Solomon Islands:
Urban Water Supply and Sanitation Sector Project

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Environmental Assessment and Review Framework

Prepared by Solomon Islands Water Authority

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4	25.03.2019	Amended to incorporate final ADB and SW comments	

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ABBREVIATIONS

ADB	Asian Development Bank
BCD	Bid and contract documents
CAC	Community Advisory Committee
CCP	Communication and consultation plan (for the project)
CBD	Convention on Biodiversity
CEMP	Construction environmental management plan (prepared by the contractor)
CSS	Country safeguards system
DSC	Design and supervision consultant
ECD	Environment Conservation Department (within MECDM)
EHSG	Environmental, Health, and Safety Guidelines (of the World Bank Group)
EMP	Environmental management plan
FGD	Focus group discussion
GRM	Grievance redress mechanism
IEE	Initial environmental examination
IES	International environment specialist (of the DSC)
MECDM	Ministry of Environment, Climate Change, Disaster Management and Meteorology
MID	Ministry of Infrastructure Development
Ml/d	Million liters per day
MOFT	Ministry of Finance and Treasury
PER	Public environment report
PMU	Project Management Unit (in SW)
PSC	Project Steering Committee
PPA	Project Preparation Assistance
ROW	Right of Way
SBD	Solomon Islands Dollar
SW	Solomon Islands Water Authority trading as Solomon Water
SPS	Safeguard Policy Statement 2009 (of ADB)
STP	Septage treatment plant
TOR	Terms of Reference
USD	United States Dollar
WB	World Bank
WBSP	World Bank Safeguard Policies

CURRENCY EQUIVALENTS
(as of Nov 2018)

Currency Unit Solomon Island Dollar (SBD)

USD 1.00 = SBD 8.023

EXECUTIVE SUMMARY

1. **Background**. Solomon Islands has around 19.8% (or 102,030) of its estimated present total population of 515,870 (2009 Census) living in urban and peri-urban areas. The country is divided into nine provinces: Central, Choiseul, Guadalcanal, Isabel, Makiri-Ulawa, Malaita, Rennell and Bellona, Temotu, and Western. The country's capital, Honiara City, is situated on the northwestern coast of Guadalcanal. Malaita has the largest population of 137,596 people, followed by Guadalcanal (93,614), Western (76,649), Honiara city (62,609) and Central (26,051) based on the 2009 census. The population growth rate is the highest in Guadalcanal (4.4%) followed by Honiara (2.7%), Western (2%), Central (1.9%) and Malaita (1.2%). It is known that temporary and informal settlers are often not captured in the Census and at any one time the population of Guadalcanal can be closer to 150,000. This presents challenges in providing potable water supply and sanitation services to the urban and peri-urban areas. To address the challenges the Solomon Islands Water Act of 1992 created the Solomon Islands Water Authority, trading as Solomon Water (SW), a state-owned enterprise, and mandated to provide for the proper management and development of urban water resources and wastewater services in Solomon Islands. SW has been guided by its Five-year Action Plan and 30-Year Strategic Plan since 2017. These plans outline the strategy to meet the demand for water and wastewater services up to 2047 for Honiara, including peri-urban areas, as well as meeting the needs of other major urban centers in Solomon Islands.

2. **The program**. In line with SW's plans, the Asian Development Bank (ADB) together with co-financers the World Bank (WB), European Development Fund (EDF) and the Solomon Islands government, have initiated the Solomon Islands Urban Water Supply and Sanitation Sector Project (the Project) to help improve access to safe water and improved sanitation. The Project outputs[1] include: (i) Output 1 - secure and safe urban water supplies, (ii) Output 2 - effective, efficient and safe urban sanitation services, (iii) Output 3 – enhanced awareness of hygiene and water issues and sustained improved hygiene behavior, and (iv) Output 4 - SW is financially and technically sustainable.

3. **Institutional arrangements**. The Ministry of Finance and Treasury (MOFT) is the executing agency, while SW is the implementing agency for the Project. The project steering committee (PSC), with 11 members, is responsible for oversight and providing guidance and strategic direction to SW with respect to project implementation. SW has established a project management unit (PMU) to prepare and implement the project. The PMU is responsible for overall project management, subproject delivery, safeguards implementation, and monitoring. The PMU's organizational structure will eventually have eleven staff including the Project Manager, two environmental specialists (one national and one international), a resettlement specialist and land management officer to implement environmental and social safeguard requirements . The PMU's operation will be funded from several sources. The PMU will be supported by a design and supervision consultant (DSC) which will also include safeguards specialists.

4. **Outputs**. The sector project includes several outputs (components). Project output 1 is intends to secure reliable and safe freshwater supplies by (i) increasing the number of urban households in Honiara with access to climate and disaster resilient water supplies; (ii) reducing non-revenue water from its current level of 62 percent to 30 percent or less by 2027; and (iii) increasing SW water production capacity in Honiara by up to 5 million liters per day (Ml/d) and improving SW water treatment capacity through the rehabilitation, replacement, or expansion of current sources and water treatment facilities, to meet water demand and ensure full

[1] The World Bank Documents refer to outputs as project components.

compliance with drinking water guidelines across the city and until 2027. Investments will include: (a) *in Honiara*, (i) rehabilitation of existing water supply sources, and expansion of production and treatment systems, (ii) installation of water supply mains to expand and rehabilitate the water supply system, (iv) additional water storage capacity, (v) leak detection and pipeline repairs, (vi) installing bulk supply metering and expansion of SW's customer meter replacement program to install pre-payment meters, and (vii) expanding SW's water supply networks to an additional 5,700 connections in unserved areas, including in informal settlements; (b) *in Auki, Gizo, Noro and Tulagi*, rehabilitation and expansion of the existing water supply systems; and (c) in *Munda*, development of a new water supply system. Project Output 2 is intended for effective and efficient sewerage services by: (i) preparing septage management regulations, (ii) constructing a septage treatment facility under a five-year design-build-operate (DBO) contract to service the greater Honiara area, (iii) replacing existing wastewater outfalls in a state disrepair with new ones, (iv) installing sewers mains to expand and rehabilitate the Honiara trunk sewer system, and (v) construction of new sewage pumping stations and rehabilitation of existing ones. Project Output 3 is intended for enhanced awareness of hygiene and water issues and sustained improved hygiene behavior. This includes a hygiene awareness and promotion program to complement other ongoing hygiene awareness and promotion activities in urban areas. Project Output 4 is intended for implementing a program to assist SW strengthen its financial, technical, and operational sustainability. This includes developing policies, asset planning, data management, financial and technical systems monitoring, and reporting.

5. **Policy and legal framework**. The policy, legal, and administrative frameworks relevant to the Project include: the Environment Act of 1998 (and Environment Regulations 2008) which provide the basis for environmental protection and management and establishes the Solomon Islands' environmental impact assessment (EIA) system. This is administered by the Environment Conservation Division (ECD) of the Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM). The Act identifies 'prescribed activities' which are considered to create environmental impacts and which should be subject to environmental assessment; either public environmental report (PER) for activities creating less significant impacts or environmental impact statement (EIS) for activities creating significant impacts. Following approval of the Project, each component will be subject to environmental assessment which SW will include in the application for development consent ; any conditions of the development consent (along with the environmental assessment and updated environmental plan) will be incorporated into the bid and contract documents. ECD confirmed during preliminary consultation that an initial environmental examination (IEE) is more or less equivalent to a PER required under the Environment Act 1998.

6. **Environmental management requirements**. The Project consists of water supply and sanitation expansion and improvement activities in Honiara and provincial capitals and towns (Gizo, Munda, Noro, Tulagi, Auki). The activities in Honiara are well-defined, apart from the septage treatment facility, for which no location has been identified to date. The environmental and social impact assessment for the known investments in Honiara are covered in the IEE and resettlement framework separately prepared.

7. This environmental assessment and review framework (EARF) for the Project establishes the procedures for environmental management that will be implemented to ensure that those Project activities that are not fully defined yet in terms of scope or location proceed in compliance with the environmental safeguard requirements of the country safeguards system (CSS), ADB's Safeguard Policy Statement 2009 (SPS) and the World Bank's Environmental & Social Safeguards Policies and Procedures (WBSP). The EARF sets out the procedure for screening, impact assessment and management, and consultations. It contains guidance on: (i) identifying environmental impacts during the design and pre-construction, construction and

operation stages, (ii) suggested mitigating measures, (iii) environmental assessment documents preparation, (iv) consultations and information disclosure, (v) grievance redress mechanism, (vi) institutional requirements and capacity development, and (vii) monitoring and reporting. The EARF is prepared in accordance with the WBSP, SPS and follows the CSS including requirements of: (i) Environment Act 1998, (ii) Environment Regulations 2008, and (iii) Environmental Assessment Guidelines (2010).

8. Environmental assessment and review procedures covers site selection criteria, environmental screening and categorization, review of environmental assessment reports, updating of environmental assessments, and environmental management plan (EMP) preparation and updating.

9. The EARF covers infrastructure investments for improved and expanded water supply and will not involve very large construction footprints or will be confined to existing facilities largely, apart from the septage treatment facility in Honiara. It covers the water supply and sanitation investments in the provincial capitals and towns, the septage treatment facility, and a potential new water supply source at Lungga River in Honiara. The project activities include water treatment plants, water pumping stations, reservoirs, water reticulation, bores, water trunk mains, water distribution mains, and a septage treatment plant. The infrastructure is expected to have environmental impacts that are site-specific, not affecting an area beyond the footprint, largely related to the construction stage and for which mitigating measures can easily be developed and implemented to reduce and/or manage the impacts. The Project overall has been screened and categorized according to its most environmentally sensitive component; the Project includes activities that are category B for environment as per ADB and World Bank's risk rating.

10. **Environmental risks and impacts**. Environmental impacts and risks expected from the construction and operation of water supply and sewerage system infrastructure have been identified. Construction impacts will be incurred through installation of the water supply infrastructure and pipelines: site clearance and preparation, earthworks, pipelines laid in prepared trenches beside roads, excavation activities and backfilling, operation of construction plant and equipment, sourcing of construction materials, and transport of materials. Construction stage impacts are well known and can be managed. Impacts associated with the operation of the facilities for water supply, septage treatment plant and pumping stations, will be managed by SW according to the measures identified in the EMP.

11. Based on the EMP included in the environmental assessment, the contractor will prepare a construction EMP (CEMP). The CEMP will be specific to the construction approach and methodology proposed by the contractor with details on how the environmental management requirements for specific activities and sites during the construction phase will be implemented and managed on-site.

12. **Consultation and disclosure**. The need to address requirements for information disclosure, public consultation, and public participation were also highlighted. Information to be disclosed to stakeholders may include project overview, subproject technical details, anticipated implementation schedule, and potential construction issues. Initial consultations have been undertaken with stakeholders in Honiara and the provincial capitals. A consultation and communication plan (CCP) will be prepared for the Project. to guide the ongoing project information to be communicated to stakeholders and beneficiaries and consultations to be undertaken during project implementation. The CCP will be updated as the need arises. The CCP identifies the disclosure requirements for project information including safeguards due diligence documents.

13. **Grievance redress**. The Project has established a grievance redress mechanism (GRM) as a part of the resettlement framework (RF) to address and resolve any issues and concerns raised about the project. The GRM covers all aspects including land access and environmental matters. The project's RF and GRM are based on traditional methods of settling disputes including the local laws and regulations and ADB and WBSP .

14. **Monitoring and reporting**. The requirements and procedures for environmental and social monitoring and reporting are identified. These include all phases of project implementation. The specific provisions for monitoring will be identified in the: (i) subproject specifications, (ii) bidding documents, and (iii) construction contracts. The EMP includes the monitoring requirements. Reporting will include contractor's monthly reports, PMU's quarterly progress reports and semi-annual monitoring requirements.

I. INTRODUCTION

15. Solomon Islands has around 19.8% (or 102,030) of its estimated present total population of 515,870 (2009 Census) living in urban and peri-urban areas. The country is divided into nine provinces namely Central, Choiseul, Guadalcanal, Isabel, Makiri-Ulawa, Malaita, Rennell and Bellona, Temotu, Western. The capital, Honiara City is situated on the northwestern coast of Guadalcanal, as shown in Figure I-1. Malaita has the largest population size of 137,596 people, followed by Guadalcanal (93,614), Western (76,649), Honiara city (62,609) and Central (26,051) based on the 2009 census. The population growth rate is the highest in Guadalcanal (4.4%) followed by Honiara (2.7%), Western (2%), Central (1.9%) and Malaita (1.2%). It is known that temporary and informal settlers are often not captured in the Census and at any one time the population of Guadalcanal can be closer to 150,000. This presents challenges in providing potable water supply and sanitation services to the urban and peri-urban areas. By 1992, the Solomon Islands Water Act of 1992 created the Solomon Islands Water Authority, now trading as Solomon Water (SW), a state-owned enterprise, and mandated it to provide for the proper management and development of urban water resources and wastewater services in Solomon Islands.

Figure I-1: Location Map of Solomon Islands and Honiara

A. Overview of the Project

16. Since 2017, SW has been guided by its Five-year Action Plan and 30-Year Strategic Plan. These plans outline the strategy to meet the demand for water and wastewater services up to 2047 for Honiara, including peri-urban areas, as well as meeting the needs of other major urban centers in Solomon Islands. To help improve access to safe water and improved sanitation, the Asian Development Bank (ADB) , together with the World Bank (WB), European

Development Fund (EDF) and Solomon Islands government, have initiated the Solomon Islands Urban Water Supply and Sanitation Project (the Project). The EDF grant will be administered by ADB. Each financing source will contribute proportionally to its total amount to financing each project output.

17. The Project aims to improve access to safe water and improved sanitation in urban and peri-urban areas of Solomon Islands by assisting the SW in implementing high priority components identified in its 30-Year Strategic Plan, and a 5-Year Action Plan. The Project outputs[2] include: (i) Output 1 - secure and safe urban water supplies, (ii) Output 2 - effective, efficient and safe urban sanitation services, (iii) Output 3 – enhanced awareness of hygiene and water issues and sustained improved hygiene behavior, and (iv) Output 4 - SW is financially and technically sustainable.

18. **Project Output 1**: Secure and safe freshwater supplies. SW water supply systems will be improved and expanded to increase access by urban communities to reliable and safe water by : (i) increasing the number of urban households in Honiara with access to climate and disaster resilient water supplies; (ii) reducing non-revenue water from its current level of 62 percent to 30 percent or less by 2027; and (iii) increasing SW water production capacity in Honiara by up to 3 million liters per day (Ml/d) and improving SW water treatment capacity through the rehabilitation, replacement, or expansion of current sources and water treatment facilities, to meet water demand and ensure full compliance with drinking water guidelines across the city and until 2027. Investments will include: (a) *in Honiara*, (i) rehabilitation and expansion of water production and treatment systems, (ii) installation of water supply mains to expand and rehabilitate the water supply system, (iv) additional water storage capacity, (v) leak detection and pipeline repairs, (vi) installing bulk supply metering and expansion of SW's customer meter replacement program to install pre-payment meters, and (vii) expanding SW's water supply networks to an additional 5,700 connections in unserved areas, including in informal settlements; (b) *in Auki, Gizo, Noro and Tulagi*, rehabilitation and expansion of the existing water supply systems; and (c) in *Munda*, development of a new water supply system.

19. **Project Output 2**: Effective and efficient sewerage services. SW sewerage systems will be upgraded to minimize the frequency and severity of uncontrolled sewage overflows and to reduce the environmental and health impacts of effluent disposal by (i) preparing septage management regulations, (ii) constructing a septage treatment facility under a five-year design-build-operate (DBO) contract to service the greater Honiara area, (iii) replacing existing wastewater outfalls in a state disrepair with new ones, (iv) installing sewers mains to expand and rehabilitate the Honiara trunk sewer system, and (v) construction of new sewage pumping stations and rehabilitation of existing ones.

20. **Project Output 3**: Enhanced awareness of hygiene and water issues and sustained improved hygiene behavior. A hygiene awareness and promotion program to complement other ongoing hygiene awareness and promotion activities in urban areas, will be implemented over the duration of the project. Educational activities will promote good sanitation and hygiene practices that help prevent water- and sanitation-related diseases and increase awareness of water supply issues including water conservation and the cost to deliver safe and reliable water supplies to households.

