiribati and Tuvalu as well as members of the TFSU	Within 60 days of effectiveness	Required for effective regional procurement
The Recipient shall establish and thereafter maintain throughout the Project implementation period, the Project Support Team with powers and composition satisfactory to the Association	Within 60 days of effectiveness	Required for Tuvalu to properly implement the project
The Recipient shall enter into a service agreement with TAL under terms and conditions which shall have been approved by the Association	Within 60 days of effectiveness	Required for the TFSU to provide services to Tuvalu for the project.
The Recipient shall adopt and thereafter carry out the Project in accordance with a Program Operations Manual, satisfactory to the Association, which shall include, inter alia, the procedures for implementation, procurement, financial management, monitoring and evaluation of the Project, and the Project monitoring indicators	Within 60 days of effectiveness	The manual clearly defines the operational and FM procedures on the project and shared payment of costs by signatories.
The Recipient shall collect from departing international air passengers a five Australian Dollars (AU\$5) equivalent levy for use to pay aviation safety and security expenditures incurred by the Recipient.	December 31, 2012	The safety and security levy is essential to ensuring financial sustainability of safety and security investments.

## Annex A9.1: Results Framework and Monitoring

<b>Program Development Objective (PDO): “to improve operational safety and oversight of international air transport infrastructure”</b>												
PDO Level Results Indicators*	Core	Unit of Measure	Baseline	Cumulative Target Values**					Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition etc.)
				YR 1	YR 2	YR3	YR 4	YR5				
<b>Indicator One:</b> Regulatory certification of safety and security at FUN airport	<input type="checkbox"/>	N/A	FUN currently not certified					Certification of FUN in accordance with ICAO standards	Aligned with PASO oversight schedule	ICAO audits	DCA/TFSU	regulatory capacity of aviation sector
<b>Indicator Two:</b> State requirements for safety and security reaches global ICAO average	<input type="checkbox"/>	N/A	95% (see Note 2)					49%	Post-PASO oversight schedule	Implementing Agency	DCA/TFSU	Institutional oversight functions being performed
<b>Indicator Three:</b> Modernization of air traffic management		N/A	No PASNet or ADS-B			PASNet and ADS-B operational			once	Implementing Agency	DCA/TFSU	Enhanced safety and efficiency
<b>Indicator Four:</b> Implementation of a regional safety and security levy for departing international passengers	<input type="checkbox"/>	N/A	No levy		AU\$5 collected from each departing international passenger				once	Executing Agency	DCA/TFSU	Sustainable finance mechanism in place

Notes: 1/ At the onset of the Program, audits of all project airports will be done by ICAO to assess the safety and security standards.  
2/ Baseline value assumed based on Tonga.

INTERMEDIATE RESULTS												
PDO Level Results Indicators*	Core	Unit of Measure	Baseline	Cumulative Target Values**					Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition etc.)
				YR 1	YR 2	YR3	YR 4	YR5				
Intermediate Result (Component A):												
Intermediate Result indicator One: Navigation and safety aids fully operational	<input type="checkbox"/>	%	0				100% of project-financed infrastructure		Annual through completion	DCA	DCA/TFSU	Improved operational safety
Intermediate Result indicator Two: Rehabilitation of Funafuti runway	<input type="checkbox"/>	%	0			100%			Annual through completion	DCA	DCA/TFSU	Improved operational safety
Intermediate Result indicator Three: Achievement of Fire Standards	<input type="checkbox"/>	Category	N/A			Cat 5			Once	DCA	DCA/TFSU	Improved operational safety
Intermediate Result indicator Four: Funafuti terminal and control tower upgraded	<input type="checkbox"/>	%	0			50%	100%		Annual through completion	DCA	DCA/TFSU	Improved operational safety
Intermediate Result (Component B):												
Intermediate Result indicator One: Successful implementation of agreed training plan	<input type="checkbox"/>	N/A	No training plan					Training plan completed	End-of-Project	DCA	DCA/TFSU	Capacity Development
Intermediate Result (Component C):												
Intermediate Result indicator One: Successful completion of study for Funafuti airport operation options	<input type="checkbox"/>	N/A	No plan for airport operations			Study completed			once	DCA	DCA/TFSU	Airport Management



