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Report No: PAD2863

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED GRANT

IN THE AMOUNT OF SDR3.4 MILLION
(US\$4.65 MILLION EQUIVALENT)

TO THE

KINGDOM OF TONGA

FOR A

DIGITAL GOVERNMENT SUPPORT PROJECT

April 18, 2019

Digital Development Department
East Asia And Pacific Region

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CURRENCY EQUIVALENTS

(Exchange Rate Effective February 28, 2019)

Currency Unit = TOP
(Tongan pa'anga)

TOP 1.00 = US\$0.44

US\$1 TOP 2.27

SDR 1 = US\$1.39798

FISCAL YEAR

January 1 - December 31

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ABBREVIATIONS AND ACRONYMS

ADB	Asian Development Bank
BCDR	Business Continuity and Disaster Recovery
CERT	Computer Emergency Response Team
CMMI	Capability Maturity Model Integration
CPF	Country Partnership Framework
CR	Civil Registration
CRVS	Civil Registration and Vital Statistics
CSU	Central Services Unit
DA	Designated Account
DGSF	Digital Government Strategic Framework
EA	Enterprise Architecture
EIRR	Economic Internal Rate of Return
FA	Financing Agreement
FM	Financial Management
Gbps	Gigabits per second
GDP	Gross Domestic Product
GNI	Gross National Income
GRS	Grievance Redress System
ICT	Information and communication technologies
ID	Identification
IDA	International Development Association
IFR	Interim Financial Reports
IP	Internet Protocol
ITU	International Telecommunications Union
IXP	Internet Exchange Point
KYC	Know Your Customer
Mbps	Megabits per Second
MOF	Ministry of Finance
MEIDECC	Ministry of Meteorology, Environment, Information, Disaster Management, Climate Change and Communications
NICO	National ID Card Office
MTED	Ministry of Trade and Economic Development
ORG	Office of the Registrar-General
PMU	Project Management Unit
PPA	Project Preparation Advance
PPSD	Project Procurement Strategy Document
QBS	Quality Based Selection
QCBS	Quality and Cost Based Selection
SC	Steering Committee
SGN	Secure Government Network
SORT	Systematic Operations Risk-Rating Tool
STEP	Systematic Tracking and Exchanges in Procurement
TA	Technical Assistance
TDGSF	Tonga Digital Government Strategic Framework
TWG	Technical Working Group



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DATASHEET

BASIC INFORMATION

Country(ies)	Project Name	
Tonga	Tonga Digital Government Support Project	
Project ID	Financing Instrument	Environmental Assessment Category
P154943	Investment Project Financing	C-Not Required

Financing & Implementation Modalities

<input type="checkbox"/> Multiphase Programmatic Approach (MPA)	<input type="checkbox"/> Contingent Emergency Response Component (CERC)
<input type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Disbursement-linked Indicators (DLIs)	<input checked="" type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made Disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	

Expected Approval Date	Expected Closing Date
09-May-2019	31-May-2024

Bank/IFC Collaboration
No

Proposed Development Objective(s)

The objective of the Project is to improve the Recipient’s capacity for digital public service delivery.

Components

Component Name	Cost (US\$, millions)
1. Enabling Environment and Continuous Improvement	0.75



2. Government Enterprise Architecture	0.60
3. Core Registries: Civil Registration and National ID Systems	1.40
4. Digital Government Infrastructure	1.40
5. Project Management	0.50

Organizations

Borrower: Kingdom of Tonga
 Implementing Agency: Ministry of Finance

PROJECT FINANCING DATA (US\$, Millions)

SUMMARY

Total Project Cost	4.65
Total Financing	4.65
of which IBRD/IDA	4.65
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	4.65
IDA Grant	4.65

IDA Resources (in US\$, Millions)

	Credit Amount	Grant Amount	Guarantee Amount	Total Amount
National PBA	0.00	4.65	0.00	4.65
Total	0.00	4.65	0.00	4.65

Expected Disbursements (in US\$, Millions)

WB Fiscal Year	2019	2020	2021	2022	2023	2024



Annual	0.15	0.55	0.57	0.98	1.20	1.19
Cumulative	0.15	0.71	1.28	2.26	3.46	4.65

INSTITUTIONAL DATA

Practice Area (Lead)

Digital Development

Contributing Practice Areas

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

Gender Tag

Does the project plan to undertake any of the following?

a. Analysis to identify Project-relevant gaps between males and females, especially in light of country gaps identified through SCD and CPF	Yes
b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment	Yes
c. Include Indicators in results framework to monitor outcomes from actions identified in (b)	Yes

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	● Substantial
2. Macroeconomic	● Moderate
3. Sector Strategies and Policies	● Moderate
4. Technical Design of Project or Program	● Substantial
5. Institutional Capacity for Implementation and Sustainability	● High
6. Fiduciary	● Moderate
7. Environment and Social	● Low
8. Stakeholders	● Low



9. Other

● Low

10. Overall

● Substantial

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

Yes No

Does the project require any waivers of Bank policies?

Yes No

Safeguard Policies Triggered by the Project

Yes

No

Environmental Assessment OP/BP 4.01

✓

Performance Standards for Private Sector Activities OP/BP 4.03

✓

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

✓

Legal Covenants

Sections and Description

Financing Agreement Schedule 2, Section IV. The Recipient undertakes to introduce in Parliament legislation on electronic transactions, data protection, /privacy and cybersecurity, reflecting international best practices and acceptable to the Association, within eighteen (18) months of the Effective Date.

Sections and Description

Financing Agreement Schedule 2, Section I.A.4. Establishment within 2 months of Effectiveness, and maintenance



until the Closing date of a Project Management Unit (PMU) within the Ministry of Finance, with a mandate, composition and resources satisfactory to the Association.

Sections and Description

Financing Agreement Schedule 2, Section I.D.1. No later than two (2) months from Effective date the Recipient shall prepare a Project Operations Manual providing guidance for the implementation of the Project in form and substance acceptable to the Association.

Conditions



I. STRATEGIC CONTEXT

A. Regional Context

1. **While there are still connectivity challenges ahead in terms of broadband access and affordability—requiring both investment and regulatory reforms—increased connectivity in the Pacific region is starting to offer new opportunities.** Digital technologies are key enablers for economic diversification, creating new income-generating opportunities and improving service delivery. In the Pacific, e-commerce and new digitally-enabled businesses (e.g. in the financial and services sectors) are beginning to emerge, and governments are starting to consider how to roll out services online. Digital technologies are also already being deployed selectively in development projects, such as natural resource monitoring for the fisheries sector, road network improvement, post-natural disaster support, and financial inclusion.

2. **Despite these developments, Pacific island countries still face challenges of digital adoption, particularly in government.** The United Nations has developed E-Government rankings, based on an assessment of various factors including digital infrastructure, digital literacy, and availability of online services. While Australia and New Zealand, two developed countries, were among the top ten in the E-Government Rankings 2018, the stark contrast with smaller developing states in the Pacific are evident. For example, Fiji and Tonga, the third and fourth ranking countries for E-Government readiness within the region, ranked 102nd and 109th respectively in the overall 2018 rankings.

Table 1: UN E-Government Rankings for the Pacific Region (out of 193 countries)

Country	Rankings	
	2016	2018
Australia	2	2
New Zealand	8	8
Fiji	96	102
Tonga	105	109
Palau	111	111
Samoa	121	128
Vanuatu	149	137
Tuvalu	151	144
Marshall Islands	156	149
Kiribati	145	153

Source: UN E-Government Surveys 2016, 2018

B. Country Context

3. **Tonga is a small Pacific island nation of approximately 108,000 people. Its economy is based largely on external aid and remittances and modest contributions from tourism, agriculture and fisheries.** Over recent years, Tonga has enjoyed robust growth and macroeconomic stability. Growth continued to be strong at 5.0 percent in



2016/17 following 4.2 percent in 2015/16, supported by construction, agriculture, tourism, remittances, and strong private credit growth. Inflation spiked in 2017 because of a new import tax and an increase in domestic food prices. The country's external position weakened slightly owing to construction-related imports, with reserves supported by strong remittances.¹

4. **The Second National Millennium Development Goals (MDG) Report, estimates that 22.5 percent of the population lived below the national poverty line in 2009.**² While extreme poverty is negligible in Tonga, many people still experience some form of hardship, lacking access to basic services, economic opportunities and cash for basic needs. Tonga ranked 98th (out of 188 countries) in the United Nations Human Development Index 2018. The high prevalence of non-communicable diseases, particularly among women, remains one of the most serious long-term challenges, and there is a strong need to improve quality of education for skills development and employment.

5. **Its remote location, small size and dispersed islands poses many challenges for Tonga, including inefficient public service delivery and high transaction costs.** Regional disparities in service delivery and economic opportunities particularly in the outer islands remain a concern. Recent investments in improved connectivity in Tonga—notably broadband Internet access—coupled with global trends in the development of digital technologies, offer an opportunity to rethink the government's service delivery model. Building the enabling platform and associated institutional capacity to support a new model for digital public service delivery could help address regional disparities and reach Tongan households and businesses more efficiently and effectively.

6. **Tonga is ranked among countries in the world with the highest vulnerability to climate change (162nd) and lower readiness (100th), according to the Notre Dame Global Adaptation Index. Tonga is also vulnerable to natural disasters,** and in any given year it is likely that Tonga is either hit by a major natural disaster or is recovering from the previous one. Among many climate change adaptation measures, Tonga's Climate Change Policy 2035 identifies a need to strengthen the research, monitoring and management of data and information including early warning or disaster warning systems to support resilience.³ The design and development of digital infrastructure and risks therefore needs to consider opportunities for facilitating climate change adaptation. Moreover, the availability of reliable digital infrastructure and platforms is critical for the government to strengthen disaster warning systems and increase its reach to citizens and residents.

C. Sectoral and Institutional Context

7. **The passage of the first Communications Act liberalized Tonga's telecommunications sector in 2002.** The market now comprises two full-service operators: the state-owned Tonga Communications Corporation (TCC) and privately-owned Digicel Tonga. A small number of internet services providers (ISPs) also entered the market. In 2009, the Ministry of Information and Communications (MIC) was established with a mandate to oversee telecom regulation and information and communication technologies (ICT) policy. In March 2017, the Communications Act came into force and the Communications Commission Act established an independent telecom regulator, the Communications Commission, with powers to enforce a more pro-competitive regulatory framework. Until the

¹ IMF Country Report No.18/12, January 2018.

² Asian Development Bank

³ Tonga Climate Change Policy, February 2016, https://www.preventionweb.net/files/48404_tongaclimatechangeepolicy2016.pdf



Commission is fully established, the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications (MEIDECC) is responsible for sector regulation.

8. **The landing of the first submarine cable in August 2013 improved Tonga’s digital connectivity significantly over the past five years.** The cable connects the main island of Tongatapu to Suva, Fiji while an additional domestic optical fibre link to the islands of Vava’u and Ha’apai became ready for service in March 2018. The cable system is operated by the wholesale operator Tonga Cable Limited (TCL) which was partially privatized in 2017. Mobile phone penetration now exceeds 95 percent of the population up from just 54.6 percent in 2013. 3G services were launched in 2013, and more than 50 percent of the population is now able to access 3G mobile broadband services. 4G/LTE services are available throughout Tongatapu and expansion is planned for the other main islands.

9. **Fixed broadband access remains relatively low at around 1.5 percent of the population.** While one of the service providers has built an optical fibre backbone on Tongatapu island, business and household deployment of optical fibre has so far been limited, and fixed broadband services are primarily provided through asymmetric digital subscriber lines (ADSL). Wireless LAN connectivity is limited to Nuku’alofa and other urban centres. The Tonga Internet Exchange Point (IXP) was completed in August 2018, which has provided a great improvement in local Internet performance and use of available submarine capacity on the TCL cable.

10. **The Government has taken some steps to develop digital government.** A Cabinet Subcommittee on E-Government was established in 2017. MEIDECC has set up an E-Government unit and invested in a containerized data centre and government network infrastructure through a five-year contract with Tonga Communications Corporation. All ministries in Nuku’alofa are now connected to the Internet and nearly all Tonga government agencies in Nuku’alofa are connected to the “secure government network” (SGN), with eight agencies awaiting installation. A holistic “all of government” approach is envisaged, going forward. A Ministerial-level Sector Based Project Steering Committee has been established to oversee digital government development, as per Cabinet Decision 822/Sept 21, 2018, chaired by the Minister of Finance and deputy chaired by the Deputy Prime Minister. The new Committee’s members are the ministers for MEIDECC, Trade and Economic Development, Public Enterprises, Health, and Justice.