21. **Project Output 4**: SW is financially and technically sustainable. A program will be implemented to assist SW to strengthen its financial, technical, and operational sustainability. The program will (i) develop and implement corporate policies, such as disaster management, catchment management, climate risk, drought management, demand management and

[2] The World Bank Documents refer to outputs as project components.

climate change adaption planning (ii) strengthen SW water supply and sewerage asset planning and operations; (iii) strengthen data management and financial and technical systems monitoring, and reporting; (iv) preparation of infrastructure designs; and (v) support to the Project Management Unit (PMU), including for construction supervision.

22. This EARF covers sub-projects that are yet to be defined in terms of scope and location. They are detailed further in sub-section B below.

23. Most investments in Honiara, apart from the septage treatment plant, are covered in an initial environmental examination, submitted under separate cover.

B. Typology of Sub-Projects

24. The EARF covers sub-projects in Honiara and selected provincial capitals. The details of these proposed sub-projects are presented in the succeeding sub-sections.

B.1 Septage Treatment Facility Subproject

B.1.1 Location and Present Situation

25. Presently, areas of Honiara not covered by the existing sewerage system are served by septage hauling services of Honiara City Council (HCC) and four private companies using septage vacuum trucks of 1,800 to 4,000 liters capacities. Around 90% of Honiara's population are not covered by the existing sewerage system. Both domestic and non-domestic septage have been brought to the Ranadi Landfill and dumped in a small area located at the northeastern end of the landfill. This septage dumping area just simply overflows without treatment to the creek beside the landfill. Disposal information based on a snap-survey conducted over 13 days on August 2018 showed an average disposal of 45m^3/d on week days with a maximum septage unloaded of 60m^3/d.

26. The proposed septage treatment facility subproject will construct a septage treatment plant (STP) for Honiara City. Initial studies suggested that the STP shall be constructed at the existing Ranadi Landfill. As the study progressed, it was found that the required area of 1 hectare for the proposed STP is not available at the existing Ranadi Landfill and there are no other definite sites currently available. The STP feasibility study only identified an alternate nearby potential site, but there is no information if this is indeed a site that can be acquired. In effect, the proposed STP has yet to be confirmed.

B.1.2 Proposed Components

27. The proposed septage treatment facility subproject will be a reed bed filter treatment system and will have: (i) receiving station and pre-treatment, (ii) septage control and storage, (iii) reed bed filters, and (iv) facility building.

The STP design criteria include:

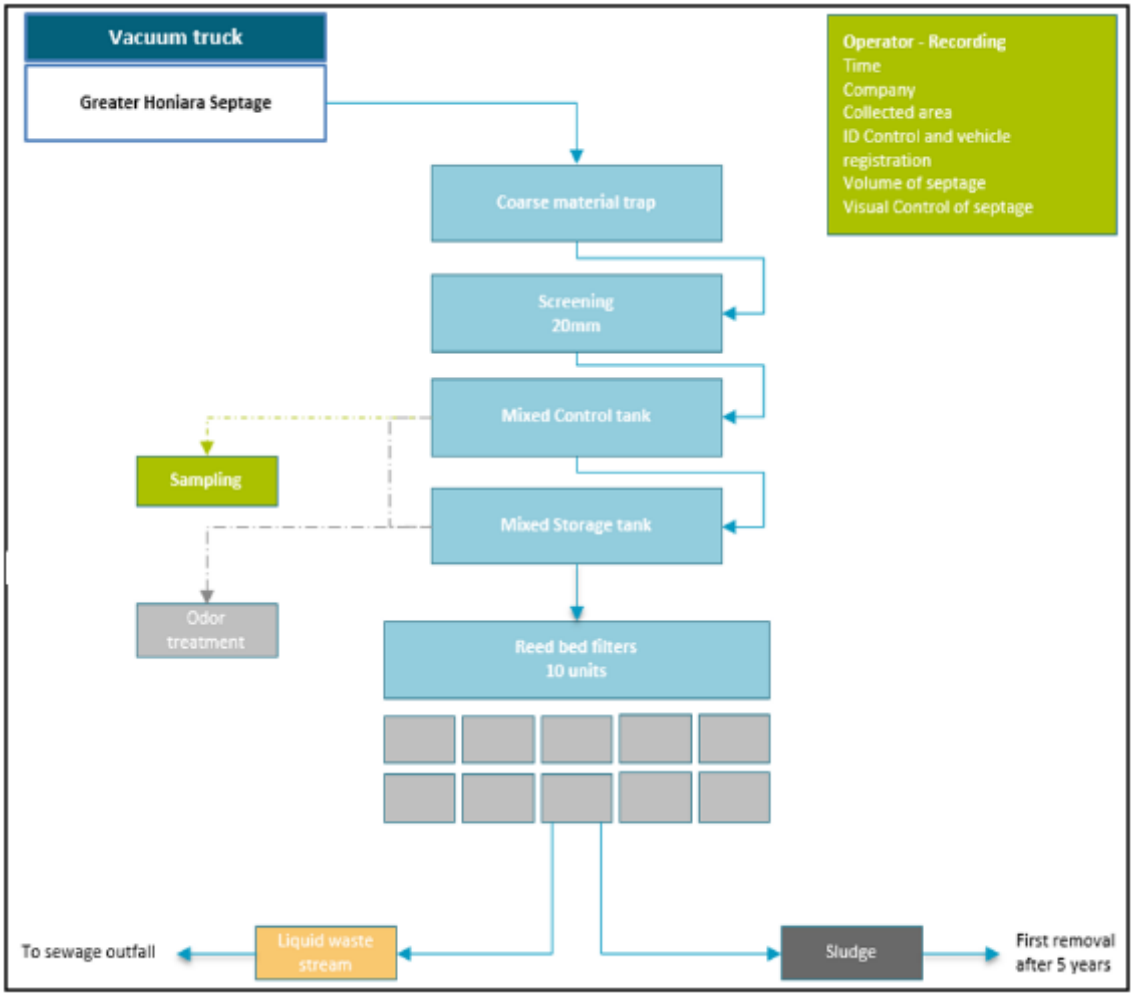
- Daily septage volume: 60m^3/day;
- Total suspended solids (TSS) annual load: 438,000 kg TSS/y (based on 20g TSS/l);

- Maximum load of 50 kg TSS/m^2/y is recommended. However, as the selected concentration for the TSS is a maximum, this load can be increased up to 75 kg TSS/m^2/y;
- Total footprint (bed only): 6,000m^2;
- Number of beds: 10
- operation for 7 days per week

28. **Process Flow** (see Figure I-2). The septage vacuum trucks will discharge their load at the receiving station. Here the presence of the STP operator is critical since he: (i) can prevent the discharge of illegal wastes, (ii) fill the daily records of the deliveries, and (iii) take samples if required. The septage will undergo screening to remove the coarse materials which will be compacted by a screw compactor to reduce the volume. The compacted wastes are then stored in containers before disposal to the landfill. Raw septage from the screening stage will be sent to a 10m^3 control tank for the operator to observe the appearance of the load and if further action is necessary, such as in the case of illegal waste (not domestic septage). The septage will then be sent to a 120m^3 storage tank (2 days retention time) to ensure a buffer volume of septage for feeding the reed bed filter at a constant flow rate.

29. The reed bed is a filter planted with common reed (*Phragmites australis*) or cattails and bulrushes. The filter beds bottoms are laid with different layers of materials (coarse gravel, medium gravel, and sand). This allows aerobic, anoxic, and anaerobic zones in the filter where microorganisms breakdown the contaminants. Septage will flow vertically through the filter.

Figure I-2: Reed Bed Filters STP Process Flow Chart



30. The plants in the bed prevent the clogging of the filter media and increase the sludge dewatering process through evapotranspiration. The plants will also assist the mineralization of the organic solids in the septage. The reed bed filter system does not present odor issues since the sludge on the surface of the reed bed unit is kept under constant aerobic conditions by the cyclic feeding scheme and the active rhizosphere growing in it. The rhizosphere is the layer affected by plant's root system and micro-organisms. Dewatered septage is removed every five years. The beds are re-established after emptying with sufficient regeneration of vegetation.

31. The design approach is to send the STP effluents to the nearest sewerage system for discharge, which will ultimately be discharged into the ocean outfall. The dewatered sludge will be removed from the beds and may be applied to agricultural fields.

B.1.3 Septage Treatment Facility Construction and Operation

32. **Construction activities**. The types of works for construction of the proposed septage treatment facility may include: (i) site clearing and marking of alignments, (ii) sourcing, hauling and stockpiling of construction materials, (iii) earthworks by soil excavators and other equipment, (iv) construction of the structures and STP beds, and (v) installation of electro-

mechanical equipment (vi) cleaning and closure of construction sites. Typical construction equipment used for this type of construction activities are: dump trucks, service trucks, payloaders, small rollers, small concrete mixers, and small compactors. Length of construction period has not been estimated at this time.

33. **Construction Workforce**. The feasibility study report of the septage treatment facility subproject has no information on the total number of workers to be employed during construction. This information is usually estimated during the detailed design stage and is highly dependent on construction approach of the contractor. However, based on experience with similar construction projects, the total workforce for this type of construction can be estimated at 50 workers at its peak construction period with about 40 percent coming from outside of Honiara. The workers from other places are the skilled workers that contractors will usually bring to operate their equipment and those that act as site managers and lead workers.

34. **Operational activities**. The main operational requirement will be to ensure a regular distribution between the filters with the same hydraulic loading. It is therefore most important for the operator to monitor flows and be prepared to repair or replace feed pumps at short notice.

B.2 Noro Water Supply Upgrade

35. Noro water supply system is located on New Georgia Island in Western Province. The system has one water source that in the dry season is insufficient to provide 24-hour supply. Water treatment is by rapid gravity sand filter with capacity 2.3 Ml/d – current supply is lower than this at 1.6 Ml/d due to distribution pump sizing. Non-revenue water (NRW) is known to be high in the system.

36. There is no storage in operation for the distribution system, the only storage being at the SolTuna factory for their commercial operations. The whole system requires upgrading from raw water source through treatment, provision of storage and improvement of network to reduce losses.

37. The project involves preparation of feasibility study including identification of additional source/s followed by detailed design of the system from source to tap with a prioritized implementation plan to ensure progressive improvements in service.

B.3 Tulagi Water Supply Upgrade

38. Tulagi water supply system is located on Tulagi island in Central Province. The system has one water source on a neighboring island that supplies Tulagi through undersea pipeline. During the dry season the water source is fully utilized for water supply and is unable to meet the total demand.

39. The network consists of a gravity supply zone and a pumped supply zone; there is a low-level storage tank that is currently not being used and only one pump with no spares or stand by. NRW is currently not measured but is known to be high. The whole system requires upgrading from raw water source through treatment, provision of storage and improvement of network to reduce losses. The project involves preparation of feasibility study including identification of additional source/s followed by detailed design of the system from source to tap with a prioritized implementation plan to ensure progressive improvements in service.

B.4 Munda Water Supply Upgrade

40. Munda is the largest settlement on the island of New Georgia in Western Province. There is no operating water supply for the town.

41. The design of a new system is to be prepared; this should include but not necessarily be limited to: i) Demand forecasting for the period 2019-2047; ii) Identification of suitable water source/s; iii) Design of treatment and disinfection facilities; iv) Siting and design of appropriate storage facilities; v) Design of water conveyance infrastructure from source to the distribution area; vi) Design of the water distribution network to deliver water to properties in the supply area; vii) Preparation of bid documents to enable the construction of the water system; viii) The design should include a hydraulic network model of the system. The project involves preparation of feasibility study including identification of additional source/s followed by detailed design of the system from source to tap with a prioritized implementation plan to ensure progressive improvements in service.

B.5 Gizo Water Supply Upgrade

42. Gizo is the capital of Western Province and is the third largest town in the country. Gizo water supply system was one of the old systems established during the colonial government. The old water system had a spring water collection impounded by a small dam and raw water transmission to the water treatment units consisting of slow sand filters (SSF) comprising three filters each having an effective surface area of approximately 100 m^2 and then gravity transmission and distribution system of about 7 km. Due to operational problems at the intake structure and the malfunctioning of the SSF (media filter clogging reported), the water system is no longer operational. Attempts were made to improve the water system through the Solomon Islands Emergency Assistance Project in 2011, however the installations under the project were only operational until 2015. The main cause for the system failure is linked to ineffective treatment protocols, poor operational practices and inappropriate treatment (no pre-settling stage prior to the SSF on a high turbid surface water source). Although there have been several projects in the recent years, the situation remains critical.

43. The Project's feasibility study undertook an assessment of water supply options and recommended that supply should be based on the utilization of surface and groundwater resources at Mile 6 and Mile 2 surface reservoirs and Leoko Spring. The project involves review and validation of feasibility study outputs followed by detailed design of the system from source to tap with a prioritized implementation plan to ensure progressive improvements in service.

B.6 Auki Water Supply Upgrade

44. Auki is the capital of Malaita Province and is the largest settlement in Malaita. The Auki water supply upgrade work would include : (i) new 1 million liter steel liner tank and associated pump station; (ii) construction of a DN250 gravity main with a length of approximately 315m; (iii) construction of a DN180 rising (force) main with a length of approximately 304m ; (iv) construction of a DN125 rising (force) main with a length of approximately 110m; (v) rehabilitation of an existing storage tank including the supply and installation of a liner; (vi) installation of chlorination facilities at an existing water storage tank; and (vii) minor works

including installation of security fences; and relocation of a diesel generator and associated control systems within the project site.

C. Purpose & Scope of the Environmental Assessment and Review Framework

45. The Project is a sector modality which means that at approval not all project components or locations are known. To comply with the requirements of ADB's Safeguard Policy Statement 2009 (SPS) and the WB Safeguard Policies & Procedures (WBSP) , an environmental assessment and review framework (EARF) and resettlement framework (RF) are prepared to establish the procedures to be followed—from screening through to management plan implementation and monitoring—for subprojects and components that will be prepared after ADB and World Bank Boards approve the Project.

46. For the subprojects that have an advanced level of preparation, an assessment through initial environmental examination (IEE) has been developed and submitted under separate cover.

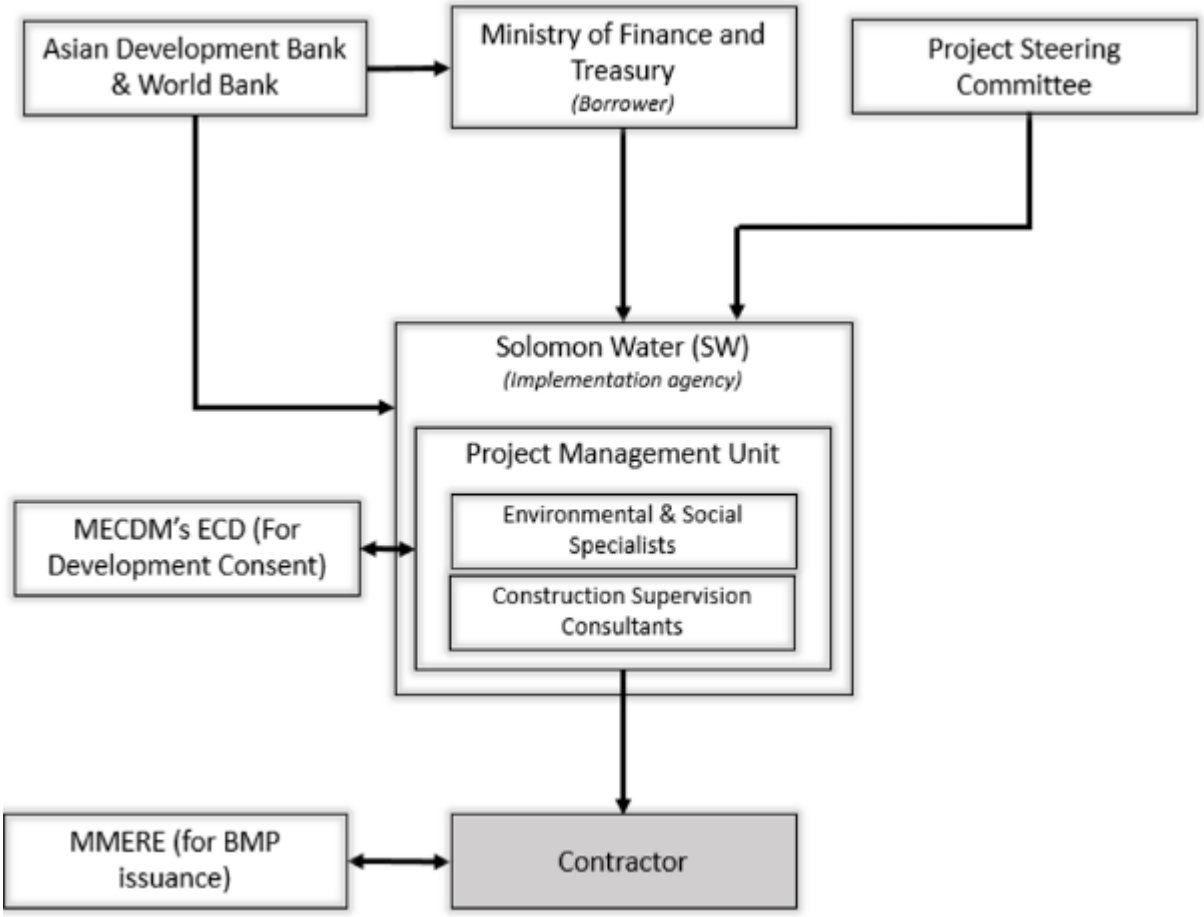
47. The EARF sets out the procedure for screening, impact assessment, management, consultations and disclosure, and monitoring. It contains guidance on: (i) identifying environmental impacts during the design and pre-construction, construction and operation stages, (ii) suggested mitigating measures, (iii) environmental assessment documents preparation, (iv) consultations and information disclosure, (v) grievance redress mechanism, (vi) institutional requirements and capacity development, and (vii) monitoring and reporting. The EARF is prepared in accordance with the SPS, the WBSP and the country safeguard system (CSS) which includes (i) Environment Act 1998, (ii) Environment Regulations 2008, and (iii) Environmental Assessment Guidelines (2010) as well as other legislation covering health and safety, materials sourcing etc.

