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R40-19
Corrigendum 1
12 July 2019

Corrigendum to Document R40-19
Proposed Grant
Introducing eGovernment through Digital Health (Tonga)

The following change was made in a linked document of the above document to correct a clerical error.

| Linked Document No. 3: Project Administration Manual | Included after page 39 "**Section 7: Terms of Reference Supporting the Request for Proposal – Health Information System**" |

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R40-19
4 July 2019

Proposed Grant
Introducing eGovernment through Digital Health (Tonga)

1.   The Report and Recommendation of the President (RRP: TON 50281-001) on the proposed grant to Tonga for Introducing eGovernment through Digital Health is circulated herewith.

2.   This Report and Recommendation should be read with *Country Operations Business Plan: 11 Small Pacific Island Countries, 2019–2021*, which was circulated to the Board on 9 October 2018 (DOC.IN.386-18).

3.   In the absence of any request for discussion and in the absence of a sufficient number of abstentions or oppositions (which should be communicated to The Secretary by the close of business on 25 July 2019), the recommendation in paragraph 44 of the paper will be deemed to have been approved, to be so recorded in the minutes of a subsequent Board meeting. Any notified abstentions or oppositions will also be recorded in the minutes.

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ADB

Report and Recommendation of the President
to the Board of Directors

Project Number: 50281-001
July 2019

Proposed Grant
Kingdom of Tonga: Introducing eGovernment
through Digital Health

Asian Development Bank

ABBREVIATIONS

ADB	–	Asian Development Bank
CRVS	–	civil registration and vital statistics
DHIS2	–	District Health Information Software
HIS	–	health information system
ICT	–	information and communication technology
IT	–	information technology
MOF	–	Ministry of Finance
MOH	–	Ministry of Health
O&M	–	operation and maintenance
PAM	–	project administration manual
PMU	–	project management unit
SDG	–	Sustainable Development Goal
TA	–	technical assistance
WebPAS	–	web-based patient administration system

NOTES

(i)   The fiscal year (FY) of the Government of Tonga and its agencies ends on 30 June. "FY" before a calendar year denotes the year in which the fiscal year ends, e.g., FY2018 ends on 30 June 2018.

(ii)   In this report, "$" refers to United States dollars, unless otherwise stated.

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PROJECT AT A GLANCE

1.	**Basic Data**				**Project Number:** 50281-001
	Project Name	Introducing eGovernment through Digital Health	**Department /Division**	PARD/PASP	
	Country	Tonga	**Executing Agency**	Ministry of Finance	
	Borrower	Tonga			

2.	**Sector**	**Subsector(s)**	**ADB Financing ($ million)**
✔	**Health**	Health sector development and reform	7.50
		Total	**7.50**

3.	**Strategic Agenda**	**Subcomponents**	**Climate Change Information**	
	Inclusive economic growth (IEG)	Pillar 2: Access to economic opportunities, including jobs, made more inclusive	Climate Change impact on the Project	Low
	Regional integration (RCI)	Pillar 4: Other regional public goods		

4.	**Drivers of Change**	**Components**	**Gender Equity and Mainstreaming**	
	Governance and capacity development (GCD)	Institutional development	Gender equity (GEN)	✔
	Knowledge solutions (KNS)	Knowledge sharing activities		
		Pilot-testing innovation and learning		
	Partnerships (PAR)	Implementation		
		International finance institutions (IFI)		

5.	**Poverty and SDG Targeting**		**Location Impact**	
	Geographic Targeting	No	Nation-wide	High
	Household Targeting	No		
	General Intervention on Poverty	No		
	SDG Targeting	Yes		
	SDG Goals	SDG3, SDG5		

6.	**Risk Categorization:**	Low

7.	**Safeguard Categorization**	**Environment:** C **Involuntary Resettlement:** C **Indigenous Peoples:** C

8. Financing

Modality and Sources	Amount ($ million)
ADB	**7.50**
Sovereign Project grant: Asian Development Fund	7.50
Cofinancing	**0.00**
None	0.00
Counterpart	**1.00**
Government	1.00
Total	**8.50**

Currency of ADB Financing: USD

I.   THE PROPOSAL

1.   I submit for your approval the following report and recommendation on a proposed grant to the Kingdom of Tonga for Introducing eGovernment through Digital Health.