11. **Despite some progress, more efforts are required to strengthen the all of government approach to digital government, establish the critical foundations and platforms and to deliver prioritized digital services to citizens and residents.** Government process mapping and enterprise architecture have yet to be developed. Most government transactional services, for example, obtaining birth, marriage and death certificates, are still manual and paper based. Some work has been undertaken to digitize internal government document flows, but there is no standard document management system nor standard government email, and the development of information systems has so far been fragmented at the ministry/agency levels. Further, while most ministries have a website, there is no common standard/look and feel, nor are data management or data protection standards in place. Some online services, such as business registration, customs and tax payments, have been developed, but remain in early stages of development and issues have been reported such as with online payments and data generation/reporting capabilities.



12. **In 2017, the Cabinet approved a decision to establish a shared digital government infrastructure.** In the first instance, this has entailed commissioning the establishment of a Government network and containerized data centre: through a five-year contract with TCC and its vendor, Huawei Communications. MEIDECC is currently in the process of transitioning existing databases and services to the new data centre environment. For the medium term the Government envisages this as a back-up/business continuity option. The Government is looking at options to commission a suitably qualified service provider to implement a G-cloud solution. The Government has also established a Computer Emergency Response Team (CERT), under MEIDECC provision and located at Tonga Cable Ltd (TCL).

13. **The Government has adopted its first Tonga Digital Government Strategic Framework (TDSF), 2019-2024** as of January 2019. The Framework is based on a holistic approach and has the following objectives: (i) implement digital government across all government agencies and activities; (ii) advance digital inclusion for all Tongans; (iii) strengthen governance and efficiency; (iv) promote data sharing and a service-oriented information systems architecture; and (v) enhance citizen engagement. The TDGSF sets directions for the Government's use of Information and Communication Technologies (ICT) or digital technologies, with the ultimate intent of improving Government business process and workflow efficiencies, improving the quality of life for citizens and residents, while reducing the complexity for business transacting with Government. The TDGSF promotes the use of digital technologies within Government ministries and agencies. That promotion includes an ambitious transition from paper-based transactions to digital Government. As Government data and information is transitioned to a digital format Tonga will benefit from a new, modern model of ICT delivery for all agencies. This model is expected to enable a far more integrated, shared, accurate, and inclusive information flow within and across all Government agencies and also supporting open data initiatives in the future.

14. **A necessary step on the path to digital government is the enhancing and linking Tonga's civil registration and identification (CR & ID) systems.** CR & ID systems are important for several reasons, including to provide for registrations of births, deaths and marriages, so all citizens and residents of Tonga have proof of their legal identity and vital events, and to enable the production of accurate vital statistics, for use in planning and governance. But most importantly for the purposes of digital government, CR & ID systems enable people to reliably assert their legal identity in contexts such as education, health and social services, employment, elections, immigration, property ownership and banking. In the context of Tonga, a trusted ID system may also make visa applications easier, cheaper and faster. The ability of many citizens and residents of Tonga to access online government and commercial services will be dependent on the development of an effective ID system that enables them to authenticate their legal identity and thus establish trust in an online environment, including through electronic signatures. In the longer term, there is also the potential to harmonize the ID system with other countries in the Pacific and more broadly to support cross border transactions and potentially for the card to be accepted as a machine readable travel document, for example in the Pacific region.

15. **Tonga's CR system, managed by the Office of the Registrar-General (ORG) under the Ministry of Justice, is one of the stronger ones in the Pacific, using a recently-developed bespoke software and has achieved high levels of birth registration coverage (96% of children under five).** However, a decrease in birth registration coverage among newborns has been experienced recently because of a new procedure by the health sector to require certain information before issuing birth notifications, which are a prerequisite for birth registration. Marriage and death



registration have low coverage. While new records (the ‘flow’) are digital through the new software, the ORG has recently begun scanning archived CR records (the ‘stock’). Moving forward, the ORG is planning to amend the *Births, Deaths and Marriages Registration Act* and regulations to modernize the CR system and its processes, as well as carry out catch up campaigns to proactively register the births of children around the country who have not yet been registered. The Ministry of Health, with support from the Asian Development Bank (ADB), will soon introduce an electronic Health Information System (HIS), which is expected to be able to push birth and death notifications from health facilities to ORG, automating part of the birth and death registration process while also allowing the ORG to identify and follow up on births and deaths that have not been registered. An informal, cross-ministerial civil registration and vital statistics (CRVS) working group helps to coordinate the efforts of different stakeholders to improve the coverage of the CR system and to maximize its utility for the production of vital statistics.

16. **Tonga has had a national ID system since 2010, administered by the National Identity Card Office (NICO) under the Lord Privy Seal.** In accordance with the *National Identity Card Act*, all residents of Tonga aged 14 years or older are required to have a national identity card, which is applied for at branches of the Tongan Electoral Commission. The national ID register stores basic personal information, including a national ID number, but is not linked with the CR system. Apart from a photograph, no biometrics are captured, which means that uniqueness of each record cannot be assured and thus the national ID system cannot underpin deduplication of other systems (such as the Social Registry being developed by the Ministry of Internal Affairs and Ministry of Education and Training, with support from the World Bank-financed Skills and Employment for Tongans Project (P161541)). Initially, the national ID cards were used only when voting in elections, but through persistent efforts on the part of the NICO, the Tongan public are starting to use the cards as proof of identity for a wider range of purposes, along with driving licenses and passports. So far, only the Tongan Electoral Commission has third-party access to the national ID register to validate information.

17. **To build stronger foundations for digital government and the digital economy in Tonga, the CR and national ID systems need to be linked and strengthened, particularly to enable approved public and private service providers to authenticate the identity of their customers digitally, in real time.** Four areas of short- and medium-term improvement have been identified: (1) expanding the national ID system to cover Tonga’s citizens and residents at all ages with national ID numbers, while physical card issuance can remain at age 14; (2) developing an online interface for approved third parties from the public and private sector to authenticate the identity of their customers (based on the customer’s consent) against the national ID system (e.g. banks using it for their Customer Due Diligence or Know Your Customer (KYC) processes, or the Social Registry using the national ID system to ensure that people are not enrolled more than once), which could be expanded for authentication for online transactions (e.g. to access Government portals) and electronic signatures; (3) upgrading the CR system’s software to be able to assign national ID numbers at birth registration (including interfacing with the national ID system), link birth, death and marriage records on the same person (e.g. by using the unique national ID number), to receive data on births and deaths from the health sector’s future HIS, and enabling third parties in appropriate circumstances to validate or receive information (e.g. to support national ID applications or to notify the national ID system of a deceased person so that record can be deactivated); and (4) improving data protection and privacy through reforms to relevant laws and regulations and the technical design features of the CR and national ID systems.⁴ In the future,

⁴ A useful guiding framework for the design of CR and national ID systems is the *Principles on Identification for Sustainable Development*, which have been developed and endorsed by more than 24 international organizations. They are available at



linkages between the CR and national ID systems will help the ORG prevent duplicate enrollments by ensuring uniqueness through the national ID numbers of parents.

18. **Other authoritative core registries/databases and single source data sets are also important for digital government but are at an earlier stage of development.** A basic business registration database is in operation, managed by the Ministry of Trade and Economic Development (MTED) with support from the ADB, is online and the registry is hosted by a private firm in New Zealand.⁵ The Ministry of Lands is currently developing a new land registration and administration system, supported by the Food and Agricultural Organization (FAO). A Social Registry is being developed by the Ministry of Internal Affairs and Ministry of Education and Training, supported by the World Bank through the Skills and Employment for Tongans (SET) project, and a HIS is being developed by the Ministry of Health, with support from ADB.

19. **The next step will be to develop a fully integrated back end Government digital platform to facilitate consolidation of multiple independent systems, plus a front-line Government portal to enable transactional services.** The interface between core and functional registers, identity management, privacy, data management and exchange, among others, will need to be developed, in addition to the Government ICT architecture to support more widespread and systematic rollout of digital services. Such architecture would provide common enablers needed by most electronic and mobile services such as identity authentication, business authentication, digital ID integration, content management, electronic payment services, data services, notification services etc. Using such enabling tools, Government ministries could potentially save 30-40 percent of the time needed for online service implementation and could reduce their overall ICT cost by 20-30 percent, based on experiences in other countries. Government is in the process of consulting with stakeholders to identify highest priority frontline services that could be deployed in the next 1-2 years.

20. **Essential legislation needs to be enacted to enable digital government and support online transactions more broadly.** With the support of the recently completed World Bank-financed? Tonga-Fiji Connectivity Project (P113184)—Regulatory TA component—the Government has prepared draft legislation to support electronic transactions, privacy and data protection. An Electronic Transactions Bill has been prepared which draws upon the Model Law on Electronic Commerce and the Model Law on Electronic Signatures, developed by the United Nations Commission on International Trade Law in 1996 and 2001 respectively. Prohibitions on unauthorized access to computer systems and data are set out in the *Computer Crimes Act*. In May 2017, Tonga acceded to the Council of Europe Convention on Cybercrime (the *Budapest Convention*), becoming the first Pacific Island nation to do so. A new Computer Crimes Bill has been drafted as part of the Budapest Convention accession process and is expected to be tabled in Parliament for enactment in late 2019. More work may be required to review and amend the *Births, Deaths and Marriages Registration Act*, the *National Identity Card Act* and the *Health Act*, to incorporate the changes planned for the CR & national ID systems, and proposed changes to the health information system (HIS) which is being developed with support from the ADB.

<https://id4d.worldbank.org/principles>.

⁵ "Tonga's Innovative Online Business Registry Goes Live – ADB." *News from Country Offices*. 2 December 2014.

<http://www.adb.org/news/tonga-s-innovative-online-business-registry-goes-live-ADB>. Instructions for registering a company online are here: <http://www.businessregistries.gov.to/how-to-use-online-services/>



21. Through the Government reform and Cabinet Decision CD No. 1112 23rd November 2018, responsibility for digital government (e-Government) was transferred to the Ministry of Finance (MOF). This means that MOF will act as the Recipient and Implementing Entity for the Tonga Digital Government Support Project. This reform will enable MOF to be the Central Agency to provide an all of Government coordinated approach to e-Government development including reaching outer islands and communities.

D. Relevance to Higher Level Objectives

22. **The Project aims to leverage Tonga’s improved digital connectivity and other foundational elements to develop a sustainable Government digital platform to improve service delivery.** The Project would support the Government’s efforts to move towards an integrated Digital Government Platform that will help to provide greater efficiency and resource-sharing within Government, better communication with citizens and residents, and a more service-oriented approach to serving individuals and business users. The key policy document in this regard is the Tonga Digital Government Strategy (2019-2024) which was approved in January 2019.

23. **The Project is fully aligned with the Regional Partnership Framework (RPF) for the Pacific Island Countries (FY17-FY21).** In particular, (i) objective 4.2 that aims to increase access to basic services and improved connectivity infrastructure; and (ii) objective 4.3 address knowledge gaps and data issues. The Project builds on the improvements in Internet access supported by the Pacific Regional Connectivity Program: Phase 1-Tonga-Fiji Connectivity Project, which financed the cable to Nuku’alofa, and is currently financing the cable extension to Vava’u and Ha’pai. The Project also leverages ongoing analytical/advisory work on civil registration and civil identity in the Pacific (P161926) which is financed by the Government of Korea under the Korea-World Bank Trust Fund. Through the strategic development of digital technologies and provision of public data, the Project will support more efficient and effective management of government institutions which would contribute to improved development outcomes in multiple sectors and programs supported under the RPF.

24. **The Project supports Tonga’s development vision as articulated in the Tonga Strategic Development Framework (TSDF), 2015-2025.** The TSDF provides and overarching framework for the long- term development of Tonga through more inclusive and sustainable growth. In particular, the Project is expected to contribute to the National Outcome 4 related to responsive and good governance; and Outcome 5 related to successful provision and maintenance of infrastructure and technology.