II. INSTITUTIONAL ARRANGEMENT AND RESPONSIBILITIES

A. Implementation Arrangements

48. The Ministry of Finance and Treasury (MOFT) is the executing agency, while SW is the implementing agency for this Project. SW has established a project management unit (PMU) to deliver the project. The PMU will be supported by design and supervision consultants (DSC). A chart of the organizations involved in the implementation is provided below (Figure II-1).

Figure II-1: Organizational chart for the Project



49. **Project Steering Committee**. The Project Steering Committee (PSC) is responsible for oversight and providing guidance and strategic direction to SW for Project implementation. PSC members are: (i) Permanent Secretary of MOFT, (ii) Permanent Secretary of Ministry of Mines, Energy and Rural Electrification (MMERE), (iii) Permanent Secretary of Ministry of Development Planning and Aid Coordination, (iv) Permanent Secretary of MECDM, (v) Permanent Secretary of Ministry of Lands and Housing(vi) Director for RWASH, Ministry of Health and Medical Services, (vii) Honiara City Council, City Clerk (viii) Provincial Secretary for Guadalcanal Province, (ix) Chairperson or Board member of SW, and (x) General Manager of SW (non-voting).

50. **Project management unit.** SW established a PMU in April 2018 to prepare and implement the project. The PMU currently consists of an ADB funded strategic projects

management advisor supported by a stakeholder/strategy manager, two contract managers, a project manager, a land management officer and a project engineer. A further 6 specialist staff are to be recruited for key roles to be funded through the project as follows: (i) PMU Project Manager; (ii) international environmental specialist[3]; (ii) international network management specialist; (iii) international communications specialist; (iv) national community liaison officer; (v) international WASH specialist; (vi) national WASH specialist. The PMU will also be supported by the following SW funded personnel on a needs basis: (i) Chief Financial Officer (project accounting); (ii) Head of Procurement; (iii) national resettlement specialist; (iv) national environmental specialist; (v) NRW manager; (vi) national procurement assistant.

51. A summary of roles and responsibilities is presented in Table II-1.

Table II-1: Roles and responsibilities of Project implementation organizations

Project implementation agency	Roles and responsibilities
Ministry of Finance and Treasury (executing agency)	Guide and monitor overall project execution Financial and procurement oversight Ensure flow of funds to the implementing agency and the timely availability of counterpart funding Review and coordinate bid evaluations
Project Steering Committee (PSC)	Responsible for oversight and providing guidance and strategic direction to SW with respect to project implementation Ensure that the PMU is provided with the necessary resources to effectively carry out its duties and responsibilities.
Solomon Islands Water Authority (SW) (implementing agency)	Responsible for overall project implementation and monitoring at the implementing agency level Ensure adequate funding available for the PMU Submit semi-annual and annual monitoring reports to ADB/WB Assist in resolving complaints brought through the GRM that have not been resolved at lower levels
SW Project Management Unit	Responsible for overall project management, implementation and monitoring Responsible for supervision of construction supervision consultants Responsible for SW's application for a Development Consent Update the IEEs and EMPs based on the detailed design and submit to ADB/WB for clearance. Assist SW in applying for development consents Ensure environmental safeguard concerns are incorporated in the detailed engineering design Ensure updated environmental assessments and EMPS and development consent conditions are integrated into bid documents Disclose safeguard documents, as appropriate Conduct awareness and consultations as per the CCP Submit monthly, quarterly, semi-annual, and annual progress and/or monitoring report to SW Management Review and clear the CEMP of contractors Review contractor's monthly reports Implement the GRM and maintain records of complaints/grievances Ensure the contractor observes the GRM requirements Ensure contractor compliance with required resources for mitigation measures as reflected in the CEMP and prepare monitoring reports as required
Design and supervision consultant	Responsible for overall construction supervision and monitoring Assist the PMU in updating the IEEs and EMPs based on the detailed designs and integrating into the bd documents As require, support contractors in preparation of their CEMP, evaluate the CEMPs and recommend to PMU for approval Evaluate the contractors' overall work schedules relative to the requirements of the approved CEMPs

[3] Exact designation will be confirmed with PMU in due course

Project implementation agency	Roles and responsibilities
	Undertake site inspections prior to execution of construction activities to ensure contractors' compliance to EMP/CEMP requirements Ensure contractor's implementation of EMP/CEMP. Support the Resident Engineer in issue of corrective action requests/instructions to contractors for non-conformances or breaches of the contract or CEMP Assist the PMU in GRM implementation Submit monthly, quarterly, semi-annual, and annual monitoring reports to PMU Submit a report to PMU on project's environmental compliance performance upon completion of the construction activities
Contractor	Prepare and submit prior to construction the CEMP for review by DSC's environment specialist and for approval by PMU Understand the EMP requirements and allocate necessary resources (budget and staff) for implementation Designate and maintain a full-time Environmental Health and Safety Officer (EHSO) to ensure compliance with all requirements concerning environmental, health and safety, and labor regulations during construction Implement construction activities with the required mitigation measures Conduct environmental monitoring as required by EMP and approved CEMP Act promptly on complaints and grievances concerning the construction activities in accordance with the project's GRM and ensure that the contractor's GRM register is kept up to date Submit monthly progress reports on CEMP/EMP implementation to PMU
ECD-MECDM	Processing SW's application for development consent Monitors construction progress for compliance with the terms of the issued development consent Monitors implementation of the mitigation measures, EMP and approved CEMP in general
MMERE	Responsible for processing of contractor's application for a building material permits (BMP) in regard to mining and extraction of aggregates or gravel from rivers or land Monitors contractor's compliance with the terms of the issued BMP
Asian Development Bank & The World Bank	Review and clear IEEs/EMPs Review bidding documents and CEMPs Review executing agency and implementing agency's submissions for procurement of goods, equipment, works and services Conducts project review missions, midterm review mission and project completion review mission to assess project implementation progress of all outputs, compliance of project to covenants including safeguards requirements Review and disclose semi-annual monitoring reports

B. Institutional Capacity and Development

52. SW's 30-Year Strategic Plan suggested that SW needs significant support in the short to medium term to develop the capacity of the full range of technical and associated management staff. To partially address this lack of institutional capacity in project preparation, in April 2018 SW established the PMU to help prepare and eventually implement the Project. It has been managed by a consultant and supported by SW personnel on an intermittent basis to provide the following project functions: (i) overall project management and team leadership, (ii) design of project's water supply and sewerage components, (iii) community liaison and preparation and implementation of the project's land acquisition/resettlement and environmental safeguard requirements, (iv) project financial management and oversight, and (v) community hygiene awareness and education.

53. Presently, SW's PMU does not have a staff designated as the environment specialist. SW is planning to place a staff at the PMU as the environment specialist during implementation of the first batch of subprojects. As project preparation activities move forward, the need to address environmental safeguards issues and requirements also increases. Figure II-1(organizational chart) indicates the environment specialist's location in the PMU.

54. The environment specialist will be a permanent SW staff and to be funded from SW's counterpart fund for the project.

55. During pre-construction and construction period, the DSC, who will provide support to the environmental management activities of SW's PMU through their environmental specialist, shall provide training and guidance to SW's staff on on how to use a wastewater laboratory for both environmental monitoring and wastewater treatment facilities operation. Since SW is operating the sewerage system and will have oversight of the septage treatment facility, it is important that SW should have the capacity for wastewater testing. Although capacity building is a long-term process and is much more than training only, itwould be necessary for SW to start with the initial hands-on training on operating a wastewater laboratory. There is a need for the laboratory analysts/ technicians to acquire technical knowledge and reach a necessary level of proficiency.

56. A wastewater laboratory plays a very important role not only in environmental monitoring, but also in ensuring that a wastewater treatment facility will be producing acceptable quality effluents. Hence, SW's staff has to acquire the capacity to use a wastewater laboratory and generate the required data for environmental monitoring and treatment facilities operation.

57. The DSC tasks relative to the wastewater laboratory capacity building will include the following:

a) Prepare a list of equipment and chemicals to be procured for a small laboratory to test wastewater parameters indicated in IFC's EHSG for Wastewater and Ambient Water Quality (2007);

b) Provide guidance to SW staff on how to use a wastewater laboratory in assisting the operation of the proposed septage treatment facility and the planned wastewater treatment plant;

c) Prepare a training module on "Wastewater Laboratory Operation" and conduct training for SW's staff.

58. **Indicative Costs**. Implementation of the required environmental safeguards and capacity building program, including the initial set-up for a wastewater laboratory need some budget allocation (Table II-2). SW has allocated a space for a wastewater laboratory in its future office building.

Table II-2: Budget for Project environmental management

Item	Cost (US$)
PER preparation for submission to ECD-MECDM (incl. in DSC)	-
Development Consent application fees	5,000
Monitoring and training (incl. in DSC)	100,000
Laboratory (equipment, tools, chemicals, etc.)	75,000
Miscellaneous	5,000
Total	**240,000**

Source: PPA consultants (2018)

III. LEGAL AND POLICY FRAMEWORKS

A. Legal Framework

59. The policy, legal, and administrative frameworks relevant to environmental assessment of water supply and sanitation projects in Solomon Islands have long been established by various laws and regulations.

60. **Country safeguard system - environment**. Specific environmental laws and regulations to address environmental issues and environmental safeguards have been enforced in Solomon Islands. The most prominent is the Environment Act of 1998 which provides the legal basis for environmental protection and management. This law laid the foundation of Solomon Islands' environmental impacts assessment (EIA) system, which is implemented by the Environment Conservation Division (ECD) of the Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM).

61. The Environment Act 1998 provides for an integrated system of development control, environmental impact assessment, and pollution control, including: (i) prevention, control and monitoring of pollution, regulating discharge of pollutants to air, water or land and reducing risks to human health, and prevention of degradation of the environment; (ii) regulating the transport, collection, treatment, storage and disposal of waste and promoting recycling, re-use and recovery or materials in an economically viable manner; and (iii) complying with, and giving effect to, regional and international conventions and obligations relating to the environment.

62. This law has four parts. Part I Article 4 provides that in the event of conflict between the Environment Act and other legislation, the provisions of the Environment Act will prevail. Part II establishes and defines the powers and role of ECD - which has since been re-established within the MECDM. Part III provides for development control and establishes the requirements for environmental impact assessment, review, and monitoring. Part III Article 17 requires any developer who proposes to carry out any prescribed development to make an application to the Director of ECD.

63. Article 19 specifies that a developer shall not commence or continue to carry out any prescribed development unless the developer has been issued with a development consent (defined in the Act as a consent to carry out any development under Part III).

64. Activities that require assessment are described as Prescribed Activities and are included in the Second Schedule of the Act. Prescribed Activities that are listed in the Schedule that will apply to water supply and sewerage projects are: (i) Activity 3 Non-metallic industries - (d) extraction of aggregates stones or shingles; and (ii) Activity 9 Public Works Sector - (b) infrastructure developments.

65. There are two levels of environmental assessment; public environment report (PER), as described in Article 20, or if the development is shown to be such a nature as to cause more serious impacts then the proponent is required to prepare and submit an environmental impact statement (EIS), as described in Article 23. ECD confirmed during consultation that the level of assessment conducted and reported as IEE for a category B project (according to ADB's SPS) is more or less equivalent to the PER of Solomon Islands' Environment Act of 1998.

66. Part IV details requirements for pollution control and emissions (noise, odour and electromagnetic radiation) and the requirements for a licence to discharge waste, emit noise, odor or electromagnetic radiation from a prescribed premise as described in Article 39. The application for a license shall include any information, plans, specifications and other documents as may be required.

67. Solomon Islands' Environment Regulations of 2008 establishes the procedures for undertaking the environmental assessment of prescribed activities and the process of issuing development consent. The regulations detail the process prescribed in the Environment Act of 1998 and set out the contents of PER and EIS.

ECD issued the Environmental Impact Assessment Guidelines (2010) to provide basic advice advice and guidance to government officers, planners, developers, resource owners and those involved in processing development proposals, on the EIA process. The guidelines aim to clearly explain the procedures of EIA outlined in the Environment Act of 1998 and Environment Regulations of 2008. The guidelines describe the procedures needed to be undertaken, forms, and fees required before obtaining the development consent approval (

68. Table III-1).

69. The guidelines do not specify environmental standards. ECD has confirmed that environmental standards for Solomon Islands are still being developed. ECD usually advises the project proponents to follow internationally recognised standards, as they may deemed appropriate, such as the World Health Organization (WHO) standards. However, these are not legally enforceable since there are no laws requiring implementation of such standards.

Table III-1: Timeframe Summary of EIA Processing

Processing step	No. of normal working days
Processing of proposal application and Consent Authority making decision (screening and scoping)	15
Processing of development application and Consent Authority making decision (review 1)	15
Publish the EIA report and notice for meeting	5
Public display of EIA reports and consultation (including public meeting)	30
Determining the application (review 2)	15
Approval or Rejection	5
Lodging of Appeals	30

Source: MECDM-ECD - Environmental Assessment Guidelines (2010)

70. There are other laws relevant to the Project. These are described below.

71. **Environmental Health Act 1980**.This law provides for the management and control of public health in the Solomon Islands. Among other items, it empowers the local authority on the construction, operation, and management of sewerage systems, including the sewage disposal works. It also provides penalties for the wilful pollution of a water supply source.

72. **Town and Country Planning Act 1997**. This law provides for the: (i) administration of town and country planning in Solomon Islands, (ii) preparation of local planning schemes, and (iii) control and development of land. It provides a list of items to consider in the preparation of local planning schemes. It points to the need of ensuring that land is developed and used in accordance with proper polices. It also advocates the principle that the promotion of the welfare of people includes the preservation or creation of an environment appropriate for their needs. This law applies to all urban areas.

73. **Wildlife Protection and Management Act 1998**. This law provides for the protection, conservations, and management of wildlife in Solomon Islands by regulating the export and import of certain animals and plants. It is also intended to address the compliance of the obligations imposed on Solomon Islands under the Convention on International Trade in Endangered Species (CITES). It provides lists of: (i) “Prohibited or Restricted Exports” in Schedule I, (ii) and “Regulated and Controlled Species” in Schedule II. It was amended in 2017 to strengthen Solomon Islands’ compliance to the requirements of CITES.