2.   The project will support the government's commitment to eGovernment in the health sector by implementing digital health solutions to better manage patient care, collect data for strategic decision-making, and report on progress toward the goal of universal health coverage.[1] The project is included in the country operations business plan for the 11 small Pacific island countries.[2]

II.   THE PROJECT

A.   Rationale

3.   **Poor health outcomes.** Constrained resources and lack of information to guide resource allocation (in terms of where needs are highest and where preventative actions may be taken) in the health sector has led to poor health services, including limited health promotion, and poor health outcomes. Tonga's efforts toward achieving Sustainable Development Goal 3 (good health and wellbeing) have achieved substantial improvements in infectious disease prevention and control and reproductive, newborn, and child health.[3] However, more work is needed to reduce maternal mortality, improve immunization coverage, and prevent and control noncommunicable diseases (NCDs), especially diabetes and cardiovascular diseases.[4] Tonga has the highest obesity prevalence in the world, with women 20% more likely to be obese than men. Tonga's women are disproportionately impacted by poor health services: the maternal mortality ratio has increased from 75 maternal deaths per 100,000 live births in 1990 to 124 per 100,000 in 2015.[5] Better information systems, continuity of care, targeted health awareness programs, and high-impact targeted health investments are needed to reverse these trends.

4.   **Challenging environment for health service delivery.** Tonga has a population of about 107,000 people living on 170 islands spread across 750,000 square kilometers of the South Pacific Ocean. Economic development constraints include remoteness and dispersion, exposure to external economic shocks, and limited human capacity. These constraints limit economic activity and the government's ability to raise revenue and provide equitable access to public services and information, especially in the health sector.

5.   **Poor quality health data.** Patient health information is collected manually and aggregated through a web-based patient administration system (WebPAS) only at the main hospital. The four outer island hospitals and all 12 health centers and 10 community health clinics are not linked to this system, and data collection is paper based. Any paper-based data collection system requires manual data entry and validation, raising the risk of error. Staff capacity to use all functionalities of WebPAS and other available systems is relatively low. As a result, data are not compiled promptly or presented in an appropriate format to inform management about health service usage.

[1] Government of Tonga, Ministry of Health. 2015. *National Health Strategic Plan, 2015–2020.* Nuku'alofa.
[2] ADB. 2017. *Country Operations Business Plan-11 Small Pacific Island Countries: 2018-2020.* Manila.
[3] WHO. 2018*. UHC and SDG Country Profile 2018* Tonga. https://iris.wpro.who.int/bitstream/handle/10665.1/14063/WPR-2018-DHS-024-ton-eng.pdf.
[4] A. Rodney et al. 2015. The Kingdom of Tonga Health System Review. *Health Systems in Transition.* 5 (6). World Health Organization.
[5] United Nations. 2018. *Report of the Working Group on the Universal Periodic Review: Tonga.* Report for the 38th session of the Human Rights Council, agenda item 6 (A/HRC/38/5). New York. 18 June–6 July.

Accurate birth and death information, which is vital for providing appropriate public services at all stages of life, is also lacking. Birth registration is highly reliant on parents' action, death registration has limited incentives, and doctors do not always record cause of death information. Without this and other essential health data, it is difficult to accurately plan for health service needs.

6.   **Lack of integration between health data systems.** Existing HISs and management policies are not integrated to maximize effective data use. In addition to WebPAS, other health information systems include mSupply, a pharmacy ordering information system; the Radiology Information System and the Picture Archive and Communication System, diagnostic imaging storage systems for radiology; and District Health Information Software (DHIS2), a public health reporting system.[6] The rollout of these systems was not planned and strategically sequenced, and their implementation reflects the availability of financing and systems. A consolidated and integrated architecture that informs management and policy makers about service utilization, stock levels, human resources, or financing needs is not in place. The lack of a unique patient identifier, various information systems, and siloed data repositories make the tracing of consolidated patient medical history nearly impossible.

7.   **Strengthened information and communication technology.** Affordable broadband internet was introduced in August 2013 when a submarine fiber-optic cable system connected Tonga to Fiji.[7] This system was extended in April 2018 to the Ha'api and Vava'u groups of islands. Increasing access to information and communication technology (ICT), particularly broadband and ICT applications, provides an opportunity to address some shortcomings in the provision of public services. The government has recognized this, and with World Bank will support the building of the foundations of an eGovernment platform,[8] including developing a digital government strategic framework[9] and appropriate data security legislation and pilot-testing online government business process and workflow efficiencies.[10] Nonetheless, gaps remain in the health sector's strategic directions, action planning, standard setting, and legal frameworks to fully leverage the benefits of a digital health information system (HIS) to address the sector problems described above.

8.   **Government request.** The Government of Tonga has requested support from the Asian Development Bank (ADB) for a project that will design and implement a digital HIS that contributes to, and will integrate with, the overall eGovernment platform. The recent expansion of broadband connectivity makes this investment timely. A strong digital HIS underpins all elements and functions of an efficient and effective health system, improving allocative and technical efficiency.[11] The digital HIS will enable two-way communication between planned and existing health data systems, allowing for health information reporting that meets the needs of different users and decision makers; and the digitization of paper-based health data collection methods, including reporting of births and deaths. The creation of sex-disaggregated data will allow better tracking of progress toward Sustainable Development Goals (SDGs) 3 and 5 and inform gender-

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[6] Australia's Department of Foreign Affairs and Trade is funding the implementation of DHIS2, a health management information system used in more than 65 countries that combines data aggregation with reporting tools and integration services.