25. **Inclusive, trusted and linked CR and ID systems are pre-requisites for social inclusion, a goal reflected in target 16.9 of the Sustainable Development Goals (SDGs) to “provide legal identity for all, including birth registration” by 2030.** Strong identification systems are also essential to countries’ economic development, security, governance, and efficient delivery of services, including development of the digital economy. People without an effective means to prove their identity face significant barriers accessing education, financial services, healthcare, social welfare benefits, and participating in economic development and civic engagement. As such, identification serves as a key enabler for eradicating poverty and achieving a broad range of development outcomes.

Citizen engagement, Gender and Climate Change



26. The Project meets the corporate requirements of citizen engagement by including the design of feedback mechanisms in the proposed National Government Portal. In addition, the MOF will commission independent user satisfaction surveys once the Digital Platform, Government Portal and, one or two digital services are in place. The results framework includes a beneficiary feedback indicator which measures the satisfaction with the quality of digital services that may be supported by the Project. The Project has carried out a review of climate change co-benefits and a gender analysis and which are reflected in Annexes 3 and 4, respectively. These gender considerations will be incorporated in the design of the selected e-services.

II. PROJECT DESCRIPTION

A. Project Development Objective

PDO Statement

27. The Project development objective is to improve the Recipient's capacity for digital public service delivery.

PDO Level Indicators

- (a) Government enterprise architecture developed and operational (yes/no)
- (b) Number of National Government Portal Visits Per Year (Number)
- (c) Unique national ID numbers assigned at birth registration (Yes/No)
- (d) Number of public and private sector service providers using national ID system for digital identity authentication (Number)

B. Project Components

28. The proposed Project components are as follows.

Component 1. Enabling Environment and Continuous Improvement (US\$0.75 million)

1.1 **Development of a Digital (e-Government) Government Strategic Framework (DGSF).** The Tonga DGSF sets directions for the Government's use of digital technologies, with the ultimate intent of improving Government business process and workflow efficiencies, improving the quality of life for citizens and residents, while reducing the complexity for business transacting with Government. The Government has already undertaken ministry and agency consultations. The DGSF incorporates inputs from government stakeholders to ensure alignment with the Tonga Strategic Development Framework (TSDF) and agency specific strategic plans. As noted above, the DGSF is based on an, "all of Government" approach, also providing the basis for the required governance, services delivery and implementation arrangements.

1.2 **Legal and regulatory framework for Digital Government including Civil Registration and national ID systems.** This subcomponent will finance advisory services for modernizing the legal and regulatory frameworks, institutional and governance arrangements, data security, data protection, authentication protocols and processes, privacy, transparency, non-discrimination and support for digital transactions. This subcomponent will also finance advisory services to modernize policies, laws and regulations related to Tonga's CR and national



ID systems, including to facilitate the other activities under this activity, put in place data protection safeguards to strengthen privacy and prevent misuse of data, and prepare Tonga's identity ecosystem to support digital government and the digital economy.

1.3 Expansion of the Government's Cyber Security Program. This subcomponent will finance advisory and capacity building activities for the development of operational and administrative standards, assurance, monitoring, audit, and Cyber-Security Emergency Response (CERT) capabilities. The Cyber Security Program will also include comprehensive security training and awareness programs for all government users, government IT and security professionals, management, citizens, and the private sector.

Component 2. Government Enterprise Architecture (US\$0.6 million)

2.1 Priority business process review This subcomponent will finance the design and implementation of digital governance and decision-making processes to ensure timely and quality data, and accessible information for informed decision making and change management. This component focuses on mapping of the existing decision-making processes and workflows to determine strengths, gaps and weaknesses, and to build and streamline for more efficient systems development and sustainability.

2.2 Government Enterprise Architecture. This component follows component 2.1 and will finance the development of a Government Enterprise Architecture (EA). The EA will guide ministries and agencies through the business objectives, information and data requirements, need for process and workflow mapping, and technology changes necessary to execute their information systems (consultancy, software development/purchase) strategies.

Component 3. Core Registries: Civil Registration and National ID Systems (US\$1.4 million)

3.1 Upgrade of CR. This subcomponent will finance technical assistance to upgrade the current CR system, including to: (a) assign unique national ID numbers to Tongan citizens and residents of Tonga through birth registrations, based on the linkages established under subcomponent 3.3; (b) link birth, death and marriage records on the same individual; (c) receive automated birth and death notifications from the health sector; (d) securely push notifications of registered births and deaths to approved third parties (e.g. to notify the national ID system of deaths); (e) enable approved third parties to securely validate information (e.g. the Social Registry validating information on beneficiaries); and (f) deduplicate CR records in the future, such as based on the information of the parents (e.g. their national ID numbers).

3.2 Upgrade of ID System. This subcomponent will finance the upgrade of the current national ID system. These include: (a) developing a software module or interface for approved third parties in the public and private sectors to digitally authenticate the identity of their customers based on information in the national ID system register, which may include biometric, biographic and/or One Time Password (OTP) yes/no verification; and, if applicable, (b) expanding coverage of the national ID system, including to citizens and residents of Tonga younger than 14 (through the issuance of a unique national ID number and not necessarily a card), possibly leveraging, where appropriate, the Social Registry enrollment exercise or the ORG's planned birth registration catch up campaign.

3.3 Development of CR-ID linkage. This subcomponent will finance the functional and technical integration between the CR and national ID systems, including building a software solution that facilitates automated exchange of data, such as to assign unique numbers from the national ID system at the time of birth registration



and for the national ID system to receive information on registered deaths and validate information at the time of enrollment.

Component 4. Digital Government Infrastructure (US\$1.4 million)

4.1 Design of Secure Government Network and Data Center, Disaster Recovery/Business Continuity and Government Cloud (G-Cloud). This subcomponent will finance advisory services for designing the Digital Government Infrastructure and Platform to support information systems and applications for ministry and agency users. Proprietary and open source options will be considered. The component will evaluate alternative data center or cloud computing ownership models taking into consideration climate change impacts, disaster risks security, resource management, operational and capital cost of operations, continuity of operations, and total cost of ownership.

4.2 Design and implementation of a National Government Portal. This subcomponent will finance a single window to facilitate citizen and business access to public information, interactions and transactions with Government ministries and agencies. The single window will require a standard (“look and feel”) Government agency landing page template to show continuity and consistency in the implementation of information services in each agency.

4.3 Implementation of selected e-Services-Process automation. This subcomponent will finance the development of selected digital services, for example business registration and digital procurement based on a readiness assessment (institutional as well as technical). It will also support advisory services to implement modifications of associated business processes within the ministries and agencies.

Component 5: Project Management (US\$0.5 million)

5.1 Project management and technical support. This component will finance a Project management unit (PMU) at MOF. The PMU will be responsible for Project management and coordination, accounting, communications, monitoring, and evaluation and reporting. Other aspects of Project administration (procurement, financial management, audit) will be handled by the Central Services Unit (CSU) in MOF. In addition, this component includes provision for full Project documentation, logistics, travel, consumables, office equipment, and incremental operating costs.

C. Project Beneficiaries

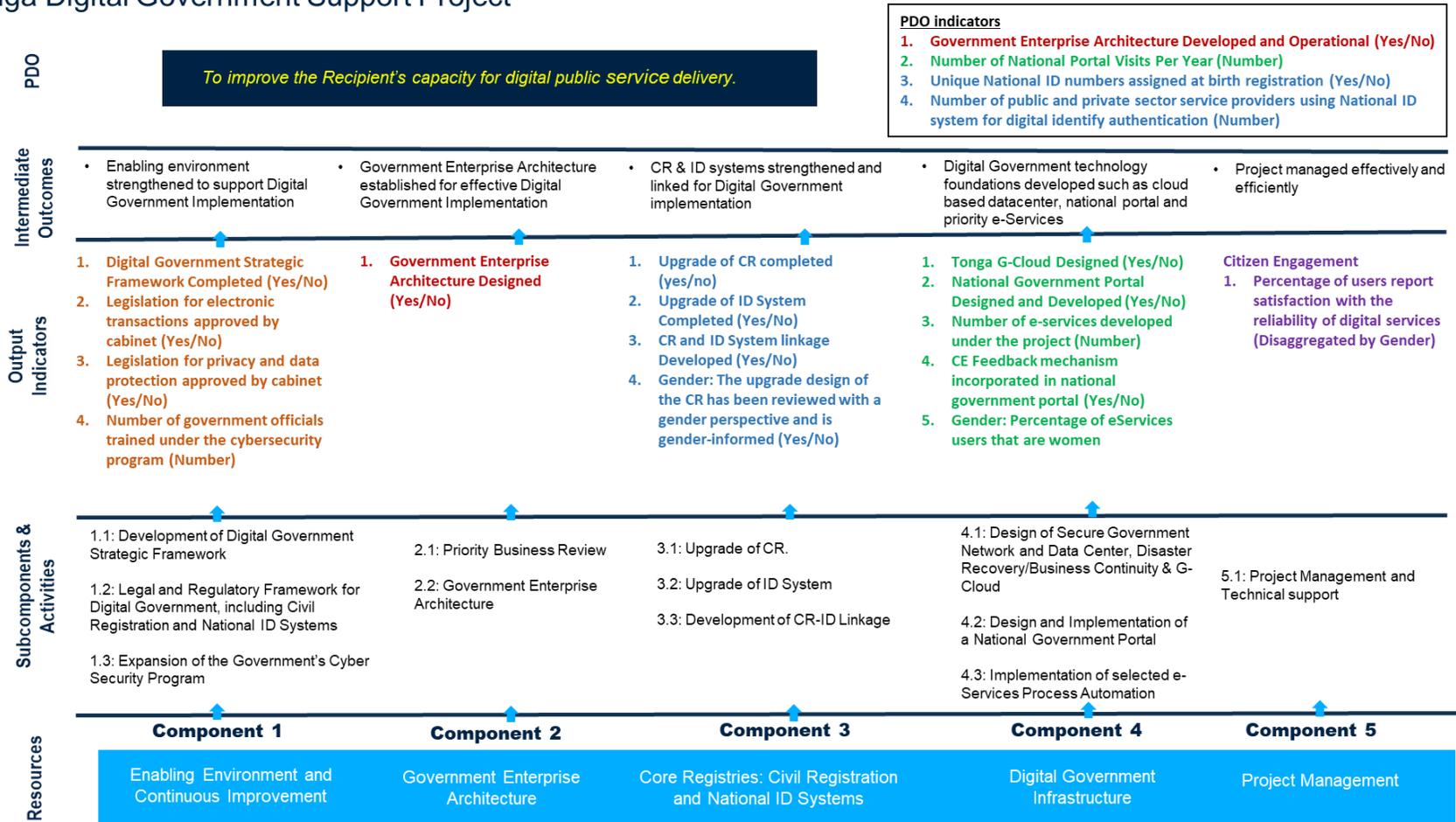
29. The Project is focused primarily on building foundations rather than on comprehensive digitally enabled service delivery. The Project will support the development of digital platforms that will, over the medium term, enable individuals and businesses to benefit from increased access to integrated digital government services, including in rural areas. The Government will benefit through its improved ability to store and manage data in a more secure and reliable manner, and improved ability to launch and implement digital public services in a cost-effective and citizen-centric manner. Finally, Tonga’s emerging private sector could potentially benefit from the opportunities to partner with the government to provide digital services leveraging the increased digitalization of government data and services in digital platform(s).



D. Results Chain

Figure 1: Results Chain

Tonga Digital Government Support Project





E. Rationale for Bank Involvement and Role of Partners

30. The **rationale for World Bank involvement** in digital government development is based on two pillars:

(a) its long-standing engagement in the Pacific region on digital development issues, including with Tonga on the Tonga-Fiji Connectivity Project (P113184) which included investments in broadband/backbone infrastructure as well as initial advice on e-legislation;

(b) its global expertise on digital economy and digital government support programs, including management of several e-government/e-services programs in different economies, and partnership with industry/technical institutions, and on digital identification for development.

31. The World Bank is also well-positioned to help its clients by supporting the development of robust and inclusive ID systems in line with the shared principles for sustainable development.⁶ The World Bank has done, and continues to do, systematic analytical work on ID systems in countries around the world. Further, much of the Bank's work is done across many sectors, which depends on accurate, meaningful identification and tracking of individuals (e.g., safety nets programs, health, financial, trade services). World Bank leadership in this area brings relevant and insightful cross-sectoral knowledge. Further, the World Bank's convening power helps to create synergies in different sectors and to bring together partners in a coherent and sustained manner.