74. **River Waters Act 1964** (revised 1996). This law provides for the control of river water and for the equitable and beneficial use. It provides that the Minister of Mines, Energy and Rural Electrification (MMERE) may grant to any person a permit to divert water from any river upon application with the following requirement: (i) application for water diversion, (ii) description of the water diversion, (iii) plans, and (iv) maps. The permit shall specify the river and that part thereof from which water may diverted, the quantity thereof and such other terms and conditions as the Minister may impose. This law is relevant to the proposed use of a river as a water supply source.

75. **Mines and Minerals Act 2008**. Part VIII of this Act needs to be complied with in regard to mining and extraction of aggregate or gravels from rivers. Article 64 requires that building material permits (BMP) be issued for the extraction of building materials. Articles 65–67 outline the format for a BMP application and rights of a BMP holder to enter and extract building materials. Article 68 sets out the obligations on a BMP holder, which include payment of fees and royalties; operate using good mining practices; report to the Director on the amount

removed and sales details; and, at closure of the mining area, make the area safe. Article 69 exempts government departments, provincial, or local authorities from these requirements if they own the area where the mining is being done. The extraction of materials requires a PER to be prepared. The Mining Act does not specify this as a requirement for a BMP. Approvals of BMPs are via a Board that is convened four times a year for this purpose.

76. The Climate Change Division of MECDM is responsible for: (i) raising awareness and increasing understanding of policymakers in both government and non-government organizations and the general public about climate change and UNFCCC and build consensus on national responses; (ii) facilitating, coordinating and implementing climate change enabling activities such as preparation and submission of NAPA and the second national communication; (iii) establishing a framework for integrating climate change considerations into national development planning and relevant sectoral policies; (iv) establishing procedures and criteria for identifying and assessing climate change projects that meet national needs and for submitting proposals to climate finance partners.

77. **Labor Act 1978.** This act deals with protections for workers. Part IX Care of Workers, requires the employer to: provide workers with rations (Article 65); protect workers and dependents from malaria (Article 66); provide workers with an accessible supply of clean, non-polluted water for drinking, washing and for other domestic purposes (Article 67); make sufficient and proper sanitary arrangements for workers (Article 68); provide accommodation for the worker and family if they are not conveniently located to the work place (Article 69).
78. Article 70 requires the employer to provide medical care at the workplace including: (i) treatment facilities, medicines, first aid equipment and transportation facilities; (ii) responsibility to move workers as quickly as possible either to the employer's treatment facilities or to the nearest medical facilities; (iii) treatment for workers or hospitalization; and (iv) should a worker die the employer is obliged to pay for funeral costs. Article 71 states that the employer may be required to provide medical facilities and services of a medical practitioner and the employer is to maintain a register of workers treated.

79. **Safety at Work Act 1996** This Act states that it is the duty of every employer to provide a safe workplace and to ensure the health and safety of employees under his control. This Act is linked to the Labor Act (1978) and the Safety at Work (pesticide Regulations (1983).

80. **Bio-Security Act 2013.** This Act is to prevent the entry of animal and plant pests and disease to Solomon Islands; to control their establishment and spread in Solomon Islands, to regulate the movement of animal, plant pest and diseases and of animals and plants and their products; to facilitate international cooperation in respect of animal and plant diseases and related matters. The Act is supported by Bio-Security Regulations 2015.

81. **Climate Change Policy 2012-2017.** The National Climate Change Policy 2012-2017 is the guiding framework to: (a) integrate climate considerations and support the implementation and achievement of the National Development Strategy and other regional and international policies and frameworks; and (b) to guide the government and its partners' efforts in ensuring that; (i) the people, natural environment, and economy of the country are able to adapt to the predicted impacts of climate change; and (ii) the country benefits from clean and renewable energy, energy efficiency, and mitigation technologies that improve people's livelihoods and the national economy.

82. **International conventions**. The environmental framework also includes some international conventions since Solomon Island is a party to some international conventions, treaties and agreements on the principles and actions necessary for sustainable development and environmental protection. It has ratified on 1995 the Convention on Biological Diversity (CBD) and on 1994 the United Nations Framework Convention on Climate Change. These international conventions explicitly reference the application of environmental assessment to address the effects of human activities. Use of appropriate procedures requiring environmental impact assessment of proposed projects that are likely to have significant adverse effects on biological diversity is advocated by the CBD. A list of international agreements to which Solomon Islands is a party is presented in Appendix 1.

B. ADB Safeguard Requirements

83. The ADB's Safeguards Policy Statement (SPS) consists of three safeguard requirements (SR): SR1: environment; SR2: involuntary resettlement; and SR3: indigenous peoples. The objectives of ADB's safeguards are to: (i) avoid adverse impacts of projects on the environment and affected people, where possible; (ii) minimize, mitigate, and/or compensate for adverse project impacts on the environment and affected people when avoidance is not possible; and (iii) help borrowers/clients to strengthen their safeguard systems and develop the capacity to manage environmental and social risks.

84. Through the SPS ADB establishes policy objectives, scope and triggers, and principles for the three safeguards. The SPS sets out the process to be applied from screening, through due diligence and assessment to monitoring and reporting. The objective of SR1 is to ensure the environment soundness and sustainability of projects and to support the integration of environmental considerations into the project decision-making process. To help achieve the desired outcomes, ADB adopts a set of specific safeguard requirements that need to be achieved during the processing and implementation of projects financed or administered by ADB.

85. **Environmental assessment and review**. This EARF has been prepared for the Project to guide the procedures for screening, assessment, review and monitoring of each project to ensure compliance with environmental safeguards requirements of both the government and ADB.

86. In accordance with the EARF, each component or subproject will be screened and categorized, with the screening reviewed by ADB, WB and ECD to determine the appropriate level of assessment. If works are sufficiently minor and do not trigger the need for environmental assessment under the CSS, in accordance with the EARF, an assessment will be prepared to comply with the SPS and WBSP. Through a process of screening, ADB and WB categorizes projects by their potential risk or level of impact, and the category of a project will determine the level of assessment required:

- Category A. A proposed project is likely to have significant adverse environmental impacts that are irreversible, diverse, or unprecedented. These impacts may affect an area larger than the sites or facilities subject to physical works. An environmental impact assessment (EIA) including an EMP is required.
- Category B. The proposed project's potential adverse environmental impacts are site-specific, few if any of them are irreversible, and in most cases mitigation measures can be designed more readily than for Category A projects. An initial environmental examination (IEE) including an EMP is required.

- Category C. A proposed project is likely to have minimal or no adverse environmental impacts. An assessment is not required, although environmental implications are still reviewed and in some cases management guidelines may be required to be included in bid documents.
- Category FI. A proposed project involves the investment of ADB funds to or through a financial intermediary. The financial intermediary must apply and maintain an environmental and social management system, unless all of the financial intermediary's business activities have minimal or no environmental impacts or risks.

87. **Screening, assessment and management**. Screening will be based on its location and its potential risks and impacts based on the types of works and activities with regard to the environmental conditions. Each proposed project is scrutinized as to its type, location, scale, environmental sensitivity and the magnitude of its potential environmental impacts. The level of detail and comprehensiveness of the environmental assessment will be commensurate with the significance of the potential impacts and risks. A rapid environmental assessment checklist can be used to assist with the screening (Appendix 2).

88. The screening will identify level of risk identified (low, medium or high) and what level of due diligence is required i.e. environmental and social management guidelines, environmental assessment and development of an EMP.

89. **Health and safety**. The Project will comply with the World Bank Group's Environmental Health and Safety Guidelines (EHSG).[4] Amongst other things, the EHSG require that workers be provided with a safe and healthy working environment, considering inherent risks, any hazards in the work areas, including physical, chemical, biological, and radiological hazards. In addition, SW as the implementing agency, will be required to take steps to prevent accidents, injury, and diseases arising from, associated with, or occurring during the work.

C. World Bank Safeguard Policies & Guidelines

90. The WBSP aim to prevent and mitigate potential damage to the environment and communities generated in the development process. These policies provide the process and procedures for implementing safeguards during the identification, preparation and implementation of programs and projects.

91. The WB system applying to the Project includes the safeguard policies set out in the Operational Policies (OP)[5] which inform decision making, ensuring that investments financed by the WB are environmentally and socially sustainable. The Project triggers five of these policies: Environmental Assessment (OP/BP 4.01), Natural Habitats (OP/BP 4.04), Physical Cultural Resources (OP/BP 4.11), Indigenous Peoples (OP/BP 4.10) and Involuntary Resettlement (OP/BP 4.12). Table III-2 presents these five policies and their applicability to this Project.

92. The EARF establishes a unified process for addressing all environmental and social safeguard issues on potential activities from preparation, through review and approval to implementation and monitoring.

[4] World Bank Group. 2007. *Environmental, Health, and Safety General Guidelines.* Washington, DC.

[5] The WB's environmental and safeguard framework (ESF) 2017 applies to all investment projects processed from 01 October 2018. As the Project processing was commenced prior to 01 October 2018, the OPs apply.

Table III-2: World Bank Safeguard Policies: Main Objectives, Applicability and Triggered by UWSSSP

Safeguard Policies	Main Objective	Applicability	Application to UWSSSP
OP 4.01 Environmental Assessment	The objective of this policy is to ensure that projects financed by the World Bank are environmentally sound and sustainable, and that decision making is improved through adequate analysis of actions and their possible risks and environmental impacts in the natural environment (air, water and soils); human health & security; physical-cultural resources; and global and transboundary and global environmental aspects.	This policy is applicable when a project or sub-project has potential to cause negative environmental impacts in its area of influence. Depending on the project and the nature of its impacts, various instruments can be used. An Environmental and Social Management Framework (ESMF, equivalent to EARF) is required for projects that comprise several sub-projects which will be fully defined only during project implementation.	Triggered: Environmental risks associated with the project include continued contamination impacts resulting from the discharge of untreated sewage and septage treatment facility effluent, temporary noise, waste and air quality impacts associated with construction, reduced river flows and potential limited vegetation clearing for the purpose of creating access to new water supply sources, constructing the water and septage treatment plants, etc. There may also be impacts on historical sites in Tulagi where interventions to improve water supply are planned. An Initial Environmental Examination (IEE (equivalent to WB ESIA/ESMP), the EARF (equivalent to WB ESMF) and Resettlement Framework (RF) (equivalent to WB RPF) and Resettlement Plan (RF) establish the process to mitigate these impacts. Consultations with stakeholders and affected communities are used to inform the decision-making process.
OP 4.04 Natural Habitats	This policy recognizes that the preservation of natural habitats is essential to protect original bio-diversity; for the preservation of environmental services and products for human society and for	This policy is used by any Project or sub-projects considered as potential originator of significant changes (loss) or degradation of natural habitats, be it directly (through the construction) or indirectly (with the human activities caused by the project).	Triggered: The project involves the rehabilitation of existing water supply / sanitation infrastructure and the development of new water supply sources. The interventions will take place within existing SW facilities or modified greenfield areas and are

	long term sustainable development. Therefore, the Bank supports the protection, management and restoration of natural habitats by funding projects as well as via political dialogue, sector work and the economic sector. By funding projects, the Bank expects the proponents to apply the precautionary principle in the management of natural resources, in order to ensure opportunities for sustainable environmental development.	OP4.04 defines a natural habitat as land and water areas where (i) the ecosystems' biological communities are formed largely by native plant and animal species, and (ii) human activity has not essentially modified the area's primary ecological functions."	therefore not expected to significantly impact natural habitats. The IEE includes an assessment of the potential impacts on natural habitat and outline measures to avoid, mitigate and or manage these impacts. The project also involves investments in the provincial capitals which may include areas of natural habitat. The EARF provides guidance on the assessment process for these investments.
OP 4.10 Indigenous Peoples	For all projects proposed for Bank funding that affect indigenous peoples, the Bank requires the borrower to undertake free, prior and informed consultation with affected Indigenous Peoples to ascertain their broad community support for projects affecting them The project financed by the Bank must include measures to: (a) avoid adverse effects on indigenous populations; or (b) when it is not possible to avoid the effects, minimizes, mitigates, or compensates for such purposes. The projects financed by the Bank are designed with the assurance that indigenous people receive social and economic benefits that are culturally appropriate and	This policy is applied when the Project affects direct or indirectly indigenous people.	The project is located in areas where Indigenous Peoples are the sole or the overwhelming majority of direct project beneficiaries. The project will focus on rehabilitating failed water supply and sanitation infrastructure or providing new infrastructure, this will benefit the community as a whole.. An RF has been prepared which sets out the methodology for land acquisition / acces for the project, if needed. Once land access is required, the process will include consultations with local government, local communities and various community groups (i.e. youth and women groups). The IEE/EARF will ensure free and prior informed consultation is undertaken and broad community support is achieved for the project. The preparation of separate Indigenous Peoples (IP) instruments is not required; however, the

	adequate gender and inter-generations.		project design and safeguards instruments integrate elements of an Indigenous Peoples Planning Framework (IPPF) and Indigenous Peoples Plan (IPP) into the RF.
OP 4.11 Physical Cultural Resources	The objective of this policy is to assists countries to avoid or mitigate adverse impacts on physical cultural resources from development projects that it finances. Physical cultural resources are important as sources of valuable scientific and historical information, as assets for economic and social development, and as integral parts of a people's cultural identity and practices.	This policy is used by any Project or sub-projects considered as potential to cause changes (loss) or degradation of physical cultural resources. OP 4.11 defines physical cultural resources as movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Depending on the project and the nature of its impacts, various instruments can be used. An Environmental Assessment capturing impacts on physical cultural resources is required for the project and sub-projects.	Triggered: The project involves construction works in modified urban and peri-urban areas, where it is unlikely that unknown physical cultural resources will be encountered. However, a chance find procedure is included in the IEE to ensure appropriate measures are taken in the event cultural resources are encountered. The planned works in Tulagi are located in an area where relics and infrastructure from WW II are present. When the exact locations of the works are identified, a cultural resources impact assessment will need to be carried out as part of the EARF. In addition, the chance find procedure is also captured in the EARF for the provincial capitals.
OP 4.12 Involuntary Resettlement	The objective of this policy is to (i) avoid or minimize involuntary resettlement, where feasible and explore all viable alternative project designs; (ii) assist displaced people in improving their former living standards, income earning capacity, and production levels, or at let in restoring them; (iii) encourage community participation in planning and	This policy does not cover only physical relocation but any loss of income sources resulting in: (i) relocation or loss of shelter; (ii) loss of assets or means of livelihood; (iii) loss of income sources or means of subsistence, whether or not the affected people must move to another location. This policy also applies to the involuntary restriction of access to legally designated parks and protected areas,	Triggered: The project involves the rehabilitation and expansion of failed water supply and sanitation infrastructure, as well as the development of new water supply and sanitation infrastructure. Water and sewerage networks will likely be subject to lease arrangements. Involuntary resettlements, if required, are expected to take place at a very limited scale.

	implementing resettlement; and (iv) provide assistance to affected people regardless of the legality of land tenure.	resulting in adverse impacts on the livelihood of the displaced persons. In these cases, the World Bank requires the establishment of a Resettlement Action Plan (RAP), based on the Resettlement Framework (RF) for any project or sub-project.	A Resettlement Framework (RF) has been prepared to assess potential impacts and outline measures to avoid, mitigate or manage these impacts. In the case land access is required, a Resettlement Plan (RP) will be developed. Communities will be consulted to ensure there are no pending issues. A formal grievance redress mechanism will be established to channel and manage potential grievances arising during project implementation.

93. **Environmental, Health & Safety Guidelines.** The EHSG are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP). When one or more members of the World Bank Group are involved in a project, these EHSG apply; in addition, the SPS requires compliance with the EHSG. The General EHSG are designed to be used together with the relevant Industry Sector EHSG which provide guidance to users on EHS issues in specific sectors. The EHSG contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. The applicability of the EHSG should be tailored to the hazards and risks established for each sub-project on the basis of the results of an environmental assessment in which site-specific variables, such as host country context, assimilative capacity of the environment, and other project factors, are taken into account. The applicability of specific technical recommendations should be based on the professional opinion of qualified and experienced persons. When host country regulations differ from the levels and measures presented in the EHSG , projects are expected to achieve whichever is more stringent.

94. The General and Industry Sector EHSG are available at the following link - http://www.ifc.org/ehsguidelines. As part of the CEMP contractors will be required to prepare an Occupational and Community Health and Safety Plan for each sub-project under the Project.