[7] ADB. 2011. *Report and Recommendation of the President to the Board of Directors: Proposed Grant to the Kingdom of Tonga for the Tonga–Fiji Submarine Cable Project*. Manila.

[8] Electronic government, or eGovernment, is the use of electronic communications devices, such as computers and the internet, to provide public services to citizens.

[9] This is an eGovernment road map that will set out a medium- to long-term strategy to bring government services online, to the extent possible, and to use the data captured to drive decision-making.

[10] World Bank. 2019. Tonga Digital Government Support Project. Washington, DC.

[11] P. Drury et al. 2018. Guidance for Investing in Digital Health. *ADB Sustainable Development Working Paper Series*. No. 52. Manila: ADB.

responsive health policies and funding.[12] This project will demonstrate the benefits of delivering essential public services using a digital HIS to enable optimal health and gender outcomes.[13]

9.   ADB is working with the World Bank to ensure alignment and complementarity of ICT integration activities. The World Bank project will finance advisory services to modernize policies, laws, and regulations; and improve the civil registration and vital statistics (CRVS) system under the eGovernment platform (footnote 10). Digital HIS data will be synchronized with this platform and will link with the upgraded national identity system to enable a unique patient identifier.

10.   **Link to national development strategy and ADB sector priority.** The ADB project will contribute to achievement of the Tonga Strategic Development Framework, 2015–2025, particularly organizational outcome 2.5 on universal health coverage; and National Health Strategic Plan, 2015–2020 key result area 5 to "provide the best attainable policy and planning services guided by credible information and research to ensure the cost effectiveness of health care services in relation to health needs and problems of Tonga."[14] The project supports ADB Strategy 2030 operational priority to address human development and social inclusion and better health for all, particularly by having the information necessary to manage the growing burden of noncommunicable diseases.[15] The project aligns with the strategic objectives of "reducing costs" and "managing risks" of ADB's Pacific Approach, 2016–2020 and country operations business plan, 2018–2020 for 11 small Pacific island countries by underpinning more efficient and effective health services delivery; and is consistent with ADB's Operational Plan for Health.[16]

B.   Impact and Outcome

11.   The project is aligned with the following impact: health services delivery improved based on a nationwide digital HIS.[17] The project will have the following outcome: quality, reliability, and granularity of health statistics, disaggregated by sex and age, improved.[18]

C.   Outputs

12.   **Output 1: The enabling environment for the use of digital health data improved.** The project will support the Ministry of Health (MOH) in developing a gender-sensitive digital health strategy that is aligned with the overarching digital government strategic framework (para. 7). The strategy will provide a foundation for evidence-based policy development and interventions, support consolidated reporting against health targets (including SDGs 3 and 5), enable better

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[12] United Nations. Sustainable Development Goals. SDG 3 focuses on ensuring healthy lives and promoting well-being for all at all ages. SDG 5 seeks to achieve gender equality and empower all women and girls.

[13] The enterprise approach is a holistic approach to digital health, which considers strategy, leadership, governance, legislation and policy, compliance, and investment for a successful and sustainable nationwide rollout.

[14] Government of Tonga, Ministry of Finance and National Planning. 2015. *Tonga Strategic Development Framework, 2015–2025*. Nuku'alofa; and footnote 1.

[15] ADB. 2018. *Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific.* Manila.

[16] ADB. 2017. *Pacific Approach, 2016–2020.* Manila; ADB. 2017. *Country Operations Business Plan: 11 Small Pacific Island Countries, 2018–2020.* Manila; and ADB. 2015. *Health in Asia and the Pacific: A Focused Approach to Address the Health Needs of ADB Developing Member Countries—Operational Plan for Health, 2015–2020.* Manila.

[17] Footnote 14. Specifically, the project is aligned with the (i) Tonga Strategic Development Framework, 2015–2025 organizational outcome 4.4 on more reliable, safe, and affordable buildings and other structures, taking greater account of local conditions; and helping lower construction, maintenance and operating costs; increase resilience to disasters; improve the quality of services provided; and facilitate increased access; and (ii) National Health Strategic Plan, 2015–2020 key result area 3 to provide the best attainable infrastructure, medical products, and technology that is needed to deliver the entire minimum required health care services in Tonga.