32. **Role of Partners.** The ADB-financed *Introducing eGovernment through Digital Health* Project focuses on development of a digital health strategy, strengthening the national digital health information system and the civil registration and vital statistics system. The World Bank-financed Digital Government Support Project – which focuses on the digital platforms and building the Government's capacity for citizen-centered integrated digital public service delivery across sectors – is envisaged as a complementary engagement with ADB but will not be co-financed. The Governments of Australia and New Zealand are monitoring developments on civil registration and ID.

F. Lessons Learned and Reflected in the Project Design

33. The Project reflects key findings and recommendations from a global review of digital government development, described in the World Development Report *Digital Dividends 2016* which emphasized the need to balance investments in technology (*digital*) with appropriate policy measures (analogue complements). The Project design places upfront emphasis on strategy and implementation roadmap development, and development of an appropriate legal and regulatory framework for electronic transactions prior to investment in potential costly digital infrastructure. A key element of Project design is the “all of Government” approach and proactive engagement of key ministries and agencies to build consensus and collaborative decision-making processes around shared services.

34. The Project's design also considers the experiences of other similar World Bank-supported projects in Ghana, Mongolia, Moldova, Sri Lanka and Vietnam. A common finding was that while innovative and ambitious targets can be set, the design needs to be balanced and carefully aligned against the client's absorptive capacity and readiness

⁶ Identification for Development. 2017. “Identification for Development: Africa Business Plan IDA 18 (FY18-20)”. Report. Washington, DC: World Bank. <http://pubdocs.worldbank.org/en/484791507732929415/ID4D-Africa-Business-Plan-FINAL.pdf>.



to execute, which will be particularly relevant for the Project considering the weak implementing capacity in Tonga. Following are key lessons learned and principles from such projects:

- (a) Align the national digital strategy with the national development plan;
- (b) Encourage high level leadership which is essential for implementation of an all of government approach, as are effective whole of government governance processes;
- (c) Focus on the citizen and businesses to overcome the fragmentation of government services;
- (d) Give preference to developing government-wide shared infrastructure and centralized solutions, versus working on sector-specific solutions;
- (e) Adopt enabling policies/regulations such as 'Cloud First' Policy and 'Open by Default';
- (f) Ensure cybersecurity of all shared infrastructure, platforms, and solutions ('Secure by Design');
- (g) Adopt a phased approach to the development of complex projects;
- (h) Give priority to mobile channels ('Mobile First');
- (i) Try to leverage solutions that already exist and have been proven to work, whenever possible;
- (j) Deliver today within an architecture that is future oriented;
- (k) Consider leasing before buying, before building
- (l) Undertake turnkey solutions only (when procuring vendor solutions);
- (m) Where feasible, and where adequate technical support exists, consider open source solutions;
- (n) Find a good balance between quick wins (highly visible e-services) and less visible components such as back-end infrastructure; and
- (o) Think of smartly spaced out highly visible smaller initiatives in the first couple of years and beyond to ensure stakeholder/political confidence as building shared government infrastructure will take time and effort and will not bring visible results for the first few years.

35. The Project has also drawn on the World Bank's global expertise on identification for development and analytical work that the World Bank has been undertaking on CR and ID in the Pacific region to date, including in Tonga. This has entailed sharing global knowledge and best practices on: (a) civil registration systems; (b) national identification systems; (c) legal frameworks that enable the operation of the civil registration and national identification systems: privacy and data protection, electronic transactions and cybersecurity; and also supported policy dialogue with Government on CR and national ID development going forward.

36. Experiences from other ID projects and the wealth of analytical and global convening work on identification by the World Bank's Identification for Development (ID4D) Initiative have also been incorporated in the Project design. Key lessons are as follows:

- (a) *ID systems should strictly limit data collection* to prove identity, upon which other functional, sector-specific systems can in turn rely. Building a single, ID system seeking to cater to all sectors results in a cumbersome and often-unwieldy design that makes enrollment, validation and authentication burdensome and inefficient, and which is too complex to successfully rollout universally. Reciprocally, it has been repeatedly shown that parallel, sector-specific ID systems operating independently of each other is inefficient. The appropriate balance is struck by building an inclusive ID system with limited data fields, linked to which detail-rich, sector-specific databases can be subsequently built;



- (b) *ID systems should be open to all persons physically present in the territory*, and registration should be done on a voluntary basis. Denial of services for failure to register in the ID system should not be permitted;
- (c) *ID systems should aim to provide unique identification from birth to death*. Unique identification allows for the minimization of fraud and linkages of the ID with critical services which require a one-to-one authentication (e.g., bank accounts, attendant credit, insurance histories), or any payments which suffer from double-dipping (e.g., subsidies, Government-to-Person (G2P) payments intended for specific beneficiaries, (e.g., pensions, salaries);
- (d) *Strong linkages should be established between CR and ID systems*. This element is critical to ensuring that births and deaths are consistently captured across the population;
- (e) *Implementation of ID systems is more likely to be successful with high-level political will*. That political will is needed to coordinate cross-ministerial engagement and to develop a synthesized national strategy or action plan. High-level political support also *prevents* the emergence of a fragmented ID ecosystem plagued with duplicative or one-off efforts by various individual ministries;
- (f) *A robust legal and institutional framework is a critical enabler of long-term ID system success*. Such frameworks provide relevant mandates to identify the roles of various stakeholders, as well as to institute laws which protect data and privacy (e.g., through use-purpose specification); and
- (g) *The most significant ID-system costs are associated with issuance of a sophisticated credential which should be avoided* (e.g., a smartcard) and the hiring of full-time staff (chiefly to enroll populations). The design of ID systems should, where possible, leverage an ecosystem-based approach to enrolling populations, relying on ID systems that collect minimal data to issue unique numbers. Access to services can be guaranteed through a basic, low-cost ID credential or ID.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

37. As noted above, MOF is the Recipient of Project funds as well as the Project Implementing Entity. MOF has overall responsibility for implementation of the Project. MOF will work in coordination with the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change and Communications (MEIDECC) and other participating ministries and agencies as required, on the technical aspects of Components 1, 2 and 4; and with the Ministry of Justice (MOJ) in consultation with the National Identity Card Office (NICO), on the key technical inputs for Component 3.

38. General Project oversight and policy direction will be provided by the sector-based *Project Steering Committee* established by Cabinet Decision 822/Sept 21, 2018. The Project Steering Committee shall be chaired by its Minister responsible for Finance, and comprised of, inter alia, the Deputy Prime Minister (or his or her designee), the Minister for MEIDECC, the MTED, the Ministry of Public Enterprises, the Ministry of Health and the Ministry of Justice. Relevant stakeholders will be invited, when required.

39. A Technical Working Group (TWG) will provide technical advice and recommendations to the Project Steering Committee. The TWG, shall be chaired by the Minister responsible for Finance (or such other person acceptable to the Association), and comprised of the Chief Executive Officer for the MOF, MEIDECC, the MTED, the Ministry of



Public Enterprises, the Ministry of Health and the Ministry of Justice representatives of relevant stakeholders including the Central Services Unit, and the Project Manager.

40. The Central Services Unit within MOF shall be responsible for, inter alia, supporting the Project Management Unit on safeguards and fiduciary aspects (procurement, financial management, safeguards) of Project implementation, monitoring and evaluation, and preparing Project Reports. A Project Management Unit (PMU) within MOF shall be responsible for, inter alia, carrying out day-to-day implementation of the Project, with support from the Central Services Unit. The PMU shall be responsible for Project management and coordination, accounting, contract management, communications, monitoring, and evaluation and reporting. Other aspects of Project administration (procurement, financial management, safeguards, monitoring and evaluation and audit) will be handled by the Central Services Unit. The PMU includes the following minimum staff and/or personnel: (i) a Project Manager; (ii) Enterprise Architecture Specialist; (iii) Information security specialist; (iv) a finance officer; and (v) administration officer.

41. A Project Preparation Advance (PPA) (IDA V0810) was approved in May 2017 to support MEIDECC, the original Project implementing entity, with the following activities: (a) supporting the preparation of the Recipient's e-government masterplan and its implementation roadmap [Component 1.1]; (b) supporting the preparation of functional and technical design specifications for the proposed Recipient's government digital platform (back end information systems) and government portal (front end transactional website) [originally Component 1.2, revised to be incorporated into Component 4.1]; (c) undertaking reviews of the existing legal and regulatory framework relevant to e-government, and preparation of reports outlining the findings of such reviews and identifying recommendations for strengthening the legal and regulatory framework [included in the scope of Component 1.1]; and (d) carrying out activities to engage and consult with relevant stakeholders in the Government and the private sector on the scope and design of the proposed Project.

42. Implementation of the PPA was partial: it supported the design of the master plan, or "digital government strategic framework", including legal review and consultations. The PPA refinancing data was extended, at MOF's request, to August 31, 2019, with remaining PPA funds to be used for the recruitment of some of the PMU staff. Other activities envisaged to be financed under the PPA are to be shifted to the main Project for implementation.

B. Results Monitoring and Evaluation Arrangements

43. The Project will track Tonga's overall performance on digital government readiness indicators as reported in the periodic UN E-Government Development Index. The Results Framework for the Project has been developed to track the development of key building blocks for the delivery of digital services and each component includes specific milestones/targets. The M&E framework will also track the usage of shared digital infrastructure and services and the usage of applications/services developed under the Project. For Component 3 the framework will track the transition from event to people centric, and the linkages of the systems. The user feedback mechanism to be built into the National Government Portal will help to track user uptake and comments.

44. The Project Manager at MOF, in consultation with the technical working group, will prepare progress reports every month, in accordance with a format agreed with the World Bank and will cover: (a) physical and financial progress achieved against agreed implementation and disbursement indicators; (b) issues and problem areas,



including comments on actions to address identified problems; and (c) work programs and budget, including forward-looking estimates.

C. Sustainability

45. The proposed “all of Government” approach adopted by the Digital Government Strategic Framework envisages integration of digital Government infrastructure and services within a single platform that is designed for long-term shared use. This approach is expected to be more sustainable than investment in individual ministry siloed information systems. Technical and managerial outsourcing solutions in the private sector (in country and overseas) will also be explored, given capacity limitations in Government. The use of cloud-based solutions, for example, would help to minimize the burden of technology upgrade/refresh for Government that would otherwise be required in case of investment in extensive data centre facilities, and to standardize ICT resource management and provisioning. Other measures to support sustainability of Project investments include: (i) strong focus on cybersecurity support; (ii) identification of opportunities for fees for services and PPP models; (iii) partnerships with industry and regional institutions to strengthen technical capacity in Government; and (iv) exploring opportunities for shared services across the Pacific region. The Project, through Component 4, is also expected to support climate change adaptation by incorporating resilient measures into the interventions and technical designs, and to improve climate resilience of Digital Government and facilitate management of climate-related risks. Moreover, by supporting the development of digital platforms for online services, the Project is expected to contribute to climate change mitigation by improving energy efficiency and reducing travel. Details are provided in Annex 3.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

Technical

46. The proposed Project will support the implementation of the DGSF, a national information architectural structure – including requirements/regulations for data and information systems sharing (including for government and the private sector), a common secure, sustainable, and high performance secure fibre optic government telecommunications network (SGN), and centralized data center with cloud computing resources.

47. The SGN implementation (financed directly by the Government) is nearing completion, with (as of March 2019) only 8 planned agencies without optical fibre connections. This is partially due to reconstruction of government facilities following Cyclone Gita in February 2018. Four agencies were fully operational on the SGN, as of February 2019. The SGN uses a combination of both aerial fibre and buried fibre, depending on the location. Most SGN fibre is using 12 cores (6 pair), which may allow addition of new services at some point in the future, such as internet of things (IoT) or other services which may be enabled by access to fibre. The vendor has provided all optical equipment, switches, and network configuration / management applications.

48. The current migration into a central container-based data center has been slow due to a lack of confidence in decommissioning individual agency server rooms, use of obsolete, end-of-life, and unsupported hardware / software, and lack of cloud-aware or cloud-ready information systems. The container implementation includes both



limited colocation capacity, with primary design providing cloud computing processing, storage, and platform utilities. MEIDECC has been testing a government-wide email application, with a plan to have Government agencies begin a transition from their current government and personal email to the secure government email resource.