IV. DESCRIPTION OF THE ENVIRONMENT

95. A brief description of the existing environmental and socioeconomic conditions of the project area are presented in the following subsections:

A. Socio and Cultural Resources

96. **Population**. Solomon Islands has around 19.8% (or 102,030) of its estimated present total population of 515,870 living in urban and peri-urban areas. The country is divided into 10 are provinces namely Central, Choiseul, Guadalcanal, Isabel, Makiri-Ulawa, Malaita, Rennell and Bellona, Temotu, Western and the capital, Honiara City which is situated on the northwestern coast of Guadalcanal. Malaita has the largest population size of 137,596 people, followed by Guadalcanal (93,614), Western (76,649) and Honiara city (62,609) based on the 2009 census. The population growth rate is the highest in Guadalcanal (4.4%) followed by Choiseul (2.8%), Honiara (2.7%), Makira-Ulawa (2.6%) Western (2%). A portion of the summary of the main indicators is reproduced in Table IIV-1 while the population per province is presented in Table IIV-2.

Table IIV-1: Summary of Main Indicators (Solomon Islands Population Census)

Indicator	Solomon Islands	Urban	Rural
Total population	515870	102030	413840
Males	264455	53596	210859
Females	251415	48434	202981
Average annual population growth rate,1999-2009 (%)	2.3	4.7	1.8
Population density (number of people/Km)	17	-	-
Urban population	102030	-	-
Per cent urban (%)	19.8	-	-
Average annual Urban growth rate,1999-2009 (%)	4.7	-	-

Reproduced from: SINSO. 2009.

Table IIV-2: Solomon Islands 2009 Population Size by Province/Ward

Urban localities (Province/Ward)	Total Population 2009	Annual Growth Rate
Choiseul	810	6.1
Batava/Taro	810	
Western	9,755	4.1
Gizo	3,547	1.4
Noro	3,365	-0.3
Munda	1,315	
Nusa Roviana	1,528	
Isabel	971	7.7
Buala	971	
Central	1,251	-0.6
Tulagi	1,251	
Rennell-Bellona	0	
Guadalcanal	15,473	16.4

Tandai	10,837	
Malango	4,636	
Malaita	5,105	11.6
Auki	5,105	
Makira-Ulawa	2,074	7.5
Kirakira/Bauro Central	2,074	
Temotu	1,982	17
Lata/Luva Station	1,982	
Honiara town council	64,609	2.7
Honiara urban area	80,082	4.3
TOTAL	**1,02,030**	**4.7**

Reproduced from: SINSO. 2009; highlighted in green are provinces/provincial capitals applicable to the EARF.

97. **Health**. The Ministry of Health and Medical Services is the key health provider in the Solomon Islands. Health services are concentrated in the urban centers with a hierarchy of facilities available ranging from nurse aide posts and rural clinics to National Referral Hospital. Of the nine provinces in the Solomon Islands, eight have a public hospital. There are approximately 22 doctors per 100,000 of population and 205 midwifes and nurses per 100,000. In general, malaria and tuberculosis are the major public health concerns in Solomon Islands, along with sexually transmitted infections, acute respiratory tract infections, diarrhea, viral hepatitis, dengue fever, and measles (SINSO and MHMS. 2017).

98. **Education**. As per the 2009 census data the highest level of education completed, 15 % of males and 9% of females 12 years and older responded that they attended secondary education; 59% and 51% of males and females completed only primary level, and 19% of males and 35% females had no schooling completed. 3% of males and 1% of females had tertiary education. Honiara, as the center of education in country, has schools that include the Solomon Islands National University, University of the South Pacific (USP), and Woodford International School. Solomon Islands National University was initiated in 2012 from the Solomon Islands College of Higher Education which was basically pooled from all the existing government schools in 1984, namely, the Solomon Islands Teachers College, Public Administration Training School, Ranadi Marine Training School, Honiara Nursing Training school, and Honiara Technical Institute.

99. The University of the South Pacific (USP) Solomon Islands Campus at Honiara provides tertiary education to students of the South Pacific. The Woodford International School offers the International Baccalaureate Primary Program from early childhood to Year 5 and then the Cambridge International Middle Years and High School Program up to the Cambridge Advanced Level Program in Year 12.

B. Physical Resources

100. **Geology**. The regional geologic and tectonic setting of the Solomon Islands region is a diverse assemblage of rocks of Mesozoic and Cenozoic age. Basement rocks include oceanic crust of Cretaceous and early Tertiary age and metamorphic equivalents. Overlying this basement are rocks and features that reflect volcanic-arc growth during at least two time periods, late Eocene to early Miocene, and late Miocene and younger. (Bruns and others. 1989).

101. **Water Resources.** Water resources in the Solomon Islands range from sizable rivers to small streams from high mountainous and dense rainforests to rainwater harvesting and thin freshwater lends of groundwater aquifer of the small low-lying atolls and islets (IWCM diagnostic report).

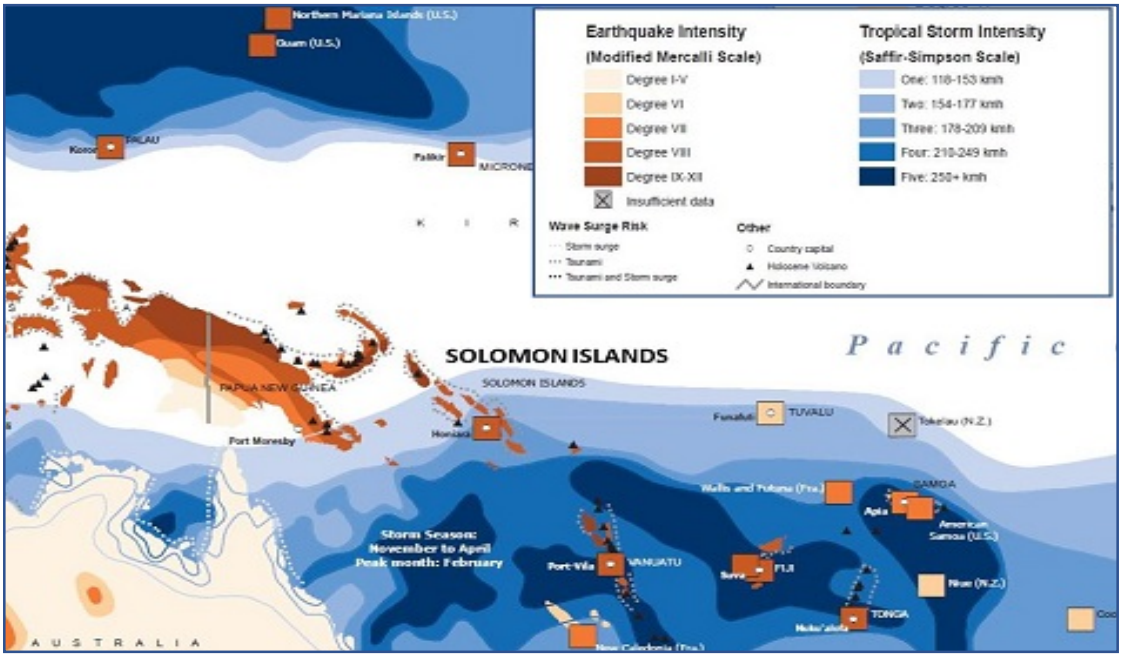
102. With adequate rainfall and large infiltration area, considerable freshwater resources are available in the provinces. Drinking and household use in both urban and rural centers account for the largest water withdrawal in the country. There is limited agricultural water demand as most crops are rainfed. The industrial sector withdraws water for fish processing, cannery, palm oil factory, mining operations and some small manufacturing industries.

103. On the larger Islands, surface water in the form of streams, springs and rivers is the main source of drinking water. Some communities on the higher volcanic islands also use groundwater for domestic purposes. In areas where surface water supply is not available for farming, groundwater is used if available. In urban areas, piped water accounts for 75% of total water withdrawal, rain water tanks account for 22 % bore hole/spring/wells account for 1% , and other sources account for 2%.

104. **Natural Hazards**. Solomon Islands has been identified by a World Bank study as one of the top 15 countries exposed to multiple hazards (Dilley, M and others. 2005). Based on the map for major natural hazards (Table IIV-1) in Asia and the Pacific (OCHA. 2016), the project area is within a tropical storm intensity zone 3 (178-209 km/h on the Saffir-Simpson Scale). These storms can cause some structural damage to small residences and buildings. A large number of trees can be uprooted by storms of this category. In addition, the project area is in the earthquake zone of intensity VIII of the Modified Mercalli Scale (OCHA. March 2016). This intensity is considered “severe” and can cause considerable damage in ordinary substantial buildings with partial collapse. It can also cause great damage in poorly built structures.

105. The threat from tsunamis is real in Solomon Islands due to the occurrence of strong earthquakes and several tsunamis hit the area in the past. The tsunami that was triggered by a magnitude 8.1 earthquake on April 1, 2007, in the Solomon Islands caused significant damage and loss of life (PCMSC. 2016). On February 6, 2013, an 8.0-magnitude undersea earthquake hit Solomon Islands and generated a tsunami that hit Santa Cruz and other islands, causing damages. Threats of volcanic eruption is low for Honiara since the nearest known volcano to the area is considered dormant.

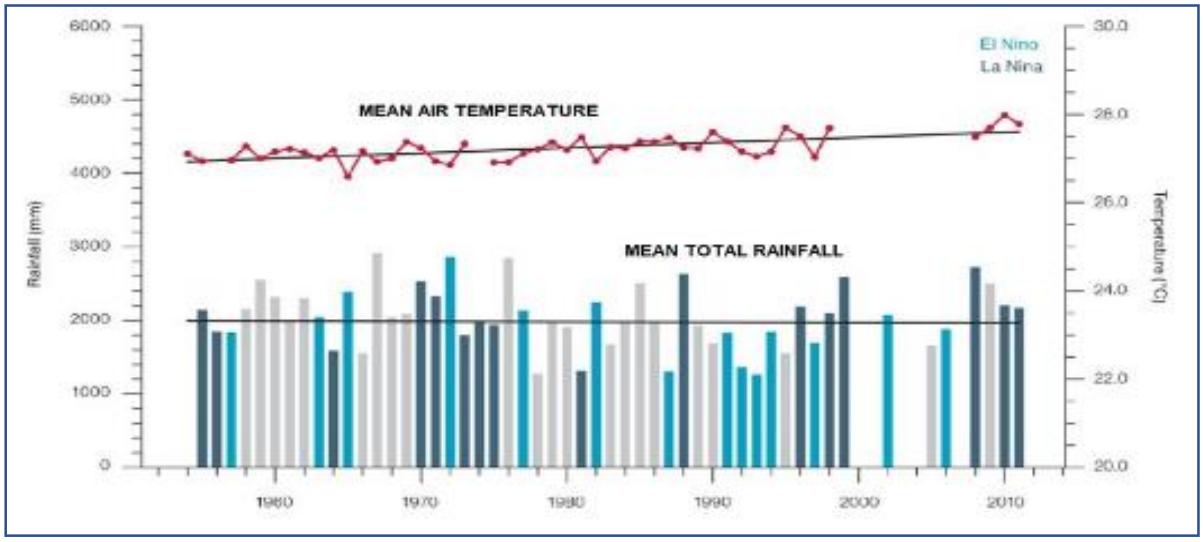
Figure IIV-1: Major Natural Hazards in Asia and Pacific



Source: OCHA. 2016.

106. **Climate and Climate Change.** A good review of Solomon Island's climate was prepared by the Pacific-Australia Climate Change Science Program (PCCSP). The program analyzed historical climate data, observed variability, climate trends, and further develop climate change projections for Solomon Island's (PCCSP. 2014). The climate information presented here are adapted from PCCSP's report.

Figure IIV-2: Honiara's Mean Air Temperature and Total Rainfall



Source: PCCSP. 2014.

107. PCCSP review indicated that annual and half-year minimum temperatures have been increasing at Honiara since 1953 (Table IIV-2). Minimum temperature trends are generally stronger than maximum temperature trends. There have been significant increases in warm

nights and decreases in cool nights at Honiara. These temperature trends are consistent with global warming. Annual and half-year rainfall trends show little change at Honiara since 1950. At Honiara, there is a decreasing trend in the number of rain days since 1955.

108. The PCCSP deemed the available data of cyclones as not suitable for assessing long-term trends. It however, noted that tropical cyclones were most frequent in El Niño years (39 cyclones per decade) and least frequent in La Niña and neutral years (21 cyclones per decade). It provided the following additional information: (i) tropical cyclones affect Solomon Islands mainly between November and April; (ii) an average of 29 cyclones per decade developed within or crossed the Solomon Islands Exclusive Economic Zone (EEZ) between the 1969/70 to 2010/11 seasons; and (iii) twenty-two of the 82 tropical cyclones (27%) between the 1981/82 and 2010/11 seasons were severe events (Category 3 or stronger) in the Solomon Islands EEZ. Fifteen of the 22 intense events occurred in seasons when an El Niño was present.

109. PCCSP projected the changes in the annual and seasonal mean climate for Solomon Islands under four emissions scenarios and are given for 20-year periods centered on 2030, 2050, and 2070, relative to a 20-year period centered on 1995 (Table IIV-3).

Table IIV-3: Projected Changes Annual and Seasonal Mean Climate - Solomon Islands

Variable	Season	2030	2050	2070	Confidence (magnitude of change)
Surface air temperature (°C)	Annual	0.6 (0.4–0.9)[a]	0.8 (0.6–1.2)	0.8 (0.4–1.2)	Medium
		0.7 (0.4–1)	1 (0.7–1.4)	1.2 (0.9–1.8)	
		0.6 (0.5–0.9)	0.9 (0.7–1.4)	1.3 (1–2)	
		0.7 (0.5–1)	1.3 (1–1.9)	2.1 (1.5–3)	
Maximum temperature (°C)	1-in-20year event	0.6 (0.2–0.8)	0.7 (0.4–1)	0.7 (0.3–1)	Medium
		0.6 (0.3–0.8)	0.9 (0.4–1.3)	1.2 (0.7–1.8)	
		NA (NA–NA)	NA (NA–NA)	NA (NA–NA)	
		0.8 (0.4–1.2)	1.4 (0.9–2.1)	2.2 (1.5–3.2)	
Minimum temperature (°C)	1-in-20year event	0.6 (0.2–0.9)	0.7 (0.4–1)	0.7 (0.3–1)	Medium
		0.6 (0.3–0.9)	0.9 (0.5–1.3)	1.1 (0.6–1.5)	
		NA (NA–NA)	NA (NA–NA)	NA (NA–NA)	
		0.7 (0.5–1.2)	1.5 (1–2.1)	2.2 (1.5–3.3)	
Total rainfall (%)	Annual	3 (-1–8)	3 (-1–7)	3 (-3–8)	Low
		3 (-2–9)	3 (-4–9)	4 (-2–12)	
		4 (-1–9)	3 (-3–8)	5 (-3–14)	
		3 (-1–7)	3 (-3–9)	5 (-3–14)	
Total rainfall (%)	Nov-Apr	3 (-2–9)	3 (-1–9)	3 (-3–9)	Low
		2 (-2–9)	2 (-4–7)	4 (-2–13)	
		3 (-2–9)	2 (-4–9)	4 (-3–11)	
		3 (-2–9)	3 (-5–10)	5 (-4–13)	
Total rainfall (%)	May-Oct	3 (-4–8)	3 (-4–12)	3 (-5–11)	Low
		3 (-4–11)	4 (-3–11)	4 (-3–11)	
		4 (-3–13)	5 (-4–13)	5 (-8–16)	
		3 (-2–8)	3 (-6–9)	5 (-7–15)	
Aragonite saturation state (Ωar)	Annual	-0.3 (-0.6–0.0)	-0.4 (-0.7–0.0)	-0.4 (-0.7–0.0)	Medium
		-0.3 (-0.7–0.0)	-0.5 (-0.9–-0.2)	-0.7 (-1.0–-0.4)	
		NA (NA–NA)	NA (NA–NA)	NA (NA–NA)	
		-0.4 (-0.7–-0.1)	-0.7 (-1.0–-0.4)	-1.1 (-1.4–-0.8)	
Mean sea level (cm)	Annual	13 (8–18)	22 (14–31)	32 (19–45)	Medium
		12 (7–17)	22 (14–31)	35 (21–48)	
		12 (7–17)	22 (14–30)	34 (21–47)	

Variable	Season	2030	2050	2070	Confidence (magnitude of change)
		13 (8–18)	25 (16–35)	42 (28–58)	

[a] 1st line values very low emissions; 2nd line values low emissions; 3rd line values medium emissions; 4th line values very high emissions; NA = data are not available; the range of values in parenthesis. Source: PCCSP. 2014.