[18] The design and monitoring framework is in Appendix 1.

understanding of women's health issues, and guide the identification and sequencing of future digital health investments. It will also ensure the interoperability across systems and over time to aggregate and disaggregate data as required and will facilitate strong links between the National Health Strategic Plan (footnote 1) and the digital government strategic framework.

13.   The project will review and amend as necessary the legal and regulatory framework for ICT and privacy legislation currently being drafted to include health sector-specific clauses related to data privacy and security. The project will review and amend existing health legislation and regulations, including provisions for the certification and notification of births and deaths, to support the changes resulting from the digital HIS.

14.   The project will undertake capacity building for management teams across ministries in the effective use and management of digital health data for decision-making and policy development. Focused training on gender statistics will enable gender-sensitive policy design and decision-making.

15.   **Output 2: Digital health information system customized and implemented.** The project will customize and implement a digital HIS that will include patient, facility, and workforce registries; adopt health informatics standards and disease classification systems; and define the overall health information architecture in line with the digital health strategy. The digital HIS will become part of an integrated platform to ensure interoperability across different information systems within the health system (e.g., using electronic health records to link with disease-specific information systems, following a single-entry, multiple-use approach). The digital HIS will expand the limited data in the WebPAS, collect age- and sex-disaggregated data, and introduce a unique patient identification system that will link with future centralized databases. Health service delivery changes will include support for all of the country's hospitals and health facilities to replace the fragmented paper-based system and adopt an enhanced WebPAS. The project will implement digital patient transfer records, allowing for continued patient care, with a focus on female obstetric patients transferring from the outer islands to Vaiola Hospital, the main hospital in Tonga.

16.   The project will provide software and all integration technology; and fully implement the digital HIS, including training and software support for up to 5 years. An information security infrastructure to ensure sensitive data is protected from unauthorized access, use, disclosure, disruption, modification, or destruction. The project will provide capacity building to the MOH information technology (IT) team. Capacity building for health workers will develop skills needed for accurate data entry and for health workers to understand how data can be used in health facilities to provide better health service delivery. Based on an assessment of the digital HIS requirements, current and planned hardware can accommodate the proposed system during the project years. The government has committed to manage and regularly replace hardware and to ensure that hardware is current, functional, and compatible with the proposed digital HIS.[19]

17.   The project will support the CRVS data links between the MOH and the Ministry of Justice (which are responsible for issuing birth and death certificates). Births and deaths data from the digital HIS will be automatically pushed to the CRVS system, which will deliver person-based population statistics rather than event-based statistics as is currently the case. The development of such a system will allow for future integration of the national identity system as a unique identifying access point to eGovernment services.

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[19] From FY2018 to FY2019, Tonga's budget grew by 70% for ICT computer supplies and 27% for the purchase of new computers. The government focus on eGovernment will ensure there is sufficient improvement budget.

18.   **Value added by ADB assistance.** ADB assistance brings value by (i) designing and implementing a cost-effective digital HIS that draws on best practice (footnote 11); (ii) improving the collection and use of digital health data through appropriate changes in the enabling legal, regulatory, and policy environment; and (iii) building capacity to collect and use data for decision-making. This project will improve health service delivery and will act as a demonstrator to highlight the benefits of an integrated digital HIS in the eGovernment initiative. The project will also act as a pilot for the Pacific-wide adoption of eGovernment initiatives and builds on ADB's health information systems experience gained in Papua New Guinea and Samoa.[20]

19.   The project leverages support from ADB technical assistance (TA) for Developing the Health Sector in the Pacific, which will provide funding for workshops and training to further prepare health workers for implementing the digital HIS.[21] Workshops will help health workers and management prepare for this large-scale change and build strong ownership across ministries and agencies. Another TA project for Promoting Transformative Gender Equality Agenda in Asia and the Pacific will provide funding to (i) complete a mapping exercise of support services for women's and girls' health issues that will allow better referral pathways at the point of service delivery; (ii) deliver training on the use of digital health data for policy making, particularly around women's and girls' health issues across multiple ministries; and (iii) prepare a scoping study on the use of digital communications to share women's and girl's health information and data.[22]

D.   Summary Cost Estimates and Financing Plan

20.   The project is estimated to cost $8.5 million (Table 1).

21.   Detailed cost estimates by expenditure category and by financier are included in the project administration manual (PAM).[23]

Table 1: Summary Cost Estimates
($ million)

Item			Amount[a]
A.	**Base Cost** [b]		
	1.	The enabling environment for the use of digital health data improved	0.25
	2.	Digital health information system customized and implemented	6.56
	3.	Project management unit	1.44
		Subtotal (A)	**8.25**
B.	**Contingencies**[c]		**0.25**
		Total (A+B)	**8.50**

[a] Includes taxes and duties of $0.17 million to be financed by the government via exemption. Such amount does not represent an excessive share of the project cost.
[b] Prices as of May 2019. Includes in-kind contribution equivalent to $1.00 million by the Government of Tonga.
[c] Physical contingencies computed at 3.00% for consulting services. Price contingencies computed at an average of 2.58% on exchange and currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.
Source: Asian Development Bank.