49. The container data center is currently located approximately 5km south of the Nuku'alofa city centre, along Taufu'ahau Road. The container is positioned on soft ground, adjacent to a propane tank farm, and less than ½ km from the Fanga'uta Lagoon. While awaiting delivery of a new diesel backup generator, the current backup generator, used, is located outside of the container's fence line in open grass. The container itself is a 40 ft structure which in addition to data center and cloud computing resources, acts as the hub for all cable supporting the SGN. The container is maintained by TCC. The services (IT) infrastructure implemented within the container include:

- Unified Communications Platform
- Firewalls
- Virtual server resources
- Database servers
- Management servers (including cloud provisioning and resource management)
- VDI Servers
- Storage
- SGN Hub
- Interconnections with TCC and Digicel (Microwave) Internet services

50. Container resource implementation is adequate, and ready for provisioning. The container-based resources will likely follow a phased migration approach, looking for initial high value, low risk opportunities such as simple data backup into cloud storage, and use of common utilities and applications such as a common public internet gateway, common email and office automation applications, document management, and designated digital services such as procurement, human resources, and payment gateway. More complex migrations will require experience, and potentially external consulting support. For information systems that are not cloud-aware, cloud-ready, or require resources not available within the Tonga G-Cloud environment will require additional planning, and possibly engineering. In some cases, this may include replacing obsolete systems with new platforms.

51. Secure government network (SGN) and data center infrastructure operations are currently outsourced to Tonga Communications Corporation (TCC), as noted above. TCC will also provide cloud computing provisioning support for a period of two years, while MEIDECC continues to build human resource capabilities to take over all infrastructure and service delivery responsibilities. The vendor for the SGN and data center components also has a service agreement to provide technical support for implementation and operations which will require periodic review of its effectiveness. TCC provides default access to the public Internet, while Digicel has a backup connection (via microwave) to their telecommunications gateway located approximately 1km from the container,

52. The Government has still not yet established a disaster recovery and continuity of government operations plan (BCDR). As of March 2019, only MEIDECC had implemented activity within the container, and that is limited to storage. All other agencies either continue to operate independent server rooms or outsource their IT systems to a commercial vendor outside of Tonga. Most agency IT systems and infrastructure present a high risk of complete data loss in the event of a loss of local data bases or storage, and for those with backups and extended recovery time due to lack of suitable or identical hardware and application images needed to restart applications and processes from a backup image.



53. An important aspect of the technical portion is human resources and human capacity. Shortfalls exist locally within each agency for systems administrators, skilled security professionals, systems developers (including developing interoperability components such as applications programming interfaces to enable data sharing), and enterprise architects needed to bring the national ICT environment into a managed, structured, standardized, and customer-focused platform. This includes having a dedicated transition assistance team to guide migration of agency information system platforms into the centralized environment.

54. The DGSF, with additional development of the proposed Government Enterprise Architecture (EA), will help ensure a structured process for transitioning government agency information systems into a Cloud Computing environment, as well as encourage interoperability, portability, and better security to protect the confidentiality, integrity, and availability of Tonga's data resources. This will also provide an architectural and operational basis for ensuring both disaster recovery design and continuity of government information systems during Tonga's frequent natural disasters (high risk for cyclones, earthquake, and tsunami). The proposed enterprise architecture will also identify the need for an effective governance, following the structure Governance of Enterprise IT (GEIT) processes provided within ISO 38500 or COBIT 5. Provide a consistent approach integrated and aligned with the enterprise governance approach. Implementing GEIT will help ensure IT-related decisions are made in line with the government's strategies and objectives, ensure that IT-related processes are overseen effectively and transparently, compliance with legal and regulatory requirements is confirmed, and the governance requirements for agency and government stakeholders are met.

55. Addressing cybersecurity challenges will need to be a priority for the Project. A comprehensive cybersecurity training and awareness program is needed to both implement the proposed Cybersecurity Framework, as well as to provide a continuing awareness program to keep government and citizens informed of emerging threats and potential incidents which may impact the security or well-being of both government agencies and citizens.

56. The quality of ID systems depends on design and technical factors and use cases, which have profound implications for system cost, utility and security. These factors include the organizational design of identity management, the choice of technology used for establishing uniqueness, the authentication infrastructure (*i.e.*, how IDs are used to verify proof of identification at the point of transaction), the form and type of token or credential (*i.e.*, different types of cards, use of only numbers or biometrics), security measures put in place for protecting databases (*e.g.*, natural disasters, cyberattacks), and availability to support service delivery (*e.g.* to prevent duplicate ID systems or databases from emerging). Hardware and software should comply with open standards to reduce costs, promote portability of data, avoid vendor lock-in and provide flexibility for future adaptation.^{7,8}

57. There are five key elements guiding the design of ID systems. They should be (i) *robust*, meaning that they ensure the uniqueness of the assigned UINs and have the necessary technical and legal underpinnings to function reliably and to effectively safeguard personal data; (ii) *inclusive*, such that all individuals in any of the participating countries have access to a UIN that will identify them for life and newborns are issued a UIN at birth; (iii) *foundational*, in that they are linked by design and practice to the CR system and can be used by functional registers for deduplication and authentication purposes; (iv) *mutually recognizable*, potentially allowing persons to establish

⁷ Identification for Development. 2018. "Technical Standards for Digital Identity". Draft for Discussion. Washington, DC: World Bank Group. <http://pubdocs.worldbank.org/en/579151515518705630/ID4D-Technical-Standards-for-Digital-Identity.pdf>.

⁸ George, Tina; Mittal, Anita; Anandan, Vasumathi; and Caillava, Ines Rodriguez. 2018. "Leveraging an Open Source Model to Create a Public Good for ID4D & SPJ Delivery Systems". Working Paper (forthcoming). Washington, DC: World Bank Group.



their identity across borders through trust frameworks; and (v) capable of facilitating *access to services*, for individuals in the public and private sectors by reliably authenticating a person's identity.

58. Workflow and process codification for agencies adopting digital government services is currently limited, so this will be an important focus of the proposed Project. Some agencies have implemented applications and information systems provided through external assistance, with some levels of workflow automation. However, many agencies continue to use manual or ad hoc processes for their agency operations and functions. The E-Government Steering Committee had identified a need to implement Business Process Modeling and Notation (BPMN) to better understand workflow within agencies, and use BPMN to assist in better understanding the potential for data interoperability and systems integration across government agencies, and potentially connecting external agencies.

Economic and Financial

59. The proposed Project will primarily be financing technical assistance plus targeted investments in information systems, such as software and limited hardware, networking, installation and testing. Expected benefits may be summarized in terms of: cost avoidance, efficiency gains, and welfare improvement. International experience has demonstrated savings for government budgets through the adoption of cloud computing (infrastructure/platform/software as a service) as this provides resources for use by multiple government agencies. Savings may thus be realized in terms of reduced capital expenditure and more efficient management of operating expenses including, for example, energy costs associated with communications networks, hardware, and human resources requirements. For that reason, many Governments have been adopting "cloud first" policies which mandate the use of shared services. For example, the US federal government is moving to an infrastructure as a service (IaaS) model which will provide approximately US\$20 billion in cloud computing services to more than 25 of its agencies. The Philippines government has also recently adopted a "cloud first" policy. The Government of Tonga is currently spending about US\$4.5 million annually on IT resources, more than one-third on communication costs alone.

60. The transition from an agency-owned ICT infrastructure to infrastructure as a service platform, could potentially realize benefit cost ratios of approximately 7:1⁹. By way of comparison, the UK government cloud provides a single access point for ICT services and applications and enables about US\$4 billion in cost savings per year. The UK government's applications store also enables sharing and reuse of online business applications, services and components across the public sector. Reuse will become the norm with estimated savings of over £500 million per year¹⁰. A World Bank-financed Project (Governance Transformation Project--P121231) supporting, *inter alia*, establishment of a government private cloud in Moldova has also been shown to provide cost savings of 73.3 percent for the government's ICT investments in hosting public applications and data.

61. The most readily measurable economic benefit of this Project is thus expected to be cost avoidance: a reduction in Government spending on multi-agency ICT infrastructure and services. A reduction in transaction costs and processing time for public services is also anticipated though baseline data are difficult to obtain in Tonga.

⁹ Kevin L. Jackson. 2011. *Economic Benefits of Cloud Computing*. *Forbes*. 17th September 2011. Available at: <http://www.forbes.com/sites/kevinjackson/2011/09/17/the-economic-benefit-of-cloud-computing/#7f2d577e5bf1>

¹⁰ Her Majesty's Government, UK. *Government ICT Strategy: Smarter, Cheaper, Greener*. UK. January 2010. Available at: http://webarchive.nationalarchives.gov.uk/+/http://www.cabinetoffice.gov.uk/media/317444/ict_strategy4.pdf



62. Data for quantitatively measuring the impact of digital government services are limited. However, data from Sri Lanka, has concretely illustrated the benefit for citizens. The introduction of e-services in Sri Lanka has reduced the time that citizens spend to obtain a public service from 371 minutes in 2011 to 124 minutes in 2013. The average amount spent by citizens obtaining a public service before the introduction of e-services in 2011 was LKR 1,553 (\$13.74) or 0.31 percent of average annual household expenditure. By 2013, this figure had dropped to LKR 747 (\$5.79) or 0.15 percent of average annual household expenditure, contributing to an annual reduction in household expenditures by 22 percent.

63. The Project is also expected to deliver social benefits associated with more efficient delivery of services and increased accessibility of government services, along with reduced processing costs. The linkages between digital ID, digital platforms and development are well established globally. Well-functioning CR and ID management systems are foundational for effective national planning and digital services, ensuring universal and timely civil registration and recording of vital events, and providing the means for people to interact online, identify and authenticate themselves. The available evidence on the benefits of robust and inclusive ID systems strongly suggests positive social and economic returns: (i) social returns in the form of a variety of important benefits to individuals by enabling access to public- and private-sector services, reducing transaction costs and facilitating the protection of vulnerable groups and humanitarian responses; (ii) economic benefits through increased efficiency of firms and, in the case of mutually-recognized IDs, lower costs of international trade and migration; and (iii) fiscal savings through the reduction of error, fraud and corruption (EFC) and duplication of costs.

64. Another important benefit of ID systems is the ability to respond quickly to provide assistance in the context of natural disasters. In 2005, Pakistan was able to disburse more than US\$350 million to those affected by a major earthquake in just a few months using the national ID database and a robust authentication process. In contrast, when Nepal was hit by a devastating earthquake in 2015, millions of dollars and many months were spent collecting data on individuals living in the affected areas before aid could even be disbursed. More than two years after the event, World Bank-supported efforts are still paying out benefits. Thailand uses its national population register to manage its local response to disease outbreaks, such as to manage distribution of vaccinations when there was a dengue outbreak in provinces bordering Lao PDR.

65. Fiscal savings arising from the introduction of a robust national identification system are well established globally and the expansion of use cases for Tonga's existing ID system are expected to contribute to such benefits. For example, any subsidies and other transfer payments may be more effectively targeted to those in need. Population statistics may be more accurate and timely improving the targeting and delivery of services. Digitization of vital statistics also reduces the costs, errors and delays associated with physical national surveys.

66. IDs can potentially generate fiscal savings by reducing error, fraud and corruption. A forthcoming report¹¹ finds numerous examples of savings from the reduction of EFC, including in Argentina where linking 34 social program databases with a UIN revealed inclusion errors in eligibility of various social programs and led to a reduction in spending of US\$143 million over an 8-year period. In 2010, Pakistan launched the Watan Card program in response to devastating floods that displaced some 20 million people (over 10 percent of the country's population). About 40 percent of the initial 2.7 million people that applied were found to be ineligible or were duplicate family members. This translates to an estimated savings of some PKR 21 billion (US\$248 million in 2010). In 2016, Thailand

¹¹ Identification for Development (ID4D). 2018. "Public Sector Savings and Revenue from Identification Systems: Opportunities and Constraints". Report. Washington, DC: World Bank Group.
<http://pubdocs.worldbank.org/en/745871522848339938/PublicSectorSavingsandRevenueIDSystems-Web.pdf>.



eliminated 660,000 applicants out of 8.4 million based on cross-checking databases using the UIN, generating savings of US\$30-60 million. Savings are often found through reducing pension and wage bill costs for the civil service.