## Annex A9.2: Operational Risk Assessment Framework (ORAF)

### Program/Project Development Objective(s)

To improve operational safety and oversight of international air transport infrastructure

**PDO Level Results Indicators:**

1. Regulatory certification of safety and security at project airports
2. State requirements for safety and security reaches global ICAO average
3. Modernization of air traffic management
4. Implementation of a regional safety and security levy for departing international passengers

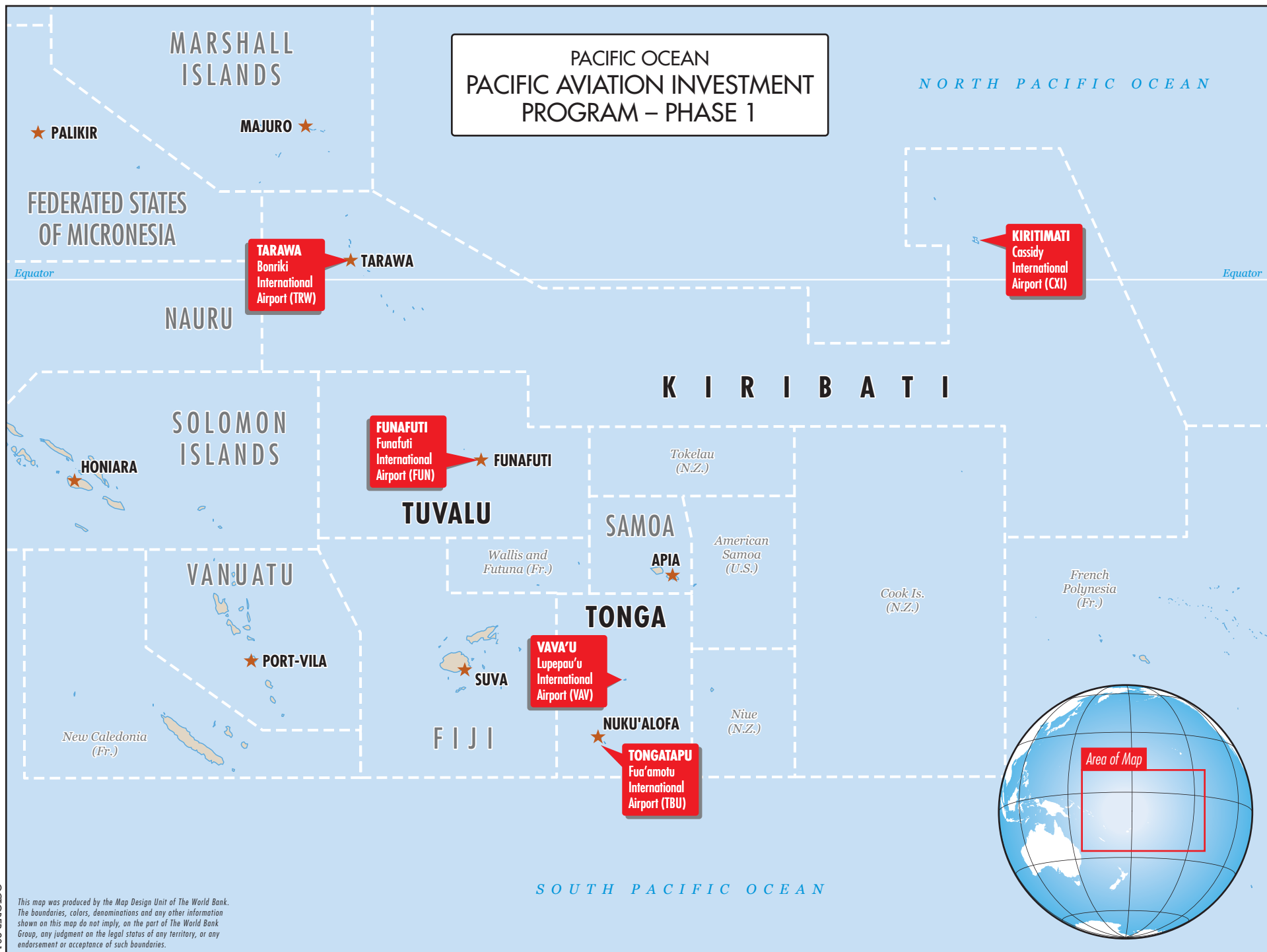
1.Project Stakeholder Risks		Rating	Moderate		
Air service operators and passengers object to potential disruptions during implementation.	<b>Risk Management:</b> Design and Supervision Consultant to identify implementation schedule that minimizes potential disruptions.				
	<b>Resp:</b> Implementing Agencies	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Not Yet Due	
Lack of community support for the improvement of the airport	<b>Risk Management:</b> Small scale local community development programs will provide development benefits to the community.				
	<b>Resp:</b> GoTv	<b>Stage:</b> Preparation	<b>Due Date:</b> NA	<b>Status:</b> Under preparation	
3. Implementing Agency Risks (including fiduciary)					
3.1 Capacity		Rating	High		