22.   The government has requested a grant not exceeding $7.5 million from ADB's Special Funds resources (Asian Development Fund) to help finance the project. The government will provide counterpart financing through in-kind support equivalent to $1.0 million. The summary

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[20] ADB. 2011. *Rural Primary Health Services Delivery Project.* Manila. ADB. 2018. *Samoa Submarine Cable Project.* Manila
[21] ADB. Regional: Developing the Health Sector in the Pacific.
[22] ADB. Regional: Promoting Transformative Gender Equality Agenda in Asia and the Pacific.
[23] Project Administration Manual (accessible from the list of linked documents in Appendix 2).

financing plan is in Table 2. ADB will finance the expenditures in relation to the purchase and customization of a digital HIS (including the rollout of unique health identification and automated birth and death notification and reporting to the CRVS) and associated implementation and O&M costs for up to 5 years; staff capacity building; the provision of project management unit (PMU) staff and specific consultants; and the legal review of legislation, regulation, and policies linked to digital HIS implementation.

Table 2: Summary Financing Plan

Source	Amount ($ million)	Share of Total (%)
Asian Development Bank		
Special Funds resources (ADF grant)	7.5	88.2
Government[a]	1.0	11.8
Total	**8.5**	**100.0**

ADF = Asian Development Fund.

[a] In-kind support, including staff, project management unit office space, supplies and utilities, taxes and duties for transport vehicles, and equipment, and operation and maintenance costs.

Source: Asian Development Bank estimates.

E. Implementation Arrangements

23. The Ministry of Finance (MOF) will be the executing agency, and the MOH will be the implementing agency. A technical working group will oversee project implementation. The technical working group will be chaired by the health minister and will include senior representatives from the MOF; the MOH; the Ministry of Internal Affairs (Women's Affairs Division); the Ministry of Justice; and the Ministry of Meteorology, Energy, Information, Disaster Management, Environment, Climate Change, and Communications. The technical working group will also coordinate with other government and development partner initiatives. The implementation period is August 2019–August 2026.

24. The implementation arrangements, including project management, are summarized in Table 3 and described in detail in the PAM (footnote 23).

Table 3: Implementation Arrangements

Aspects	Arrangements		
Implementation period	August 2019–August 2026		
Estimated completion date	31 August 2026		
Estimated grant closing date	28 February 2027		
Management			
(i) Technical working group	MOH minister (chair); MOH CEO, corporate services director, and chief information officer; and CEOs of the ministries of finance; internal affairs' (Women's Affairs Division); justice; and meteorology, energy, information, disaster management, environment, climate change and communications		
(ii) Executing agency	Ministry of Finance		
(iii) Key implementing agencies	MOH		
(iv) Implementation unit	MOH, 2 staff		
Consulting services[a]	QCBS	1 contract	$6.56 million
	SSS	1 contract	$0.10 million
	ICS	30 person months	$0.45 million
Advance Contracting	Recruitment of the firm to support implementation will commence under advance contracting, as further detailed in the PAM.		

Aspects	Arrangements
Disbursement	The grant proceeds will be disbursed following ADB's *Loan Disbursement Handbook* (2017, as amended from time to time) and detailed arrangements agreed between the government and ADB.

ADB = Asian Development Bank, CEO = chief executive officer, ICB = international competitive bidding, ICS = individual consultant selection, MOH = Ministry of Health, PAM = project administration manual, QCBS = quality- and cost-based selection, SSS = single source selection.
a Details are provided in the PAM (accessible from the list of linked documents in Appendix 2 of the report and recommendation of the President).
Source: Asian Development Bank.

25. The MOH and ADB will conduct procurement jointly. Recruitment of consulting services will be delegated to ADB, as outlined in the PAM (footnote 23). The MOH will procure the digital HIS following ADB processes.[24] The firm contracted to provide the digital HIS will provide a software package customized to meet the business and technical requirements, as well as consulting services to enable full implementation, including IT services and training, capacity building of management and health workers, and change management.

26. The PMU under the MOH will manage the project and supervise project activities. The MOH chief information officer will lead the project under the guidance of the MOH chief executive officer. The MOH chief information officer's team will work with the PMU project-financed consultants, which will consist of a firm hired as project supervisor to assist the MOH in the management of implementation, a project coordinator, a legal specialist, and a gender specialist. Details of their roles are described in the PAM (footnote 23). Subject to satisfactory performance, the firm competitively engaged to provide the business and technical requirements, Gevity Consulting Inc., will be engaged via single source selection to serve as project supervisor. The project supervisor will advise the PMU and the MOH, assess the progress of the selected firm, and assist the government if further decision points and challenges arise.