67. ID is also critically important for payments systems. Know your customer (KYC) costs for banks and telecom firms have been reduced dramatically in India after the introduction of the *Aadhaar* ID. A recent study in Zambia estimated that savings for banks and telecoms from lower costs of KYC would run into the tens of millions of dollars over the medium term should the new government-recognized ID be introduced. Credit rating agencies and micro-finance institutions also stand to benefit from the ability to link unique numbers across databases in order to track credit histories. Finally, the existence of a robust system for authentication obviates the need for individual entities or industry associations to set up their own silo systems, duplicating costs many times over. This is the case in countries like Brazil, Ghana and Nigeria, for example, where the banking sectors have spent tens of millions of dollars on their own functional ID systems in the absence of a well-functioning ID system.

B. Fiduciary

(a) Financial Management

68. The FM assessment was carried out in accordance with the 'Principles Based Financial Management Practice Manual' issued by the Financial Management Sector Board on March 1, 2010, which states that with respect to the World Bank-Financed Investment Operations, the grantee is required to maintain appropriate implementation arrangements which include accounting, financial reporting, and auditing systems adequate to ensure that the PMO can provide the World Bank with accurate and timely information regarding the Project resources and expenditures. Overall, the FM arrangements satisfy the FM requirements of the IPF policy. The assessed FM risk of the Project is considered substantial, which will be partially offset by the successful implementation of mitigating measures, that is, timely recruitment of a Project accountant and use of an FM system (off the shelf accounting software package, if required) acceptable to the World Bank and the successful establishment of the CSU.

(b) Procurement

69. Procurement under this Project will follow the procedures specified in the World Bank Procurement Regulations for IPF Borrowers (August 2018) and the provisions stipulated in the Financing Agreement entered by the Bank and the Borrower. The project implementation agency is MOF with technical support from MEIDECC. MOF/MEIDECC prepared a PPSD the key conclusions of which are:

- (i) There will be a total of about USD3.875 million worth of procurable activities in the current version of the procurement plan, all consulting services.
- (ii) The market analysis indicates that the national consulting industry is very limited that the interest of foreign companies is often for high value activities.
- (iii) MOF and MEIDECC staff lack experience in implementing projects of this nature



Table 2: Risk Management and Mitigation

Risk Description	Description of Mitigation	Risk Owner
Limited capacity of MOF and MEIDECC	<ul style="list-style-type: none"> Recruitment of Technical Project Manager Hands-on support from CSU. 	MOF
Limited capacity of local market	<ul style="list-style-type: none"> Amalgamate consulting assignments as much as technically feasible as to maximize the market appeal for the assignments. Adopt a proactive approach and ensure that when EOIs are advertised they also communicate directly with well-known foreign firms/individuals. The World Bank task team will provide details of contact information of suitably qualified firms and individuals as long lists. 	MOF
Delay in procurement process	<ul style="list-style-type: none"> Detailed planning of key steps including time bound procurement plan. Timely and efficient EOI/bid evaluations. The project quarterly report will include a “procurement efficiency indicator”, based on data from STEP, showing the number of procurement activities are be implementing “on time”. 	MOF
Unsuitable budget allocations	<ul style="list-style-type: none"> Each draft TOR will be accompanied by a detailed cost estimate. (As a quality assurance, the Bank’s technical experts will undertake technical review of all TORs and detailed cost estimates). 	MOF

70. The main procurement risks and mitigation measures have been discussed between the WB and Government and are summarized in Table 2.

Table 3: Procurement Plan Summary

Description	PROJECT COMPONENT	Ref. No.	Procurement Category	Procurement Method	Estimated Amount	Review Type
Development of a Digital Government Strategic Framework	1.1	MOF/MEI DECC-REF-1	CS	INDV	50,000	Post
Development and implementation of legal and regulated framework for digital government, civil registration and national ID system	1.2	MOF/MEI DECC-REF-2	CS	QCBS	250,000	Post
Development of operational and administrative standard, assurance, monitoring, audit, and cybersecurity	1.3	MOF/MEI DECC-REF-3	CS	CQS	250,000	Post
Mapping, design and implementation of priority digital government and decision-making processes	2.1	MOF/MEI DECC-REF-4	CS	QCBS	300,000	Post
Development of a government Enterprise Architecture	2.2	MOF/MEI DECC-REF-5	CS	CQS	300,000	Post
Upgrade of the current CR system	3.1	MOF/MEI DECC-REF-7	CS	QCBS	700,000	Prior

Description	PROJECT COMPONENT	Ref. No.	Procurement Category	Procurement Method	Estimated Amount	Review Type
Upgrade of the national ID system	3.2	MOF/MEI DECC-REF-8	CS	QCBS	450,000	Post
Development of functional and technical integration between the national CR and ID	3.3	MOF/MEI DECC-REF-9	CS	CQS	250,000	Post
Designing digital government infrastructure and support and platform to support information and applications	4.1	MOF/MEI DECC-REF-10	CS	QCBS	750,000	Prior
Design and implement National Government portal	4.2	MOF/MEI DECC-REF-11	CS	QCBS	400,000	Post
Project Manager	5.0	MOF/MEI DECC-REF-12	CS	INDV	175,000	Post

71. MOF has prepared an initial procurement plan covering the first 24 months of implementation (Table 3). These are primarily consulting services contracts, but in some cases also include information systems development/integration. Other items to be financed will include training and incremental operating costs. The procurement plan, and all its updates, if any, will be published on the World Bank's external website through STEP. The summary procurement plan is as follows.

72. In addition to prior review of procurement transactions (thresholds below), at least one procurement mission will be fielded annually to support implementation. Procurement post reviews will be conducted annually as needed.

Table 4: Procurement Thresholds

Type of Procurement	Prior Review Threshold
Works	>= USD 2 million
Goods	>= USD 0.5 million
Consultants: firms	>= USD 0.5 million
Consultants: individuals	>= USD 0.3 million

C. Safeguards

(i) Environmental Safeguards

73. **General.** The Project is classified as Category C. There are no civil works. There may be some installation of hardware/computing equipment within buildings. The Project will finance technical assistance, software development, limited hardware (computers), and capacity-building.



74. The Project is not subject to greenhouse gas accounting, as it does not fall under the Project types for which agreed methodologies exist in the transport, energy, agriculture, forestry, water, and urban sectors. The Project is potentially eligible for climate co-benefits under the information and communications and various other categories, as the proposed Government Digital Platform is expected to reduce duplication of software, applications, and services across the Government. The digital services provided will also contribute to reduction in paper usage and travel requirements by users of services.

75. **Climate and geophysical hazards.** The Project is assessed to have low risk at this high-level of screening using the climate and disaster risk screening tool. It is also assessed to have low risk from potential extreme precipitation and flooding. The Project will continue to monitor the level of these risks during implementation.

(ii) Social Safeguards

76. The Project does not present any significant adverse social risks according to World Bank safeguard policies and procedures, and in fact is likely to bring considerable benefits. OP/BP 4.10 is not typically triggered in Tonga.¹² OP 4.12, Involuntary Resettlement, will also not be triggered as no major civil works are included and thus no land acquisition, displacement of people/communities, or any adverse livelihood impacts will occur. The services developed/enhanced under the Project will be available to citizens nationwide.

(iii) Grievance Redress Mechanisms

77. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported Project may submit complaints to existing Project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address Project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit <http://www.worldbank.org/en/Projects-operations/products-and-services/grievance-redress-service>. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

¹² According to the Environmental and Social Safeguard Procedures and Instruments for Pacific Island Countries (PICs) developed by the World Bank (WB)'s East Asia and Pacific Regional Safeguard Secretariat (RSS), OP/BP 4.10 is not typically triggered in the generally homogeneous island nations of Federated States of Micronesia, Kiribati, Marshall Islands, Palau, Samoa, Tonga and Tuvalu. Depending on the specific Project context, persons meeting the four defining characteristics of OP/BP 4.10 are likely to be found in Fiji, PNG, the Solomon Islands, Timor-Leste and may be found in Vanuatu.



V. KEY RISKS

Table 5: Systematic Operations Risk-Rating Tool

Risk Category	Rating
1. Political and Governance	Substantial
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project	Substantial
5. Institutional Capacity for Implementation and Sustainability	High
6. Fiduciary	Moderate
7. Environment and Social	Low
8. Stakeholders	Low
9. Other	Low
10. Overall	Substantial

78. The overall Project risk is rated substantial, primarily due to: (a) substantial political and governance risks; (b) high institutional risk given limited and insufficient implementation capacity and experience; and (c) substantial technical design risk factors.

79. *Political and Governance risks* have been rated substantial. Project implementation progress will be contingent on close cooperation between MOF and all participating stakeholders in particular technical ministries. The Steering Committee and Technical Working Group will need to manage relationships and expectations and convene on a regular basis.

80. Risks for *Institutional Capacity for Implementation and Sustainability* are High. In particular, technical project management skills are limited and specific areas of expertise (for example in cybersecurity and applications development) are difficult to source locally. MEIDECC has taken some steps to build foundations for digital government and consolidate ICT technical/human resources within the ministry. However, this is the first attempted “all of Government” digital government project in the country, and indeed the Pacific region. While the planned investments are designed to improve efficiency and quality of service delivery over the medium term, the Project will require significant efforts supporting change management and new service delivery paradigms based on evolving technologies. Key mitigation measures will be to bolster the technical and operational capacity significantly by transferring implementation and operations risks through the use of external technical consultants or outsourced resources, and possibly long-term institutional partnerships, including with private sector providers. Risk Awareness may be reinforced through seminars or certification training in IT Risk disciplines such as the Factored Analysis of Information Risk (FAIR) or ISO 27005/ISO 31000

81. Risks for *Technical design of Project* is Substantial. In particular, there may be significant challenges in coordinating digital government rollout with multiple ministries and agencies. One of the mitigation measures that is being considered is to implement a Risk Governance framework and set of processes that will be placed directly under the Prime Minister’s Office. The inputs to the IT Governance process may include topics related to establishing boundaries for risk appetite and tolerance, assigning responsibility and accountability for overall risk management, establish an IT governance awareness program, and promote an acceptable level of risk culture within government



agencies and IT organizations. This risk will also be mitigated by focusing on engaging ministries and agencies more proactively as part of the design of the proposed Government digital platform.

82. Under Component 3, there is a risk that weak cooperation between the office of the registrar general under the MOJ and the NICO under the Lord Privy Seal will undermine full implementation of the component. Many of the activities under this component depend on good collaboration and coordination between these actors, particularly to develop policies and laws that move Tonga towards a harmonized identity ecosystem, in line with international best practices, and to establish the technical linkages between the CR and national ID systems. Subcomponent 3.1 aims to mitigate this risk by formalizing the cooperation, such as through the existing cross-ministerial CRVS working group, and development of a clear policy or strategy. Furthermore, coordination with the Ministry of Health (to link with the new HIS), the Ministries of Internal Affairs and Education and Training (for the Social Registry), and other users of the linked CR and national ID systems is essential.

83. In addition, individual agencies within the government may face additional risk in codifying processes within their agency, and planning to move from primarily manual, and in many cases ad hoc processes, to eGovernment systems which rely on workflow automation and process maturity. Substantive mitigation measures will therefore be needed to carry out capacity-development activities and putting in place the basic policy and legislative enablers for the Project. Some of this is already being addressed under the ongoing PPA which is supporting the development of the Digital Government Strategy and Government platform and portal design. Use of an enterprise architecture framework will also decrease the potential of platform or infrastructure design flaws through use of a structured review of business requirements, data requirements, information, and finally designing technical solutions to fulfill government Ministry and agency business objectives.

84. *Political and Governance, Macroeconomic, Sector Strategies and Policies, and Fiduciary risks* are rated moderate. Tonga is experiencing improved political and economic outlooks but continue to be vulnerable to external shocks. Stability in the political environment will be assessed periodically and project implementation will be adjusted accordingly. Further, the Project will be fully funded by an IDA grant, which limited the project's exposure to macroeconomic volatility. Finally, strong commitment has been sustained at high levels of government for leveraging ICTs/digital technologies for national development and this is expected to continue. Limited capacity of MOF staff to manage fiduciary aspects of the project will be mitigated by the provision of the Project's fiduciary functions by the MOF's Central Services Unit (CSU).

85. *Stakeholder* risks are considered low, however there are small risks associated with development partner coordination. Careful sequencing of implementation and management of dependencies for Component 3 will be required, in particular, given the linkages with ADB's planned support for Digital Health. Joint procurement is not envisaged, but both co-financiers will need to agree to adhere to common technical standards that will be developed for the Government digital platform as a whole. The risks will be mitigated through sustained close coordination with ADB throughout project implementation.