<b>Description:</b> Lack of regional coordination among implementing agencies leads to poor outcome.  The TFSU will become overwhelmed by the demands of the regional project.  PASO will not be able to provide the enhanced technical support to the participating countries.  Implementing agencies in participating countries lack technical skills and financial resources to undertake the project and do not have effective processes and controls to meet IDA procurement and FM standards.		<b>Risk Management:</b> There shall be a ‘service Agreement’ between the TFSU and each country’s EA. A Regional Procurement Evaluation Committee will be established under the framework of the Service Agreement.			
		A single Design and Supervision Consultant will be used to provide the necessary support during implementation.			
		PASO will provide guidance to implementing agencies throughout implementation and will contract staff as needed to ensure it can meet the technical demands.			
		<b>Resp:</b> GoTv	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
		<b>Risk Management:</b> The TFSU will be further strengthened with dedicated Project staff including Project Advisors and Aviation Procurement Specialist. Project Support Component includes funding for services rendered by the TFSU.			
		<b>Resp:</b> GoTv	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
		<b>Risk Management:</b> A Project Operation Manual that includes a FM Manual with agreed FM reporting formats will be adopted.			
		<b>Resp:</b> GoTv	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
		<b>Risk Management:</b> Regular and intensive technical, procurement and FM supervision missions to provide support to participating agencies.			
		<b>Resp:</b> IDA			<b>Stage:</b> Implementation