110. **Wind-waves**. The PCCSP also concluded that the available data of wind-waves are not suitable for assessing long-term trends, however, it has noted that wind-waves around the Solomon Islands vary across the country, being small at Honiara, while at the outlying islands such as Santa Cruz waves are much larger. Seasonally, waves are influenced by the trade winds and the West Pacific Monsoon (WPM), and display variability on interannual time scales with the El Niño–Southern Oscillation (ENSO).

111. **Winds**. In the Solomon Islands, the southeast trade winds are usually established in April and continues until the end of October. During this season, more than 75%of the winds are easterly, and 60% are from east to southeast. The trade wind is steadier and stronger over the southern part of the group of islands. From November to April, the winds blow predominantly between the northeast and northwest, though great variability marks this season, and appreciable percentages of east and south winds occur (US National Geospatial-Intelligence Agency. 2017).

112. **Seawater Temperature and Salinity**. Seawater temperature is almost constant in time and depth between the surface and at -50m WD around the Solomon Islands (NOAA. 2006): (i) at surface: 29°C as annual value, varying between 28.5°C (July-Sept.) and 29.5°C (Jan.-Mar.); (ii) at -50m: 28.5°C as annual value, varying between 28.0°C (July-Sept.) and 28.5°C; and (iii) at -100m: 26.5°C as annual value, varying between 26.0°C (July-Sept.) and 28.5°C. Similarly, seawater salinity is also almost constant in time and depth between the surface and at -50m WD around Solomon Islands: (i) at surface: 34.6psu with seasonal variations lower than 0.2psu; (ii) at -50m: 34.8psu with seasonal variations lower than 0.2psu; and (iii) at -100m: 35.4psu with seasonal variations lower than 0.1psu.

113. **Air Quality and Noise Levels**. There are no available air quality and noise levels data for Solomon Islands. There are also no environmental standards being implemented for air quality and noise levels. The Environment Conservation Division (ECD) of the Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM) has confirmed that environmental standards for Solomon Islands are still being developed.

114. In general, the peri-urban areas of Solomon Islands, where proposed components of some subprojects will be located, have no major sources of anthropogenic emissions and noise generators. For these areas, it is therefore expected that the average ground level concentrations of sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and particulate matter (PM_{10}) will not exceed the values in IFC's guidelines (EHS Guidelines of April 2007) which are 20 ug/Ncm, 40 ug/Ncm, and 20 ug/Ncm, respectively.

115. For the urban areas, such as along the main roads, particulate matter concentrations and noise levels are expected to be in elevated levels due to increase vehicular traffic, particularly during the daytime rush hours periods.

C. Ecological Resources

116. **Flora**. The terrestrial ecosystems of Solomon Islands include tropical moist forests, montane forest and secondary vegetation, grassland and savanna, swamps, lowland rain forest, and cropland. Forest makes up 86% of the country's vegetation communities with low

altitude forest accounting for the vast proportion of this, while cropland and bush account for 10% of the vegetation communities.

117. The Solomon Islands is characterized by a high level of biodiversity of plants including 3,210 species of vascular plants, although this is believed to be an under-estimation and a more correct estimate is in the order of 4,500 when unrecorded species are included. While diversity is high, endemism is low, with no endemic families and only three endemic genera. Endemism of species is not accurately known but is thought to range from 10% of fern species to 80% of Pandanus species. The islands with the highest rate of endemism are Santa Cruz (Temotu) and Guadalcanal.[6]

118. There are several different vegetation zones, based on altitude. Along the coast is either a rocky or sandy beach, where pandanus, coconuts, and vines predominate, or a swamp, supporting mangrove and sago palms. Terminalia grows in some drier areas. The lower slopes, up to about 2,500 feet (760 m), have a hardwood forest of banyans, Canarium, Indo-Malayan hardwoods, and, at higher altitudes, bamboo. In forested groves, there is relatively little undergrowth. In this zone is also the most intense human cultivation, which, when abandoned, a dense secondary forest grows, which is nearly impassibly thick with shrubs and softwoods. Above about 2,500 feet (760 m) is a cloud forest, with a dense carpeting of mosses, lichens, and liverworts, with cycads as the dominant tall plant.

119. **Fauna.** The terrestrial fauna of the Solomon Islands is extremely diverse and includes 223 species of birds (173 residential terrestrial species and 50 other species of shore/sea bird and migratory), 52 mammals (all of which belong to the bat and rat family), 61 species of reptiles (25 are endemic) and 17 species of frog.[7]

120. Solomon Islands has a high level of bird diversity and is recognised for the degree of speciation and population variation between islands. Birds are by far the most studied animal group in the Solomon Islands with Malaita being home to three species which are endemic to that island.

121. There is only once species of crocodile in the Solomon Islands, the salt water crocodile (*Crocodylus prosus*). The ban on hunting crocodile in the early nineties has resulted in a significant increase in the crocodile population throughout the country with increasing reports of attacks.

122. **Rare or Endangered Species.** The Solomon Islands is one of the most biologically diverse countries in the world, linked to this is a high number of critically endangered, endangered, vulnerable and endemic (to the country and provincial level) species.
123. For the Malaita Province, the 2008 International Union for Conservation of Nature (IUCN) Red List of endangered species lists three bird species as critically endangered, along with six threatened bird species and three endemic at the provincial level.

124. Honiara does not have a recognized protected area as confirmed by ECD; there are marine reserves at either end of Guadalcanal. While the IUCN Red List identifies five marine turtle species as protected species in Solomon Islands, there are no available information that these species have nested on Honiara's beaches or the northern shores of Guadalcanal in general, apart from some nesting beaches on islands off the coast of Marau Sound. There are

[6] MECDM. 2008. Solomon Island State of the Environment Report, (Honiara)
[7] Ibid.

also Red List species known to inhabit the Tina River catchment but this is beyond the project area.[8]

D. Economic Development

125. **Economy** Solomon Islands' per-capita gross domestic product of USD$600 ranks it as a lesser developed nation, and more than 75% of its labour force is engaged in subsistence and fishing. Most manufactured goods and petroleum products must be imported. Until 1998, when world prices for tropical timber fell steeply, timber was Solomon Islands' main export product and, in recent years, Solomon Islands forests were dangerously overexploited. Other important cash crops and exports include copra and palm oil.

126. Honiara has been the economic center of Solomon Islands. Since it is the main commercial and administrative center, its economic base has been dominated by the services sector which include whole-sale businesses, retail stores, banks, tourism services shops, restaurants, and hotels. The economy is growing, and the government has forecasted that the construction, manufacturing, and utilities sectors will contribute more to the country's gross domestic product.

[8] Red List species in the lower and upper Tina River catchment include Two restricted-range bird species (Guadalcanal Boobook and Black-headed Myzomela) and one reptile (Guadalcanal Bow-fingered Gecko), critically endangered (and thought to be extinct) Emperor Rat (*Uromys imperator*) and globally endangered King Rat (*Uromys rex*), and the endangered White-eyed Starling (*Aplornis bruneicapillus*).

V. ANTICIPATED ENVIRONMENTAL IMPACTS

127. Under Project Output 1, SW water supply systems will be improved and expanded to increase access by urban communities to reliable and safe water. Subprojects may include: water treatment plant, water pumping stations, reservoirs, water reticulation, bores, augmenting water trunk mains, and replacement of dilapidated and under-sized water mains. Under Project Output 2, SW sewerage systems will be upgraded. Subprojects may include: sewer outfalls, septage treatment plant, sewer pumping stations, sewer mains, and sewer reticulation.

A. Design and Pre-construction Considerations

128. **Environmental management system and environmentally responsible procurement**. Throughout the Project, for implementation of environmental safeguards to be effective, a robust environmental management and monitoring system will need to be established. The PMU will ensure that the EMP is updated, as required, based on detailed design and incorporated into the bid documents. The bid documents will also specify other environmental management requirements such as: (i) requirements to comply with applicable standards; (ii) the contractor designating a full-time environmental, health and safety officer (EHSO) and deputy EHSO and recruiting a community liaison officer (CLO) from the local community and the reporting/communication lines and channels; (iii) the monitoring and reporting requirements; and (iv) delivery of induction, training and awareness sessions for workers and the community. Prior to works commencing at each subproject site, the contractor will prepare and submit a site-specific construction EMP (CEMP) to the PMU, the CEMP will be based on the project EMP and detail the construction methodology and program to be undertaken at each site, identify the risks associated with that construction methodology and detail mitigation measures to avoid or reduce the risks. The PMU and DSC will review and clear the CEMP and advise the supervising engineer that the CEMP may be approved and no objection to commencement of works given.

129. Once works commence, the EHSO will conduct monitoring of compliance of activities with the approved CEMP and the DSC and PMU will undertake inspections and audits of the effectiveness of the contractor's implementation of the approved CEMP. The DSC will devise the checklist to be used for the inspections and audits and will consolidate the inspection/audit findings along with summaries of the contractor's monthly reporting. WB and ADB will undertake review missions which will report on, inter alia, overall implementation of environmental safeguard requirements.

130. As early as practicable after commencement, the project will establish a grievance redress mechanism (GRM) to address concerns and resolve complaints and issues raised on any aspect of Project and subproject implementation. Safeguards concerns will be addressed through the GRM.

131. The CEMP will outline how the contractor will implement the relevant elements of the GRM and how and when they will provide information about construction activities and timing to the community. The contractor will be expected to provide information about the works, impacts and mitigation/control measures to the community in a timely and effective manner. The contractor's liaison and communication with the community, managed by the CLO, will be guided by the Project's CCP.

132. Workers and sub-contractors will be inducted to the site and this will include awareness and training on the provisions and requirements of the CEMP and how it is to be implemented.

133.

134. **Addressing climate change**. Potential impacts of climate change and natural hazards on infrastructure were identified during the preparation in 2012 of the Solomon Islands' National Infrastructure Investment Plan (NIIP). For water supply and sanitation infrastructure, a summary of impacts due to climate change and natural hazards and their corresponding adaptation measures were identified. These sets of information on impacts and adaptation measures were adopted in the preparation of the Solomon Water's 30-Year Strategic Plan (2017) and are the same set of information from the NIIP document.

135. A recent review by the Pacific Region Infrastructure Facility on Solomon Islands public investment management indicated that the NIIP is still being used as guide for Solomon Islands' public investment management along with other national government plans. In addition, ADB's guidelines for climate-proofing investments in the water sector has listed possible climate-proofing options (Table V-1 and Table V-2). The guidelines present a systematic approach of prioritizing and selecting the adaptation options.

Table V-1: Climate-proofing measures for water supply and sanitation projects

Component	Climate-proofing measures
Water supply	Demand-side management with a view of decreasing water demand Reduction of nonrevenue water Water metering and water tariffs (which can contribute to reducing water demand) Low water use applications Diversification of water sources Enhancing storage capacity Water reuse and desalination Aquifer recharge using recycled water Relocation of flooded infrastructure Impounding reservoir to store freshwater
Water treatment and quality	Protection of the water source and treatment of wastewater discharges Integrated water resources management Prevention of saltwater intrusion into coastal zones
Water distribution	Adjustment to operation below design capacity
Wastewater collection	Prevention of sewer overflow Adjustment to operation below design capacity • Relocation of flooded sewers
Wastewater treatment	Adjustment of treatment technology to new effluent composition Adjustment of treatment level to revised dilution capacity of discharge point Relocation of flooded wastewater treatment facilities

Source: ADB - Guidelines for climate proofing investment in the water sector: water supply and sanitation (2017)

Table V-2: Summary of impacts and adaptation for water and wastewater infrastructure

Climate change / hazard	Potential impact	Resilience measures	Complementary measures
Water infrastructure			
Sea Level Rise	Rising sea levels/coastal erosion causes damage to water supply infrastructure Saltwater intrusion into groundwater lenses	Use non-corrosive materials Use pumps to prevent salt water intrusion Find alternate and diverse sources of water Desalination	Demand side management Reduce pressure on coastal groundwater sources Undertake regular water quality assessments
Increase / Decreases in Rainfall	Water shortages Water demand patterns may increase	There is a need to greatly improve both natural and artificial water storage, with an	Long-term demand side management Long-term water availability studies and planning

Climate change / hazard	Potential impact	Resilience measures	Complementary measures
	Competition and conflict between different water users Increased runoff can decrease water supplies by reduced infiltration into the groundwater	emphasis on smaller and more dispersed infrastructure Improve water efficiency and water loss measures Increase available resources	Integrated multi-user assessment of supply needs Ensuring groundwater recharge zones
Cyclones	Damage to water infrastructure could undermine the quality and quantity of water	Design critical supply infrastructure for hazards	Contingency planning
Earthquakes	Damage to water infrastructure could undermine the quality and quantity of water	Design critical supply infrastructure for hazards	Emergency water supplies planned
Wastewater infrastructure			
Sea Level Rise	Reliance on septic tanks, soak away systems are vulnerable Storm surge can result in waste from the coast being deposited inland or to coastal access routes Groundwater levels may rise and disrupt natural purification processes	Adjust pumping capacity for larger volumes of water as well as longer drought periods Reduce reliance on water intensive sanitation systems Locate new septic systems away from coastline	Utility management of centralized sanitation systems are more resilient to changes in climate than localized sewerage systems
Increase / Decreases in Rainfall	Health impacts as result of shortages of water to manage liquid waste Floods can result in sewerage overflows and additional solid and liquid- overflows, putting human health at risk Interruption in service	Back-up systems in place to manage shortage/excess in water Design system for higher variability in water availability Increase water efficiency Low-flush septic systems Modified sewerage systems typically use lower volumes of water and are less prone to blockage if flows are unreliable	Monitor effects of energy interruptions in the safe operation on WSS systems Long-term planning and water source sustainability to plan for changes in water volumes and effects on infrastructure needs Intersectoral management of water resources
Cyclones	Damage to near shore septic tanks resulting in serious pollution. Storm surge can also result in an accumulation of debris and waste in sewerage pipes, creating backups	Systems which link multiple communities and multiple sources spread risk and are more resilient Separation of stormwater from sewage is highly advisable to minimize the risk of overwhelming collection systems and treatment facilities, and the associated pollution impacts	Extreme institutional decentralization – as in rural community-managed systems – is associated with a high rate of failure. This can be reduced by ensuring access to (centralized) technical and management support, which is likely to be critical in increasing resilience
Temperature Increases	Higher incidence of water borne diseases New diseases	Adjust sanitation processes for emergence of new and higher levels of warmer weather diseases	Monitor incidences of new disease types and levels and develop response plans

Source: Solomon Water - 30 Year Strategic Plan (2017)

136. **Flooding considerations**. Extreme high rainfall events are expected to affect proposed subprojects in the future. While the separate climate change study prepared for this project concluded that the big flood in 2014 would still be considered an unusual event by 2050, the 1-in-70-year event could still be expected, and the flood magnitude should be considered in the planning and design of large civil engineering infrastructure. Site erosion and flooding of the facilities are therefore expected if no adaptation will be implemented. Erosion and flooding could affect the structural integrity of the proposed structures. Flooding can also submerge facility components that are supposed to be dry for proper operation. This can result in service interruptions or total failure of the facilities. For sewerage and sanitation facilities, these situations may result to the release of untreated sewage into the environment and increase the

risk to public health. For water supply facilities, these situations may result to serious water shortages that may escalate into a major public health emergency.

137. **Land access arrangements.** Any requirements for permanent access to land will be governed by the Projects RF and resettlement plans or due diligence reports subsequently prepared.

138. **Introduction of alien or invasive species**. To prevent spread of alien and/or invasive species, imported plant, equipment and materials and the vessels that import them will be subject to clearance procedures under the Bio-Security Act and Regulations and may require issue of phytosanitary certificates from Biosecurity Solomon Islands.