VI. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: Tonga

Tonga Digital Government Support Project

Project Development Objectives(s)

The objective of the Project is to improve the Recipient’s capacity for digital public service delivery.

Project Development Objective Indicators

Indicator Name	DLI	Baseline	Intermediate Targets				End Target
			1	2	3	4	
Implement Digital Government							
Government Enterprise Architecture Developed and Operational (Yes/No)		No	No	No	Yes	Yes	Yes
Unique National ID numbers assigned at birth registration (Yes/No)		No	No	No	Yes	Yes	Yes
Number of public and private sector service providers using National ID system for digital identify authentication (Number)		0.00	0.00	0.00	3.00	5.00	6.00
Number of National Portal Visits Per Year (Number (Thousand))		0.00	0.00	0.00	8.00	10.00	12.00



Intermediate Results Indicators by Components

Indicator Name	DLI	Baseline	Intermediate Targets				End Target
			1	2	3	4	
1. Enabling Environment and Continuous Improvement							
Digital Government Strategic Framework Completed (Yes/No)		No	Yes	Yes	Yes	Yes	Yes
Legislation for electronic transactions approved by cabinet (Yes/No)		No	No	Yes	Yes	Yes	Yes
Legislation for privacy and data protection approved by cabinet (Yes/No)		No	No	Yes	Yes	Yes	Yes
Number of government officials trained under the cybersecurity program (Number)		0.00	10.00	20.00	30.00	50.00	75.00
Government officials trained under the cybersecurity program (female) (Number)		0.00					38.00
2. Government Enterprise Architecture							
Government Enterprise Architecture Designed (Yes/No)		No	No	Yes	Yes	Yes	Yes
3. Core Registries: Civil Registration and National ID Systems							
CR upgrade completed (Yes/No)		No	No	No	Yes	Yes	Yes
ID System upgrade completed (Yes/No)		No	No	No	Yes	Yes	Yes
CR and National ID Systems		No	No	No	No	Yes	Yes



Indicator Name	DLI	Baseline	Intermediate Targets				End Target
			1	2	3	4	
linkage in Place (Yes/No)							
Gender: The upgrade design of the CR system has been reviewed with a gender perspective and is gender-informed (Yes/No)		No	No	Yes	Yes	Yes	Yes
4. Digital Government Infrastructure							
Tonga G-Cloud designed (Yes/No)		No	No	Yes	Yes	Yes	Yes
National government portal designed and developed (Yes/No)		No	No	No	Yes	Yes	Yes
Citizen engagement: feedback mechanism incorporated in national government portal (Yes/No)		No	No	No	Yes	Yes	Yes
Number of e-services developed under the project (Number) (Number)		0.00	0.00	0.00	1.00	2.00	2.00
Gender: Percentage of eServices users that are women (Percentage)		0.00	0.00	0.00	30.00	40.00	50.00
5. Project Management							
CE: Percentage of users report satisfaction with the reliability of digital services (disaggregated by gender) (Percentage)		0.00	0.00	0.00	30.00	50.00	70.00
Percentage of users report satisfaction with the reliability of digital services (female) (Percentage)		0.00					50.00



Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Government Enterprise Architecture Developed and Operational	This indicator will monitor whether the Government Enterprise Architecture has been developed and is operational and will be supported under component 2 of the project.	Annual	MOF & MEIDECC/Project data	MOF to track results	MOF
Unique National ID numbers assigned at birth registration	This indicator will track whether a system has been put in place to assign unique National ID numbers at birth registration, and will be supported under component 3 of the project.	Annual	Ministry of Justice (MOH), National Identity Card Office	MOF to track results in coordination with MOJ and National Identity Card Office	MOF
Number of public and private sector service providers using National ID system for digital identify authentication	This indicator will monitor the number of public and private sector service providers using National ID system for digital identify authentication	Annual	Ministry of Justice (MOH), National Identity Card Office	MOF to track results in coordination with MOJ and National Identity Card Office	MOF
Number of National Portal Visits Per Year	This indicator will track the number of portal visits (cumulative per year) and	Annual	Web analytics feature of	MOF & MEIDECC to track through web analytics feature of the	MOF



	will be supported under component 4 of the project.		the portal	portal	
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Monitoring & Evaluation Plan: Intermediate Results Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Digital Government Strategic Framework Completed	This indicator will monitor whether the Digital Government Strategic Framework has been completed, and will be supported under component 1 of the project.	Annual	MOF & MEIDECC/Project data	MOF to track results	MOF
Legislation for electronic transactions approved by cabinet	This indicator will be monitor whether one of the key legislations, the legislation for electronic transactions has been approved by cabinet, and will be supported under component 1 of the project.	Annual	MOF & MEIDECC/Project data	MOF to track results	MOF
Legislation for privacy and data protection approved by cabinet	This indicator will be monitor whether one of the key legislations, the legislation for privacy and data protection has been approved by cabinet, and will be supported under component 1 of the project.	Annual	MOF & MEIDECC/Project data	MOF to track results	MOF
Number of government officials trained under the cybersecurity program	This indicator will be monitor the cumulative	Annual	MOF & MEIDECC/Project data	MOF to track results	MOF



	number of government officials that were trained under the cybersecurity program, and will be supported under component 1 of the project.		ject data		
Government officials trained under the cybersecurity program (female)					
Government Enterprise Architecture Designed	This indicator will monitor whether the enterprise architecture has been designed and will be supported under component 2 of the project	Annual	MOF&MEIDE CC/Project data	MOF to track results	MOF
CR upgrade completed	This indicator will track whether the CRVS upgrade has completed, and will be supported under component 3 of the project.	Annual	Ministry of Justice (MOH), Ministry of Health (MOH)	MOF to track results in coordination with MOJ and MOH	MOF
ID System upgrade completed	This indicator will monitor whether the national ID system upgrade has been completed, and will be supported under component 3 of the project.	Annual	National Identity Card Office	MOF to track results in coordination with national identity card office	MOF
CR and National ID Systems linkage in Place	This indicator will monitor whether the CRVS and National ID systems linkage is in place, and will be supported under component 3 of the project.	Annual	National Identity Card Office	MOF to track results in coordination with National Identity Card Office	MOF



<p>Gender: The upgrade design of the CR system has been reviewed with a gender perspective and is gender-informed</p>	<p>This indicator will monitor whether the upgrade design of the CRVS system (e.g. datasets, data collection mechanism) has been reviewed with a gender perspective and is gender-informed, and includes appropriate linkages with the Health & ID Systems, and will be supported under component 3 of the project.</p>	<p>Annual</p>	<p>Ministry of Justice (MOJ), Ministry of Health (MOH), National Identity Card Office</p>	<p>MOF to track results in coordination with MOJ, MOH, and the National Identity Card Office</p>	<p>MOF</p>
<p>Tonga G-Cloud designed</p>	<p>This indicator will monitor whether the cloud based solution has been designed, and will be supported under component 4 of the project.</p>	<p>Annual</p>	<p>MOF&MEIDE CC/Project data</p>	<p>MOF to track results</p>	<p>MOF</p>
<p>National government portal designed and developed</p>	<p>This indicator will monitor whether the national government portal design has been completed and implemented and will be supported under component 4 of the project.</p>	<p>Annual</p>	<p>MOF&MEIDE CC/Project data</p>	<p>MOF to track results</p>	<p>MOF</p>
<p>Citizen engagement: feedback mechanism incorporated in national government portal</p>	<p>This indicator will monitor whether an appropriate CE feedback mechanism has been incorporated in the national government portal design and will be supported under component 4 of the project.</p>	<p>Annual</p>	<p>MOF&MEIDE CC/Project Data</p>	<p>MOF to track results</p>	<p>MOF</p>



Number of e-services developed under the project (Number)	This indicator will monitor the number of e-services that were developed under the project and will be supported under component 4 of the project	Annual	MOF&MEIDE CC and beneficiary ministries	MOF to track results	MOF
Gender: Percentage of eServices users that are women	This indicator will monitor the percentage of users of e-services developed under the project that are women	Annual	MOF&MEIDE CC and beneficiary ministries	surveys (mobile/web-based where applicable)	MOF
CE: Percentage of users report satisfaction with the reliability of digital services (disaggregated by gender)	This indicator will monitor the percentage of users that are satisfied with the reliability of digital services that has been developed under the project and will be disaggregated by gender.	Annual	surveys	Web/mobile-based survey tools	MOF
Percentage of users report satisfaction with the reliability of digital services (female)					



ANNEX 1: Implementation Arrangements and Support Plan

COUNTRY: Tonga

Tonga Digital Government Support Project

Strategy and Approach for Implementation Support

1. The Implementation Support Plan for this Project will comprise regular dialogue with MOF, MEIDECC, MOJ and other Government stakeholders, joint reviews of Project implementation; and regular oversight and support for fiduciary aspects with particular emphasis to be placed on the risks surrounding institutional capacity identified in the SORT. Regular dialogue and ongoing implementation support will enable the early identification of problems and permit the provision of timely TA to correct any potential issues that arise. MOF will prepare a Project Operational Manual.
2. The implementation support plan envisages significant inputs from World Bank technical and legal staff for the duration of the Project given the significance of investments in technology-enabled solutions and the importance of legal safeguards. The implementation support team will also include specialists on digital identity and civil registration. A mid-term review will be held in October 2022.
3. Fiduciary support for the Project will be provided by MOF's Central Services Unit (CSU). Under the overall responsibility of MOF, the CSU will provide services related to: (i) Project preparation and implementation, and (ii) capacity building. For Project preparation and implementation, the role of the CSU would be to provide both implementation and advisory services in the common fiduciary functions such as Procurement, Financial Management (FM), Safeguards, Monitoring and Evaluation (M&E). The CSU would provide such services to all World Bank-financed projects, particularly IDA-financed projects prepared under IDA18, and possibly forthcoming Projects under IDA19. For the capacity building function, the CSU would play a significant role in capacity building of national staffs and consultants in the different ministries/ agencies involved in World Bank Projects in Tonga.
4. The CSU will be staffed with full-time experts in procurement (one Procurement Specialist and one Procurement Officer), financial management specialist (1), monitoring and evaluation specialist (1), safeguards specialist (1), and engineer (1). On the task level, the CSU consultants would work in twinning arrangement with the Project implementation/ management units' staffs.
5. The CSU staff and consultants will be contracted by the MOF. The Program Manager (PM) would act as coordinator of the CSU team and report to the Deputy Chief Executive Officer (DCEO) or his/her designee of the MOF. Regular performance evaluation of the CSU staff would be carried out by the MOF with input from the Project managers in the relevant implementing agencies. The CSU/MOF will report to the Bank on a semi-annual basis on progress, performance, and capacity building targets and achievements.



Implementation Support Plan and Resource Requirements

6. The lack of institutional capacity within MOF and MEIDECC and the risks associated with the proposed PPP approach requires intensive support during the first 2 years of implementation. Three implementation support missions will take place during the initial year of implementation. This will be reduced to two implementation support missions in subsequent years of the operation. These periodic support visits will be complemented by regular teleconferences.

Table 6: Implementation Support Plan

Time	Focus	Skills Needed	Resource Estimate (staff weeks/year)
Years 1-2	Implementation support coordination	TTL	8
	Legal support	Legal specialist	6
	Technical	Technical	4
	ID/CR	Technical specialist	4
	FM	FM Specialist	2
	Procurement	Procurement Specialist	2
	Safeguards	Safeguards Specialist(s)	1
Years 3-5	Implementation support coordination	Task Team Leader	6
	Legal support	Legal specialist	4
	Technical	Technical specialist	4
	Overall operational support	Operations Officer	2
	FM	FM Specialist	2
	Procurement	Procurement Specialist	2
	Safeguards	Safeguards Specialist(s)	1



ANNEX 2: Financial Management

1. The FM assessment was carried out in accordance with the 'Principles Based Financial Management Practice Manual' issued by the Financial Management Sector Board on March 1, 2010, which states that with respect to the World Bank-Financed Investment Operations, the grantee is required to maintain appropriate implementation arrangements which include accounting, financial reporting, and auditing systems adequate to ensure that the PMO can provide the World Bank with accurate and timely information regarding the Project resources and expenditures. Overall, the FM arrangements satisfy the FM requirements of the IPF policy. The assessed FM risk of the Project is considered substantial, which will be partially offset by the successful implementation of mitigating measures, that is, timely recruitment of a Project accountant and use of the Government Sun system (off the shelf accounting software package, if required) acceptable to the World Bank.