III. DUE DILIGENCE

A. Technical

27. ADB contracted a specialist firm to work with the MOH to develop the business and technical requirements for the procurement of a digital HIS as part of project preparation. Three broad options for a digital HIS were considered as part of this process: (i) designing and building a new digital HIS from scratch, (ii) upgrading and expanding WebPAS, and (iii) purchasing a proven software package and contracting the vendor to customize it to meet local functionality requirements. The first option was excluded as it required capability not available in Tonga and would result in large risks in maintenance, upgrades, and operation. With limited capacity, the MOH would be forced to rely on expensive international consultants or firms, which would not be financially sustainable. The second option was also excluded as WebPAS does not include all the functionality required; any upgrade would only cover the limited patient administration module and would not improve the system or provide the needed data collection capability. The third option was deemed the most cost-effective and sustainable choice.

28. The business and technical requirements for the digital HIS were developed through workshops and detailed consultations with all stakeholders and formed the basis of the terms of reference for the procurement of the customized system. The firm contracted will provide a

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[24] ADB Procurement Policy (2017, as amended from time to time); and Procurement Regulations for ADB Borrowers (2017, as amended from time to time).

software package and required customization, IT implementation training, staff capacity building, and change management. To achieve project readiness before grant effectiveness, the tender to select the firm has been released in advance. Tendering will be progressed to the completion of the evaluation stage, with the remaining steps taken after grant effectiveness. Existing hardware specifications have been documented in the request for proposal, which requires bidders to propose solutions that will function within the current network infrastructure and hardware. The project does not include provisions for the purchase of new hardware, as current hardware is deemed suitable to support the anticipated software; under DHIS2, additional tablets will be procured for use in health facilities (footnote 6).

29. The procurement process will evaluate a successful bidder not only on software functionality and implementation services, but also on operation and maintenance (O&M) support and understanding of capacity building needs for the MOH and system upgrade requirements. The project is expected to cover O&M support costs for up to 5 years. During this time, the MOH will work to ensure the recurrent budget covers O&M costs to ensure the system's sustainability.

B. Economic and Financial

30. The economic performance of the project over 15 years in the base-case scenario yielded an economic internal rate of return of 13.7%, exceeding the minimum requirement of 9.0% per year for ADB investment projects. Sensitivity analysis with 20% decrease in benefits, 10% increase in capital costs, and 10% increase in operating costs confirmed the economic viability for each adverse shock, while maintaining an economic internal rate of return above 9%.

31. Annual growth in government health expenditure during 2011–2015 was 10.3%.[25] While sustainability of this growth is not guaranteed, the financial sustainability analysis showed the project is financially sustainable during the project period, even assuming no increase to the government health budget. Improving fiscal conditions in Tonga should also help free up resources for the project. Discounting other intangible project cost savings, such as efficiencies gained in administration, and assuming the risks of increased recurrent costs following system implementation, the digital HIS remains financially sustainable beyond the project period with recurrent O&M costs representing 2.2% of overall health expenditure by 2033.

C. Governance

32. The MOH has successfully implemented development partner-financed activities, predominantly supported by the Government of Australia. The MOF provides strong centralized project management support and Tonga has made considerable effort to strengthen its public financial management with TA and policy-based support from development partners, including ADB, Australia's Department of Foreign Affairs and Trade, the New Zealand Ministry of Foreign Affairs and Trade, the Pacific Financial and Technical Assistance Centre, and the World Bank. Public expenditure and financial accountability assessments in 2007, 2014, and 2015 have shown improvement across most facets measured. Updated procurement legislation was passed in 2010 with ADB and World Bank support, while internal audit has also been substantially strengthened. Tonga performs well on transparency and anticorruption indexes. The MOF has benefited from capacity building programs and long-term advisers and provides guidance and support on financial management to line agencies (including the MOH). No significant financial management issues have been identified in the ongoing portfolio. The financial management risk is *moderate* because of limited procurement requirements; the dominant use of direct payment (about 90% of

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[25] Financial and Economic Analysis (accessible from the list of linked documents in Appendix 2).

expenditures); and the integration of the PMU with MOH counterparts to leverage the government's financial management expertise, supplemented by ADB-specific training.[26]

33.   ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the government and the MOF. The specific policy requirements and supplementary measures are described in the PAM (footnote 23).