139. **Materials sourcing**. Should any materials be sourced locally (i.e. sand or aggregate), the contractor must seek approval (including obtaining the BPM) and agreement from, including payment of royalties to, the land/resource owner. Any sand or aggregate extraction required for the project will only be undertaken in accordance with an extraction plan reviewed and cleared by the PMU and DSC. Vehicles transporting loose materials, from an extraction area to the subproject site, will be covered and secured with tarpaulin to prevent dust or spillage.

B. Construction Impacts

140. Construction of the subprojects will generate environmental impacts including: (i) damage to chance finds, (ii) erosion and sedimentation at and near the construction sites, (iii) water quality issues (run-off), (iv) waste and hazardous substances issues, (v) construction noise and vibration, (vi) local air pollution and dust due to construction activities, (vii) materials haulage and vehicular traffic congestion, (viii) public access disruption, (ix) traffic hazards to the public due to construction activities, (x) pollution and health risks to the community (including spread of communicable diseases,, (xi) occupational health and safety at work sites, and (xii) improper closure of construction sites after subproject completion.

141. Preparation of the environmental assessments will include the presentation of location and activity-specific mitigation measures in each EMP. Relative to the type of facilities to be constructed under this Project, a list of potential environmental impacts during construction and their corresponding mitigation measures are presented in Table V-3.

142. Construction impacts will be expected from the installation of the water supply and sewerage pipelines and construction of structures. The pipelines shall be laid in prepared trenches (either equipment or manually excavated) to the design depth. These trenches shall be located beside the road. The laid pipeline shall be backfilled with soil. Presence of excavation activities and backfilling along the road will pose hazard to the public and will be a source of nuisance. Construction activities for structures may include: (i) site clearing and marking of alignments, (ii) stockpiling of construction materials, (iii) earthworks by soil excavators and other equipment for the structures, (iv) construction of buildings, and (vi) installation of electro-mechanical equipment. These activities will be a source of impacts since there will be operation of construction equipment and transport of materials.

Table V-3: Potential construction impacts

Activity and potential environmental impact	Proposed mitigation measure
Air pollution due to construction activities	Schedule for water spraying at sites and damping access roads etc agreed as part of CEMP Water spraying for dust control; construction materials with potential for significant dust generation shall be covered; good maintenance of equipment' engine;

Activity and potential environmental impact	Proposed mitigation measure
	trucks transporting loose construction materials such as sand, gravel, spoils, and the like shall be provided with tarpaulin cover
Materials sourcing	Audit of existing sources Application for BPM and preparation of an extraction management plan Any new sources to follow permit requirements Landowners agreements and payments verified
Soil erosion and sediments	Earthworks and area to be exposed carefully planned Total exposed area shall be minimized; divert storm water flows away from the exposed areas and sediment controls using small interceptor dikes, pipe slope drains, grass bale barriers, silt fences/curtains, sediment traps, and temporary sediment basins; isolation barrier for raw water intake
Waste management	Preparation and implementation of waste management plan Segregation and waste minimization core of plan Regular disposal of non-recyclable/non-reusable waste to designated off-site
Water quality and works in or adjacent to rivers	Erosion and sediment control plan and emergency response plan prepared Erosion and sediment control measures implemented Spill kit available, workers trained in its use Silt curtains, booms, sediment geotextiles to be used to prevent and/or minimize turbidity, plume
Nuisance from noise of construction equipment	Sensitive receptors clearly identified along with baseline levels Define hours for week days, not to operate noisy equipment during nighttime (19:00 – 06:00); sound suppression for equipment; ear plugs for workers; noise levels not to exceed 55 dB(A) near schools and residential areas; use of temporary noise barriers
Vehicular traffic congestion and hindrance to public access	Prepare and implement traffic management plan Close coordination with local authorities in road closure and traffic rerouting; contractor's traffic plan; provision of planks, provision of access between mounds, steel plates for vehicle passage, expedite works in front of shops, and provide signs to direct the pedestrians to access areas; timing of construction activities in any sites should consider the schedules of local activities with heavy presence of people such as festivities, processions, parades, etc. Use of construction methods that avoid excavations of the entire proposed pipeline alignment, such as pipe jacking and micro-tunneling Implement road safety plan and safety measures including warning signs to alert people of hazards around the construction sites, barricades, and night lamps for open trenches in pipeline installation
Labor influx, pollution and health risks due to workers	Contractor to prepare and implement labor influx management plan No use of trafficked or underage labor on any project activities/facilities Code of conduct agreed between contractor and village leaders Workers implement code at all times (sanctions and penalties) Proper camp sanitation; installation of sanitary facilities; solid waste management; surface runoffs control Contractor to engage an approved service provider to deliver communicable diseases (incl. STIs and HIV) awareness and prevention
Occupational health and safety at work sites	Implement construction health and safety management plan, provision of equipped first aid station at all times, workers provided with potable water, adequate sanitation facilities, clean eating areas, and personal protective equipment to minimize exposure to a variety of hazards

Activity and potential environmental impact	Proposed mitigation measure
Community health and safety	Implement health and safety plan, labor influx management plan, traffic management plan, communicable diseases awareness and prevention training
Damage to historic, archaeological and cultural assets	EMP to include chance finds protocols Contractors shall stop immediately the activities upon discovery of any historic, archaeological and cultural relics; local government and Solomon Islands National Museum will be informed promptly
Improper closure of construction sites	Removal of all construction wastes and implement surface restoration; proper disposal of surplus soil to suitable sites away from built-up areas DSC to review and "clear" site remediation through issue of certificate

Source: PPA consultants (2018)

C. Operation Impacts

143. Anticipated environmental impacts during operation are those associated with the operation of the facilities for water supply and sewerage systems. The facilities include water treatment plant, septage treatment plant, and pumping stations. Operation of these facilities will generate environmental impacts including: (i) health hazard due to unplanned delivery of poor water quality, (ii) water pumping station operational risk and safety, (iii) hazard due to unplanned STP poor quality effluents, (iv) noise of STP, (v) hazard due to improper disposal of sludge from STP, (vi) foul odor offsite migration from STP, and (vii) health and safety risks in sewerage system operation. Relative to the type of facilities to be constructed under this project, a list of potential environmental impacts during operation and their corresponding mitigation measures are presented in Table V-4.

144. For water supply systems, water safety plans (WSPs) are an important tool to ensure the reliable delivery of good water quality. SW has put in place a WSP based on WHO guidelines. The water safety plan shall enable SW to: (i) prevent contamination of its water sources water, (ii) treat the water to reduce or remove contamination that could be present to the extent necessary to meet the water quality targets, and (iii) prevent re-contamination during storage, distribution and handling of drinking water. This approach will clearly show the desire of SW in applying best practices in ensuring delivery of potable water to its consumers.

145. For the septage treatment plant operation, it is important to highlight the reliability of the STP. This requires the operators to be properly trained since the STP shall operate continuously. The STP has to be operated as designed and the operators must be able to handle any emergency situations.

Table V-4: Potential environmental impacts during operation

Potential Environmental Impact	Proposed Mitigation Measure or Enhancement Measure
Health hazard due to unplanned delivery of poor water quality	Water disinfection using chlorine; water safety plan implementation
Water pumping station operational risk and safety	Provide safety shut-off valve if using chlorine gas; evaluate use of liquid chlorine (from solids) instead of chlorine gas for less risk
Hazard due to unplanned STP poor quality effluents	STP operated according to its design parameters; ensure plant operators are properly trained in operating the facility and in handling situations that may lead to poor quality effluents; provision of STP operating manuals; STP shall have reliable power supply to the mechanical equipment
Noise of STP and pumping stations	Ensure that potential sources of noise, such as pumps, blowers and mounted aerators are inherently provided with enclosures that provide noise attenuation

Hazard due to improper disposal of sludge from STP	STP sludge be sent to sludge drying bed; dewatered sludge to be hauled and applied to farm lands
Foul odor offsite migration from STP	Odor control and management include: (i) close monitoring of aerobic units to ensure conditions will not become anaerobic, (ii) landscaping with trees and shrubs around the facility be positioned as wind breaks, and (i) conduct of STP's annual odor audit to identify operational measures that can prevent odor problem
Health and safety risks in sewerage system operation	Conduct facility hazards identification during initial operation phase; written facility health and safety manual to address the prevention, reduction and control of occupational injury and illness; workers to be trained on health and safety aspects of handling sewage spills; five-foot-high fence to keep people away from the STP and pumping stations; install gas safety devices; separate chlorine gas building

Source: PPA consultants (2018)

VI. ENVIRONMENTAL ASSESSMENT AND REVIEW PROCEDURES

146. SW's subprojects to be implemented between 2017 and 2037 have been identified in its 30-Year Strategic Plan. For Honiara's water supply system, subprojects include water treatment plant, water pumping stations, reservoirs, water reticulation, bores, and water trunk mains. Also included are water supply system improvements for the towns of Auki, Tulagi, Noro, and Gizo. For Honiara's sewerage system, subprojects include sewer outfalls, septage treatment plant, sewer pumping stations, sewer mains, and sewer reticulation.

A. Site Selection

147. Considering that Project areas are urban and peri-urban, it is unlikely that "greenfield" sites will be required for components. However, in selection of component and subproject locations and sites the following areas are excluded from consideration: (i) cultural heritage sites, (ii) protected area, (iii) wetland, (iv) buffer zone of protected area, and (v) special area for protecting biodiversity. In cases where cutting of trees in significant number cannot be avoided, a tree replacement program shall be developed and implemented.

148. Pipeline alignments and potential sites of structures that will cause the removal of many houses and various obstructions shall also be avoided, if possible. It will cause significant adverse impacts to the communities. This will surely entail a huge compensation and resettlement cost. Pipeline alignments should be studied carefully with the objective of minimizing loss of assets. General criteria for site selection are given in Table V-5.

Table V-5: Subproject and component site selection criteria

General considerations (all components)	Water supply system components	Sewerage system components
Will avoid significant environmental impacts Will avoid impacts on biodiversity or conservation areas Will avoid sensitive areas such as cultural heritage site, protected area, wetland, areas of natural or critical habitat, buffer zone of protected area, and special area for protecting biodiversity Will avoid involuntary resettlement issues	Will not use large impounding reservoirs in rivers Will not cause significant abstraction of water from streams and extraction based on seasonal flow and yield studies Will not significantly affect the existing downstream users of streams Will not extract groundwater beyond the safe yield of the aquifer	Will avoid siting the STP and pumping stations close to residential and built-up areas including future developments Will avoid siting the STP in streams with low assimilative capacity Will avoid siting the STP and pumping stations in flood-prone areas Will link effluent to sewerage system until effluent treatment system is built

Will avoid locating facilities near archeological and cultural assets and will avoid damage or disturbance to archeological and cultural assets during construction	Will include sludge handling for water treatment facilities Will avoid hazardous conditions for workers of water treatment facilities	Will avoid releasing foul odor from treatment operations Will avoid discharging untreated sludge Will avoid hazardous conditions for workers and the public

B. Screening and Assessment

149. **Screening and categorization**. All subprojects and components prepared after Project approval, will be screened and categorized. Screening for environmental classification of the subprojects will be based the REA checklists for water supply and sewerage systems presented in Appendix 2. The checklists and categorization forms proposing the environment category for each subproject or component will be submitted to ADB and WB for review and confirmation.

150. **Environmental assessment**. The environmental assessment for each subproject/component shall be carried out in accordance with the CSS requirements with additional elements to ensure compliance with the SPS and WBSP. The assessment will generally follow the outline in Appendix 3 of this EARF. The environmental assessment for category B activities and subprojects will be to a level equivalent to an IEE and can be prepared as a PER[9] as per the CSS. The PER will include additional elements set out in Appendix 3 to ensure compliance with the SPS and WBSP.

151. SW will submit the PER to ADB and the WB for review and clearance prior to submitting to ECD as part of the development consent application.

C. Detailed Design and Bid Document Preparation

152. **Updating the environmental assessments**. If the PER has been prepared based on preliminary design, the environmental assessments will be updated during detailed design. If substantial modifications or changes are made to designs (expansion of construction footprint, change in location, changes in technology), , the assessments and EMP will be updated and submitted to ADB and WB for clearance. The updated PER may also need to be resubmitted to ECD.

153. The updated PER and EMP along with any conditions of the development consent will be integrated into the bid and contract documents (BCD).

154. **General requirements for CEMP**. The BCD will also include the environmental management provisions and requirements the contractor will need to comply with as part of the contract. The BCD should include: (i) the updated PER (including EMP); (ii) requirement for the contractor to prepare and submit their CEMP within a specified time period (usually 30 days) prior to start of any physical works (including clearing and grubbing) for review and clearance by the PMU and DSC; (iii) TOR for the contractor's EHSO; (iv) the conditions of the development consent; (v) general approach to environmental management and how the CEMP is to be priced (lump sum or provisional sum, BOQ etc); and (vi) organizational arrangements and set up of environmental management (reporting and communication channels etc).

[9] A standard rider can be included on the title page to clearly explain that the PER is equivalent to an assessment of a category B project as per the SPS.

155. **Construction environmental management plan**. During the pre-construction phase, the environmental assessment (including EMP) will have been updated based on detailed design, gaps will be filled (baseline etc) and the development consent application will have been made and any conditions of consent, along with the updated environmental assessment will be included in the BCD. Prior to commencement of physical works, including site preparation and clearing/grubbing, the specifications will require the contractor to prepare and submit for review and clearance the CEMP. The CEMP is a project-specific document to be prepared by the contractor with details on how the environmental management requirements during the construction phase identified in the IEE/EMP of the subproject will be implemented and managed on-site. It shall be designed to ensure that appropriate environmental management practices are applied throughout the construction period. The DSC will review and require revision or approve the CEMP and indicate to the Resident Engineer. The CEMP and all its updates/revisions, form part of the contract and will be binding on the contractor for the duration of the contract.

156. The CEMP shall contain the contractor's: (i) environmental management system and its applicability to the project including designated EHSO and reporting and communication channels; (ii) plan on how to implement the relevant elements of the Projects CCP and GRM including engagements with local communities and other stakeholders, particularly those close to the construction activities; (iii) risk assessment (or similar) and sub-plans and site-specific plans (charts, maps, tables, figures) to clearly indicate how implementation of activities at sites will meet the targets specific in the project's EMP and how/where and when the mitigation measures will be implemented; (v) materials procurement plan with information on the sources of materials, permit applications as required, transporting modes to sites, stockpiling schemes, and schedules of deliveries; (vi) descriptions of general construction good practices to be used; (vii) works and method statements describing the scope of the intended work in a step-by-step manner in order for the DSC and Engineer to understand the contractor's intentions; and (viii) monitoring and reporting system (included checklists).

VII. CONSULTATION, INFORMATION DISCLOSURE & GRIEVANCE REDRESS

A. Public Consultation and Information Disclosure

157. SW shall carry out for each subproject various activities concerning information disclosure, public consultation, and public participation. Information may include: project overview, subproject technical details, anticipated implementation schedule, and potential construction issues. A CCP will be developed. It will be anchored on the reports being prepared for the project concerning stakeholder analysis and communication strategy. It will guide the consultations to be done during project implementation. The CCP will be updated as the need arises.

158. Initial public consultations were organized in the proposed sub-project areas of Honiara, Tulagi, Munda, Auki and Noro. A series of presentations were made to provide a background of the project, specific details of the sub-projects and the environmental and social safeguards provisions. A question and answer session was carried out after each presentation to encourage the stakeholders to discuss their concerns with regards to the project. Appendix 5 provides the details of the stakeholder consultations meetings held in each of the locations. A summary of consultations is provided below. At each meeting the Team Leader of the feasibility study team was introduced and discussed the timing of the upcoming studies and work that would inform the feasibility studies including assessment of land, environmental and social issues. The meetings were also informed that further consultations would be carried out to receive inputs from the various stakeholders during the feasibility study.

159. **Honiara.** A stakeholder consultation meeting was carried out by SW on the 20th and 21st of February 2019 at the Honiara hotel. A total of 48 people attended the meeting representing local councils, public and private institutions, NGO's, businesses, land owners, etc. The main discussions included concerns around water affordability in Solomon Islands, land access/acquisition and compensation, capacity building, water access issues in informal settlements, water security and safety awareness and climate related concerns.