	<b>Risk Management:</b> Centralized procurement of works and equipment through TFSU and Regional Bid Committee to address the capacity risk will reduce the risk of fraud and corruption in project procurement. Detailed complaints handling mechanism shall be included in the TFSU Service Agreement. The project will undertake all major procurements using ICB. Direct payments will be made to the contractors and suppliers.			
	<b>Resp:</b> GoTv	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
<b>3.2 Governance</b>	<b>Rating</b>	<b>High</b>		
<b>Description:</b> Government fails to deliver on promised sector reforms, project implementation support and financing of airport operations and maintenance.	<b>Risk Management:</b> A NSC shall be established to monitor and advise the implementing agencies on the project and to ensure stakeholder support. Establishment of a PSC, which will comprise the Chairmen of the NSC (or designated representative) from each participating country and the Pacific Aviation Safety Office (PASO) and project manager of the TFSU.			
	<b>Resp:</b> GoTv	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
Level of commitment for sectoral reforms is not sufficient to meet objectives.	<b>Risk Management:</b> An experienced aviation technical advisor will assist MOT drive the necessary reforms during the project.			
	<b>Resp:</b> GoTv	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
<b>4. Project Risks</b>				
<b>4.1 Design</b>	<b>Rating</b>	<b>Moderate</b>		
<b>Description:</b> The project is technically complex involving sizeable civil works investments for runways, navigation aids, and other specialized equipment.	<b>Risk Management:</b> The project will hire an international consulting firm with experience in the design and supervision of airports. Using the same consultant for both design and supervision will minimize problems.  The TFSU will provide overall technical guidance to the project, helping ensure consistency and high technical standards. PASO will also advise on appropriateness of specifications to ensure future oversight compliance.			
	<b>Resp:</b> GoTv	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
<b>4.2 Social &amp; Environmental</b>	<b>Rating</b>	<b>Low</b>		
<b>Description:</b> Unforeseen circumstances may arise regarding social and environmental safeguards.	<b>Risk Management:</b> An Environmental and Social Framework was developed for the Program and used to develop an Environmental Management Plan (EMP) for the project. A Resettlement Policy Framework (RPF) was prepared and disclosed. A consultant undertook independent social due diligence during project preparation on behalf of IDA to confirm social issues identified by the Recipient.			
	<b>Resp:</b> GoTv	<b>Stage:</b> Preparation	<b>Due Date:</b> NA	<b>Status:</b> Complete
	<b>Risk Management:</b> The Detailed Design and Supervision contract is to include environment and social monitoring in its scope of work. The EMP will be included with bid documents and form part of contract. The contracts will include clear penalty clauses for non-compliance with the EMP by the contractors.			
	<b>Resp:</b> Recipients/IDA	<b>Stage:</b> Implementation	<b>Due Date:</b>	<b>Status:</b> Ongoing
	<b>Risk Management:</b> Training budget apportioned for capacity building of implementing agency staff for environment and social safeguard monitoring.			
	<b>Resp:</b> GoTv	<b>Stage:</b> Implementation	<b>Due Date:</b>	<b>Status:</b> Ongoing
<b>4.3 Program &amp; Donor</b>	<b>Rating</b>	<b>Low</b>		
<b>Description:</b> Program is unable to meet demand for investments.	<b>Risk Management:</b> Confirmation of availability and scale of IDA funding for Program.			
	<b>Resp:</b> IDA	<b>Stage:</b> Preparation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing
Other donor programs promote an incompatible approach or duplicate effort.	<b>Risk Management:</b> Close donor coordination will continue throughout project preparation and implementation with other donors invited to participate in joint missions.			
Parallel investments in one airport may lead to logistical difficulties for contractors.	<b>Resp:</b> IDA	<b>Stage:</b> Implementation	<b>Due Date:</b> NA	<b>Status:</b> Ongoing

4.4Delivery Monitoring & Sustainability	Rating:	Moderate		
Description: Project airports are not able to meet ICAO standards or, having met these standards, are unable to maintain them.	Risk Management: The quality of the physical investments will be assured by: (i) using the same firm for design and supervision which will ensure consistency and quality; (ii) having a 24 month defect liability period on the runway repairs as well as for other key technologies.			
	Resp: Recipient/IDA	Stage: Implementation	Due Date: NA	Status: Ongoing
	Risk Management: Passenger levy will provide income to cover safety oversight and help finance regulatory compliance.			
	Resp: GoTv	Stage: Implementation	Due Date: NA	Status: Ongoing
	7.2 Implementation Risk Rating: Substantial			
	Comments: Although the proposed infrastructure investments are technically straightforward, the very weak institutional capacity in Tuvalu means that there will be challenges with project implementation. Project implementation capacity constraints will be alleviated through the use of TFSU for procurement, FM and technical support.			

## **Annex 10: Maps**

PACIFIC OCEAN  
PACIFIC AVIATION INVESTMENT  
PROGRAM – PHASE 1



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