D.   Poverty, Social, and Gender

34.   Poverty and ill-health are mutually reinforcing. While poverty can be a major cause of ill-health, inadequate access to basic health services can also drive individuals and families deeper into poverty and deprive them of socioeconomic opportunities. On the other hand, a healthier workforce is associated with lower absenteeism, higher labor productivity, higher wages, and economic growth. The digital HIS will contribute to enhanced efficiency, quality, and accessibility of health care services.

35.   The project is classified *gender equity theme*. Gender norms and expectations in Tonga reflect strong traditional cultural norms and religious beliefs. Women in Tonga are valued for their reproductive and caring responsibilities; have limited access to decision-making roles in the community and society; and carry a triple burden of work related to family, productive work, and community and church responsibilities.

36.   The project will benefit women in various ways. First, as patients, women often interact with different providers in hospitals and health centers on the outer islands and the main island, and individual patient data from the outer islands may not always be readily available to health workers in the main hospital in case of referrals. Given the scale of women's health issues (para. 3) and high levels of gender-based violence, the introduction of consolidated patient information will have positive implications for continuity and quality of care, particularly during pregnancy and in the management of noncommunicable diseases. Second, creating unique health identifiers minimizes confidentiality risks for female patients, which is particularly important in health issues with some level of stigma attached (e.g., gender-based violence or reproductive health). Third, the lack of sex-disaggregated population health data means there are gaps in understanding women's health issues and there is limited ability to report against national and international heath targets, such as the SDGs. The digital HIS will enable accurate understanding of the true extent of women's health issues; provide a basis for evidence-based policy and interventions; and improve reporting against health targets, including SDGs 3 and 5. Fourth, 70% of health workers are women, including half of all managerial posts and half of the generalist medical practitioners. As health workers, women are key users of the digital HIS and will benefit from training and capacity development to both input and use data, thereby enhancing their digital literacy.

E.   Safeguards

37.   In compliance with ADB's Safeguard Policy Statement (2009), the project's safeguard categories are as follows.[27]

38.   **Environment (category C).** The project will have no adverse impact on the environment.

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[26] Tonga Financial Management Assessment (accessible from the list of linked documents in Appendix 2).
[27] ADB. Safeguard Categories.

39.   **Involuntary resettlement (category C).** No involuntary resettlement is envisaged because the project will not carry out any civil works.

40.   **Indigenous peoples (category C).** The project will not have an impact on indigenous peoples as defined in the Safeguard Policy Statement.

F.   Summary of Risk Assessment and Risk Management Plan

41.   Significant risks and mitigation measures are summarized in Table 4 and described in detail in the risk assessment and risk management plan.[28] Other moderate risks outlined in the risk assessment and risk management plan include the capacity of staff to input quality data into the new system and use the consolidated information to guide decision-making.

Table 4: Summary of Risks and Mitigating Measures

Risks	Mitigation Measures
Maintenance budget unavailable. The government does not budget appropriately for ongoing maintenance costs, and the system does not receive regular upgrades.	The project seeks to cover up to 5 years of maintenance costs following implementation to allow time for the government to incorporate appropriate allocations into the national budget.
Unreliable connectivity. Unreliable internet connectivity in some parts of Tonga leads to resistance to digital systems.	Design of digital systems will consider local limitations and requirements with options to make working offline available, to alleviate concerns about losing work.
Poor link between digital health strategy and budget. A strong digital health strategy with no funding discourages health sector employees leads to nonachievement of reporting targets.	Clear financial modeling done as part of the digital health strategy and phased approach for the implementation of priority investments allows for funding to be sought as needed to implement the strategy.

Source: Asian Development Bank.

IV.   ASSURANCES

42.   The government and the MOF have assured ADB that implementation of the project shall conform to all applicable ADB policies, including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as described in detail in the PAM and loan documents.

43.   The government and the MOF have agreed with ADB on certain covenants for the project, which are set forth in the draft grant agreement.

V.   RECOMMENDATION

44.   I am satisfied that the proposed grant would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the grant not exceeding $7,500,000 to the Kingdom of Tonga from ADB's Special Funds resources (Asian Development Fund) for Introducing eGovernment through Digital Health, on terms and conditions that are substantially in accordance with those set forth in the draft grant agreement presented to the Board.