2. **Implementing Entity:** MOF will be the implementing entity for the Project with technical inputs from MEIDECC. The Government operates a centralized financial system with MOF approving and processing all expenditure and providing guidelines and ceilings for budget preparation. Fiduciary support for the Project will be provided by the MOF's new Central Services Unit (CSU); a dedicated Project Accountant will need to be employed to carry out the day to day financial management functions of the Project. This is consistent with the implementation model for other World Bank-financed Projects. MOJ will be responsible for the technical implementation of Component 3 but the accounts will be maintained for all components in the Project Management Office.

3. **Accounting and Staff Arrangements:** The Project accounts will be maintained either directly in the government accounting system (Sun Systems) or in an off-the-shelf accounting package, for example Quick books or Mind Your Own Business, which will have the capacity to segregate reporting by implementing agency, component, and if required, by category. The PPA accounts are was maintained on a spreadsheet by staff from MEIDCC and should be shared with MOF for it's continuation so when the Project commences it will be necessary to employ a suitably qualified Project Accountant in MOF to maintain the Project accounts, compile and file financial documentation, prepare the Withdrawal Applications (WAs), work with the auditors and prepare annual financial statements, and assist in the preparation and monitoring of the Project budget. As the implementing agency has changed there will need to be liaison between MEIDECC, who have maintained the PPA, and MOF who will be implementing the main part of the Project. MOF will need to be satisfied that expenditures from the PPA are eligible project expenditures and the PPA designated account will be used to continue as the account of the of the main project and to be looked after MOF

4. The CSU will provide support including expert advice on thematic issues such as taxation, reporting to MOF. The day-to-day accounting functions for this Project will remain with the MOF.

5. **Budget Arrangements:** The Project budget will be prepared by the Project Manager. This should be based on the work plan and an effort should be made to accurately cost the activities planned. The CSU will to consolidate the annual work program and budget for such components and submit it to the World Bank by November 30 each year, for review and approval. The annual implementation and budget should be prepared based on the overall budget and monitored on a quarterly basis. Financial reports will include budget to actual comparisons.



6. **Internal Controls:** Where possible internal control procedures will be consistent with the Government's arrangements which comply with the Public Finance Management Act 2002 and accompanying Public Finance Administration Regulations, which are generally sound. It will be necessary to ensure that the preparation and review/authorization of transactions and bank reconciliations is segregated and independent. For the PPA MOF has been authorizing and issuing Project payments for MEIDECC and it is expected this arrangement will continue when the Project becomes effective. While MOF has a small internal audit division, given its limited resources there will be no internal audit function in this Project, however there will be a minimum of two FM implementation missions per year.

7. **Flow of Funds:** The funds flow will be from Bank Designated Account (DA), in Tongan Pa'anga. The Project costs will either be pre-financed from the Treasury Account and then funds swept from the DA or maintained in an off-the-shelf accounting package. If Project accounts are paid through the Treasury Account, this will require MOF to reconcile payments made from the Treasury Account to the transactions recorded by MOF. A separate note will be created for each implementing agency if the accounts are maintained through the Treasury Account.

8. **Financial Reporting Arrangements:** The Project Manager will prepare interim unaudited semester financial reports (IUFRs) including for Component 3, which are required to be submitted to MOF to be submitted to the World Bank within 45 days of the end of the reporting period. As these reports are to be used as a measuring tool, MOF should report Project progress (on a component and subcomponent basis) with adequate description, explanation, and analysis of variances. It is expected that the format will be consistent with International Public Sector Accounting Standards (IPSAS) reporting requirements. In addition, commitments (contractual amounts not yet paid but where a legal obligation exists) will be disclosed in the reports.

9. **External Audit Arrangements:** An annual audit will be required of the World Bank financed Project accounts. The format for the annual financial statements will be consistent with IPSAS reporting requirements. The Project audited financial reports must be received by the World Bank within six months of the end of the reporting fiscal year. The Tongan Audit Office is the auditor for other World Bank-financed Projects and it is anticipated that they will audit this Project. The auditors will be required to provide a detailed Management Letter containing their assessment of the internal controls, accounting system, and compliance with financial covenants in the Financing Agreement.

10. **Supervision Plan:** An FM implementation review field mission will be conducted at least twice a year with additional missions early in implementation to ensure that all World Bank FM requirements are met. In addition, the FM team will conduct a desk review of the semester interim financial reports, review the annual audit reports and Management Letters, and follow up on material accountability issues by engaging with the Task Team Leader(s), clients, and/or auditors.

Disbursements

11. The disbursement arrangements will allow each program to use the following methods: (a) advances into and replenishment of the DA, (b) direct payment, (c) reimbursement, and (d) special commitment. The pa'anga DA will be operated on an advance basis and the initial advance will be made through the completion of a WA.



12. The subsequent replenishments will be made through submission of WAs providing details on the use of funds previously advanced, based on Statements of Expenditures and reconciliation of the DA. It is expected that direct payments will only be used for payment on large contracts requiring payment in foreign currency.

13. All direct payment applications would be paid based on documentation provided which would include evidence that the goods or service had been satisfactorily delivered or completed, evidence that the goods or service are part of the work plan and included in the budget, and a copy of the invoice is provided by the supplier.

Table 7: Project Disbursement Category Allocations

Category	Amount of the Financing Allocated (IDA) (US\$)	Percentage of Expenditures to be Financed (inclusive of taxes)
(1) Goods, non-consulting services, consulting services, training and incremental operating costs.	4,150,000	100%
(2) Refund of preparation advance	500,000	Amount payable pursuant to Section 2.07 (a) of the General Conditions
TOTAL AMOUNT	4,650,000	



ANNEX 3: Climate Change

COUNTRY: Tonga

Tonga Digital Government Support Project

1. Tonga is ranked among countries in the world with the highest vulnerability to climate change (162nd) and lower readiness (100th), according to the Notre Dame Global Adaptation Index. According to the Regional Partnership Framework 2017–2021, the Pacific region, including Tonga, is one of the most prone to natural disasters in the world. The Pacific Island countries combine high exposure to frequent and damaging natural hazards with low capacity to manage the risks. Food production systems can be particularly affected by extreme variability in weather, which can in turn exacerbate disputes over the arable land and sea resources. According to the World Bank Group’s Climate and Disaster Risk Screening Report developed for the Project (using general Projects option), the future climate risk rating is moderate, while exposure rating of the project location is high. It is therefore important to strengthen institutional and technical capacity to enhance climate resilience and adaptive capacity.
2. The Project’s Component 4 aims to address climate change adaptation by incorporating resilient measures into the interventions and technical designs. More specifically, (a) Subcomponent 4.1 will ensure that climate risks are identified and disaster risk management plans are incorporated into the Digital Government Strategic Plan; (b) Subcomponent 4.2 will ensure that robust backup infrastructure and disaster recovery plan are in place in the design of the digital government infrastructure and platform; (c) Subcomponent 4.1 will include advisory services aimed at improving the climate-resilience of the Digital Government, CR and ID systems to ensure continuity of services to the citizens; and (d) Subcomponent 4.3 will ensure disaster management plans are implemented adequately by the selected service provider(s) and that the digital Government platforms and services are climate resilient. This will be done by incorporating these requirements in the tender documents.
3. The Project’s component 4 is expected to contribute to climate change mitigation by improving energy efficiency and reducing travel. More specifically, (a) Subcomponent 4.1 will consolidate small government data centers/servers to a “Government Cloud” that will increase both energy and resource efficiencies; and (b) Subcomponents 4.2 and 4.3 will lead to the avoidance of travel by citizens through information obtained through the government portal and the digital services developed, thus contributing to reduction in the carbon footprint.
4. Finally, the investments in the digital platform and services will help address climate change risks by facilitating the use of digital technologies for early warning and monitoring (and timely response) of weather and climate-affected impacts on agricultural production, water, and soil systems. The Project will support and diversify livelihoods in Tonga. The social benefits of the Project that focus on improving socioeconomic security constitute a core element of resilience to support vulnerable Tongans who are at risk of recurring shocks (including natural shocks), which chronically devastate whole communities and reverse hard-won development gains.



ANNEX 4: Gender Analysis, proposed actions and indicators

Analysis

1. Tonga, like many of the Pacific Island Countries (PIC-9), suffers from gender inequalities in terms of access to economic opportunities and markets, access to endowments, women's voice and agency, and vulnerability to emerging risks such as climate change. The 2016 United Nations' Gender Inequality Index ranks Tonga 152 among 188 countries. In Tonga, labor force participation rate is only 53 percent among women, compared to 75 percent among men, and Tongan girls remain underrepresented in primary, secondary and tertiary education, which has limited economic opportunities apart from subsistence agriculture and informal sector jobs. Further, there is a high prevalence of gender-based violence. According to the UN Women, an estimated 5,000 to 10,000 women in Tonga are survivors of intimate partner violence every year, which is between 31 percent and 62 percent of all women.

2. Among the constraints, Tongan women face limitations in accessing finance and suffers from a high prevalence of non-communicable diseases. In Tonga, women are not legally able to own land, which has limited women's access to credit and financial support services due to the absence of collateral. Coupled with the lack of a proper civil registration/ID particularly for those in rural areas, access to financial services continues to hinder economic opportunities for Tongan women. Non-communicable diseases (NCD), such as diabetes, continue also pose a significant risk to Tongan women's health. The obesity rate among Tongan women is estimated at around 58 percent, the highest among the PIC-9 countries.¹³ However, key data for these issues remain outdated and knowledge gaps remain to fully understand the gender-related issues in Tonga.

3. The Government of Tonga recognizes these challenges and has included gender priorities in its revised national development plan. For example, the Government is partnering with Australia's Sports Outreach Program "Kau Mai" initiative to reduce the impact of NCDs among Tongan women and girls, and over the past few years, an increase in the number of women accessing support services for victims of violence has been reported.¹⁴ Access to these services and programs, however, have been largely limited to urban centers, and women and girls in remote islands tend to have limited access to and knowledge of services available to them.

Proposed Actions

4. First, robust Civil Registration (CR) is not only a critical enabler of women and girls to access services such as healthcare, education, asset management, and financial services, but also offers the Government the ability to obtain accurate data of the population and develop policies that incorporates specific needs of Tongan women and girls. For example, vital statistics will provide gender-disaggregated demographic data on key issues, such as NCDs and maternal mortality, and can be used to improve health policies that impact women. Marriage and divorce registration can also contribute to a woman's ability to inherit critical assets and access financial services. **Action:** The Project will ensure that the design of the upgraded CR system incorporates a review and, if needed, incorporation of vital statistics that are critical for gender specific policy making in Tonga. This includes, assessment of the Health & ID systems that will be linked to the CR in

¹³ Bending the Noncommunicable Diseases Cost Curve in the Pacific, World Bank, 2016.

¹⁴ Consolidated Gender Action Plan for the PIC-9, FY17-21.



coordination with relevant ministries/agencies (e.g. Ministry of Health, Ministry of Justice, National Statistics Office)

5. Second, access to public services for Tongan women tend to be hindered by barriers including remoteness, costs and in some instances societal norms. Digital Government can offer transformative opportunities for women to access information and services on health, education, gender based violence-related services, jobs and financial services. Therefore, it is critical to ensure that women are not excluded in digital public service delivery. **Action:** The proposed Project will support gender inclusiveness, especially for the services which will be available for users under Component 4. MOF and MEIDECC will carry out targeted awareness raising for women, and undertake a gender-disaggregated survey regarding the uptake and satisfaction of eServices, supported under the Project. These data will be useful to implement improvements in the services provided. Business registration is considered to be one of the priority eServices, which can help facilitate female entrepreneurship and economic empowerment.

Indicators

6. The Project will monitor the progress by tracking the following indicators:
- **The upgrade design of the CR system has been reviewed with a gender perspective and is gender-informed**
Description: This indicator is supported by the Component 3: Civil Registration and Identification Management. The achievement of this indicator will be demonstrated by the inclusion of gender-specific provisions in the upgrade design of the CR, including linkages with the health and ID systems.
 - **Percentage of eServices users who are women**
Description: This indicator is supported by Subcomponent 4.3 Implementation of priority eServices. The achievement of this indicator will be determined by the ratio of male vs women users of the eServices. The priority eServices are yet to be determined.