Takehiko Nakao
President

4 July 2019

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[28] Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

DESIGN AND MONITORING FRAMEWORK

Impact the Project is Aligned with			
Health services delivery improved based on a nationwide digital HIS[a]			

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
Outcome Reliability, quality and granularity of health statistics, disaggregated by gender and age, improved	**By 2026** Health data reporting is sourced from digital HIS (including integrated systems) to report on SDGs 3 and 5 health-related indicators and used to estimate health service costs (2019 baseline: none).	SDG reporting produced by the government, MOH budget submissions	Changes in key ministerial and/or government official posts reduce the priority given to health information management.
	Annual government reporting on health policy integrates gender analysis (2019 baseline: none).	MOH annual report	
	A dedicated national gender health action plan focusing on SDGs 3 and 5 is approved (2019 baseline: none).	MOH annual report	
Outputs 1. The enabling environment for the use of digital health data improved	By 2020: 1a. Digital health strategy, including gender elements, is developed and approved by the MOH (2019 baseline: none).	1a. Digital health strategy	Community misunderstanding creates pushback against the provision of personal health information.
	By 2021: 1b. Cabinet has approved relevant health sector bills for tabling in Parliament, with appropriate clauses around the use of ICT and data security and privacy (2019 baseline: none).	1b. Cabinet minutes	
	By 2026: 1c. Training on data analysis of health information data and use of gender statistics to enable policy design and decision-making is provided to 80% of senior executives in at least three ministries, including the MOH and the Women's Affairs Division of the Ministry of Internal Affairs (2019 baseline: none).	1c. MOH annual corporate report	

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
2. Digital HIS customized and implemented	By 2026: 2a. Standards-based interoperable HIS for collecting sex- and age-disaggregated data established, tested, and functional (2019 baseline: none).	2a. Project reports	
	2b. 100% of female obstetric patients transferred from the outer islands to Vaiola Hospital have a digital patient transfer record in the HIS (2019 baseline: zero).	2b. MOH corporate plan	
	2c. 100% of patients have a unique health identifier (2019 baseline: zero).	2c. Project reports	
	2d. 90% of health workers (70% women) are trained on HIS data collection and analysis, including gender statistics, for improved health services. (2019 baseline: zero men, zero women).	2d. Project reports	
	2e. Births and deaths are automatically posted to the CRVS system, including sex-disaggregated data (2019 baseline: none).	2e. Births and deaths registry reports	

Key Activities with Milestones
1.   The enabling environment for the use of digital health data improved
1.1 Set up digital health governance mechanisms (Q3 2019)
1.2 Develop health ICT architecture (blueprint) linked to the digital government strategic framework (Q3 2019)
1.3 Identify and revise any necessary health-specific legal and regulatory framework changes (Q4 2019)
1.4 Set up PMU (Q3–Q4 2019)
1.5 Approve digital health strategy (Q1 2020)
1.6 Define health standards and update terminology service to be used nationally (Q3 2020)
1.7 Train identified senior management in data use for decision-making
2.   Digital HIS customized and implemented
2.1 Define requirements for upgraded HIS including sex- and age-disaggregated data (Q3 2019)
2.2 Initiate contracting of software firm (Q3 2019)
2.3 Implement software solution (2019–2022)
2.4 Train health workers, hospital staff, and MOH (2019–2022)
2.5 Carry out operation and maintenance (2020–2026)

Project Management Activities
Establish PMU and open accounts (Q3 2019)
Conduct the baseline survey and develop the monitoring and evaluation framework (Q4 2019)

Recruit project supervisor (Q3 2019) Recruit project coordinator (Q3 2019) Recruit legal specialist (Q4 2019) Recruit gender specialist (Q4 2019) Prepare quarterly progress reports and submit to ADB and/or the government (2019–2026)
Inputs ADB: $7.5 million (grant) Government: $1.0 million
Assumptions for Partner Financing Outputs not administered by ADB that are necessary to reach the outcome include: Digital government strategic framework (World Bank) Legal review of ICT, privacy, and other legislation (World Bank) Improvement of the CRVS system in the Ministry of Justice (World Bank) Network connectivity and data management (World Bank)

ADB = Asian Development Bank, CRVS = civil registration and vital statistics, HIS = health information system, ICT = information and communication technology, MOH = Ministry of Health, PMU = project management unit, Q = quarter, SDG = Sustainable Development Goal.

[a] Government of Tonga, Ministry of Finance and National Planning. 2015. *Tonga Strategic Development Framework, 2015–2025*. Nuku'alofa; and Government of Tonga, Ministry of Health. 2015. *National Health Strategic Plan, 2015–2020*. Nuku'alofa.

Source: Asian Development Bank.

LIST OF LINKED DOCUMENTS
http://www.adb.org/Documents/RRPs/?id=50281-001-2

1. Grant Agreement
2. Sector Assessment (Summary): Health
3. Project Administration Manual
4. Contribution to the ADB Results Framework
5. Development Coordination
6. Economic and Financial Analysis
7. Country Economic Indicators
8. Summary Poverty Reduction and Social Strategy
9. Risk Assessment and Risk Management Plan
10. Gender Action Plan

Supplementary Document
11. Tonga Financial Management Assessment