160. **Munda. A** stakeholder consultation meeting was carried out by SW on the 25th of February 2019. A total of seven people attended the meeting representing the local businesses, church representatives and western provincial members. The main discussions covered land ownership and land acquisition related issues, funding related to land issues and recommendations were provided to amend the Solomon Islands Water Authority Act to include non-urban areas. The Chief of Munda provided an update on the status of the ongoing grievances related to land in Munda. The Team Leader of the feasibility study team informed the meeting that the feasibility study team would be carrying out the preliminary design and technical and safeguards assessments during May 2019.

161. **Noro. A** stakeholder consultation meeting was carried out by SW on the 25th of February 2019. A total of 23 people attended the meeting representing the local businesses, church and the western provincial members. The main discussions covered customary land ownership and land acquisition issues, lack of funding to develop informal settlements and concerns around catchment protection and security of current water supply systems. The Team Leader of the feasibility study team was introduced during the meeting. The stakeholders were informed that feasibility study work for the project in Noro would be conducted in May 2019.

162. **Tulagi.** A stakeholder consultation meeting was carried out by SW on the 27th of February 2019. A total of 17 people attended the meeting, representing the local businesses, church and western provincial members. The Team Leader informed the meeting that the

design consulting firm would be carrying out feasibility study work in May 2019. The Tulagi Tourism Department Officer presented the final draft of the Province Tourism Development Plan. Details specific to Tulagi were shared and it was agreed that the plan would be reviewed and considered by the design consultants during the feasibility study. Other discussions included issues around customary land ownership, water storage and security.

163. **Auki.** A stakeholder consultation meeting was carried out by SW between the 25th and the 21st of June 2018. A total of 15 people attended the meeting representing local businesses, community organizations, church and the Malaita provincial members. The main discussions covered design choices, land and easement, environmental assessment and social issues and on relevant regulatory decisions on permits or licenses required with respect to the project.

164. **Gizo.** Consultations have not been undertaken in Gizo because SW had not received the formal mandate to take over water service responsibility in that town. Stakeholder consultations will be carried out once SW receives the formal mandate from the government of Solomon Islands to start operations.

165. **Consultations**. During development of safeguards due diligence, subproject approvals and detailed design stakeholder consultations will be conducted. The consultations will be noted (including participant lists) and documented in the reports. Stakeholder consultations and information disclosure will be continued throughout the construction and operations phases following the guidance set out in the Project's CCP. These shall be done by SW's PMU, contractors, and implementation consultants prior to actual construction activities. The construction consultations will address the stakeholders' specific concerns related to construction activities in their area. This may include, among others, the scheduling of activities and the potential nuisances to the public. All IEEs and EIAs should be disclosed to the communities in form and location accessible to public, including the uploading to the ADB and WB project website.

B. Grievance Redress Mechanism

166. Early in the implementation phase, SW will establish a suitable grievance redress mechanism (GRM) which will be based on traditional/custom conflict resolution practices and GRM established and implemented successfully for other projects. The GRM that any complaints and concerns of the affected people must be addressed promptly at no costs to the complainant and without retribution.

167. The Project will have one GRM that will handle any Project-related complaints as well as safeguard concerns or issues. The GRM is also set out in RF. The GRM requires a register of issues/complaints to be kept by the PMU and contractor(s) including who made the complaint, the nature of the complaint, how and when the complaint was resolved.

168. The GRM will receive, evaluate, and facilitate the resolution of the affected people's concerns, complaints, and grievances about environmental and social performance at the subproject level. It will aim to resolve grievances and complaints in a timely and satisfactory manner. The GRM detailed procedures shall be disclosed to the public in the consultation meetings during the design phase of the subprojects and before the start of construction activities.

169. **WB level resolution.** In addition to the Project's GRM, communities and individuals who believe that they are adversely affected by a WB supported project may submit complaints to 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 WB's attention, and WB Management has been given an opportunity to respond.

170. For information on how to submit complaints to the WB corporate GRS, visit http://www.worldbank.org/GRS. For information on how to submit complaints to the WB Inspection Panel, visit www.inspectionpanel.org.

VIII. MONITORING AND REPORTING

171. Environmental monitoring is required across all phases of subproject implementation. The monitoring meets two objectives to ensure: (i) that mitigation measures are effective in reducing/managing impacts, and identify corrective actions as required; and (ii) that safeguard requirements are being complied with by the contractor and the implementing agency (on behalf of government).

172. **Pre-construction monitoring**. During the pre-construction phase any gaps in the baseline will be filled. It is in the pre-construction phase where requirements for environmental monitoring in the construction phase can be legally required by placing specific provisions on environmental monitoring in the: (i) subproject specifications, (ii) bidding documents, and (iii) construction contracts. In particular, the CEMP requirement is inserted during the bid documents preparations. Design consultants will prepare the design and tender documents during the pre-construction phase. Relevant aspects of each subproject's EMP shall be incorporated in these documents. The PMU shall verify if these aspects are incorporated in the said documents first during submission of the draft documents and later during submission of the draft final documents.

173. **Construction monitoring**. Contractors are expected to implement the relevant aspects of each subproject's EMP as per their approved CEMP during execution of the construction activities as stipulated in their contracts. The contractors' CEMP will detail the monitoring plan (based on the subproject EMP) with details on staff, resources, implementation schedules, and monitoring procedures (parameters, frequency etc).

174. Compliance with the approved CEMP will be the basis for inspections and audits by PMU and the DSC WB and ADB. The BCD will include provisions requiring the contractor to submit their CEMP which will include a section on monitoring which should be linked to allocation of budget and staff for implementation..

175. **Reporting**. Overall the Project will establish a system of reporting. The contractor will prepare monthly reports which will include a section on compliance with the approved CEMP, corrective actions, training and the like. This will also record any grievances lodged and project communications undertaken by the contractor. The PMU will review and consolidate information from the monthly reports of all subprojects. The quarterly progress report (QPR) prepared by the PMU will include a section on safeguards implementation summarizing the monthly reports (including training and capacity development activities).

176. A semi-annual safeguards monitoring report will be submitted to ADB and WB. This report will be based on the QPR and will include the environmental performance of each subproject/component. An annotated outline of the contents of semi-annual monitoring report is presented in Appendix 4.

APPENDICES

Appendix 1 Solomon Islands International Agreements

Solomon Island has been a party to some international agreements on the principles and actions necessary for sustainable development and environmental protection. This include international agreements with environmental and conservation implications as well as for the protection, promotion and safeguarding of cultural heritage and traditional knowledge.

Regional agreements include: (i) Pollution Protocol for Dumping. Ratified 1998. Prevention of pollution of the South Pacific region by dumping, (ii) Pollution Protocol for Emergencies. Ratified 1998. Co-operation in combating pollution emergencies in the South Pacific region, (iii) Natural Resources & Environment of South Pacific Region (SPREP Convention). Ratified 1998, and (iv) Waigani Convention on Hazardous & Radioactive Wastes 1995. Ratified 1998. Bans the importation and the trans-boundary movement and management of hazardous wastes within the South Pacific region.

International agreements on chemicals, wastes, and pollution include: (i) Liability for Oil Pollution Damage. Ratified. Liability of ship owner for pollution damage, (ii) (Marine Pollution Convention (London). Ratified. Prevention of marine pollution by dumping of wastes, (iii) POPs Convention (Stockholm). 2004. Bans use of persistent organic pollutants.

International agreements on biodiversity include: (i) CITES, ratified 1998. Regulates trade in wild animals and plants, (ii) World Heritage Convention. Acceded 1992. Protection of sites of Outstanding Universal Values, (ii) Desertification (UNCCD). Acceded 1999. Agreement to combat desertification and drought, (iii) Convention on Biological Diversity (UNCBD). Ratified 1995, and (iv) Cartegena Protocol on Biosafety. Acceded 2004. Protection of human health and the environment from possible adverse effects of modern biotechnology.

International agreements on climate change include: (i) Montreal Protocol. Acceded 1993. Phase out of substances that deplete the ozone layer, (ii) Ozone Layer Convention (Vienna). Acceded 1993. Protection of the ozone layer, and (iii) Climate Change (UNFCC). Ratified 1994, and (iv) Kyoto Protocol. Ratified 2003. Reduce greenhouse gases especially CO2 by an average of 5.2% by 2012.

International agreements on culture and cultural heritage include: (i) World Heritage Convention. Acceded 1992. Protection of sites of Outstanding Universal Values. (East Rennelle Island is listed as a World Heritage site), (ii) The Convention for the Safeguarding of the Intangible Cultural Heritage 2003, and (iv) The Convention of the Protection and Promotion of the Diversity of Cultural Expressions 2005.

Appendix 2 - ADB Rapid Environmental Assessment Checklists

Solomon Islands Urban Water & Sanitation Sector Project – Water Supply System

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (SDES) for endorsement by the Director, SDES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title: Solomon Islands Urban Water & Sanitation Sector Project

Sector Division: PARD – PAUS

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area…			
▪ Densely populated?			
▪ Heavy with development activities?			
▪ Adjacent to or within any environmentally sensitive areas?			
• Cultural heritage site			
• Protected area			
• Wetland			
• Mangrove			
• Estuarine			
• Buffer zone of protected area			
• Special area for protecting biodiversity			
• Bay			
B. Potential environmental impacts Will the Project cause…			

Screening Questions	Yes	No	Remarks
▪ pollution of raw water supply from upstream wastewater discharge from communities, industries, agriculture, and soil erosion runoff?			
▪ impairment of historical/cultural monuments/areas and loss/damage to these sites?			
▪ hazard of land subsidence caused by excessive ground water pumping?			
▪ social conflicts arising from displacement of communities ?			
▪ conflicts in abstraction of raw water for water supply with other beneficial water uses for surface and ground waters?			
▪ unsatisfactory raw water supply (e.g. excessive pathogens or mineral constituents)?			
▪ delivery of unsafe water to distribution system?			
▪ inadequate protection of intake works or wells, leading to pollution of water supply?			
▪ over pumping of ground water, leading to salinization and ground subsidence?			
▪ excessive algal growth in storage reservoir?			
▪ increase in production of sewage beyond capabilities of community facilities?			
▪ inadequate disposal of sludge from water treatment plants?			
▪ inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances and protect facilities?			
▪ impairments associated with transmission lines and access roads?			
▪ health hazards arising from inadequate design of facilities for receiving, storing, and handling of chlorine and other hazardous chemicals.			
▪ health and safety hazards to workers from handling and management of chlorine used for disinfection, other contaminants, and biological and physical hazards during project construction and operation?			
▪ dislocation or involuntary resettlement of people?			
▪ disproportionate impacts on the poor, women and children, Indigenous Peoples or other vulnerable groups?			
▪ noise and dust from construction activities?			
▪ increased road traffic due to interference of construction activities?			

Screening Questions	Yes	No	Remarks
▪ continuing soil erosion/silt runoff from construction operations?			
▪ delivery of unsafe water due to poor O&M treatment processes (especially mud accumulations in filters) and inadequate chlorination due to lack of adequate monitoring of chlorine residuals in distribution systems?			
▪ delivery of water to distribution system, which is corrosive due to inadequate attention to feeding of corrective chemicals?			
▪ accidental leakage of chlorine gas?			
▪ excessive abstraction of water affecting downstream water users?			
▪ competing uses of water?			
▪ increased sewage flow due to increased water supply			
▪ increased volume of sullage (wastewater from cooking and washing) and sludge from wastewater treatment plant			
▪ large population influx during project construction and operation that causes increased burden on social infrastructure and services (such as water supply and sanitation systems)?			
▪ social conflicts if workers from other regions or countries are hired?			
▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during operation and construction?			
▪ community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?			

A Checklist for Preliminary Climate Risk Screening

Country/Project Title: Solomon Islands Urban Water & Sanitation Sector Project

Sector:

Subsector:

Division/Department: Pacific Urban Development and Water Division

Screening Questions		Score	Remarks [10]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):

Other Comments:

Prepared by:

[10] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Rapid Environmental Assessment (REA) Checklist
Solomon Islands Urban Water & Sanitation Project

Instructions:

(i) The project team completes this checklist to support the environmental classification of a project. It is to be attached to the environmental categorization form and submitted to the Environment and Safeguards Division (SDES) for endorsement by the Director, SDES and for approval by the Chief Compliance Officer.

(ii) This checklist focuses on environmental issues and concerns. To ensure that social dimensions are adequately considered, refer also to ADB's (a) checklists on involuntary resettlement and Indigenous Peoples; (b) poverty reduction handbook; (c) staff guide to consultation and participation; and (d) gender checklists.

(iii) Answer the questions assuming the "without mitigation" case. The purpose is to identify potential impacts. Use the "remarks" section to discuss any anticipated mitigation measures.

Country/Project Title:	Solomon Islands Urban Water & Sanitation Sector Project
Sector Division:	Pacific Urban Development and Water Division

Screening Questions	Yes	No	Remarks
A. Project siting Is the project area…			
▪ Densely populated?			
▪ Heavy with development activities?			
▪ Adjacent to or within any environmentally sensitive areas?			
• Cultural heritage site			
• Protected area			
• Wetland			
• Mangrove			
• Estuarine			
• Buffer zone of protected area			
• Special area for protecting biodiversity			
• Bay			
B. Potential environmental impacts Will the project cause…			
▪ impairment of historical/cultural monuments/areas and loss/damage to these sites?			

Screening Questions	Yes	No	Remarks
▪ interference with other utilities and blocking of access to buildings; nuisance to neighboring areas due to noise, smell, and influx of insects, rodents, etc.?			
▪ dislocation or involuntary resettlement of people?			
▪ impairment of downstream water quality due to inadequate sewage treatment or release of untreated sewage?			
▪ overflows and flooding of neighboring properties with raw sewage?			
▪ environmental pollution due to inadequate sludge disposal or industrial waste discharges illegally disposed in sewers?			
▪ noise and vibration due to blasting and other civil works?			
▪ discharge of hazardous materials into sewers, resulting in damage to sewer system and danger to workers?			
▪ inadequate buffer zone around pumping and treatment plants to alleviate noise and other possible nuisances, and protect facilities?			
▪ social conflicts between construction workers from other areas and community workers?			
▪ road blocking and temporary flooding due to land excavation during the rainy season?			
▪ noise and dust from construction activities?			
▪ traffic disturbances due to construction material transport and wastes?			
▪ temporary silt runoff due to construction?			
▪ hazards to public health due to overflow flooding, and groundwater pollution due to failure of sewerage system?			
▪ deterioration of water quality due to inadequate sludge disposal or direct discharge of untreated sewage water?			
▪ contamination of surface and ground waters due to sludge disposal on land?			
▪ health and safety hazards to workers from toxic gases and hazardous materials which may be contained in confined areas, sewage flow and exposure to pathogens in untreated sewage and unstabilized sludge?			
▪ large population increase during project construction and operation that causes increased burden on social infrastructure (such as sanitation system)?			
▪ social conflicts between construction workers from other areas and community workers?			

Screening Questions	Yes	No	Remarks
▪ risks to community health and safety due to the transport, storage, and use and/or disposal of materials such as explosives, fuel and other chemicals during construction and operation?			
▪ community safety risks due to both accidental and natural hazards, especially where the structural elements or components of the project are accessible to members of the affected community or where their failure could result in injury to the community throughout project construction, operation and decommissioning?			

A Checklist for Preliminary Climate Risk Screening

Country/Project Title: Solomon Islands Urban Water & Sanitation Sector Project

Sector:

Subsector:

Division/Department: PARD/PAUS

Screening Questions		Score	Remarks[11]
Location and Design of project	Is siting and/or routing of the project (or its components) likely to be affected by climate conditions including extreme weather related events such as floods, droughts, storms, landslides?		
	Would the project design (e.g. the clearance for bridges) need to consider any hydro-meteorological parameters (e.g., sea-level, peak river flow, reliable water level, peak wind speed etc)?		
Materials and Maintenance	Would weather, current and likely future climate conditions (e.g. prevailing humidity level, temperature contrast between hot summer days and cold winter days, exposure to wind and humidity hydro-meteorological parameters likely affect the selection of project inputs over the life of project outputs (e.g. construction material)?		
	Would weather, current and likely future climate conditions, and related extreme events likely affect the maintenance (scheduling and cost) of project output(s) ?		
Performance of project outputs	Would weather/climate conditions, and related extreme events likely affect the performance (e.g. annual power production) of project output(s) (e.g. hydro-power generation facilities) throughout their design life time?		

Options for answers and corresponding score are provided below:

Response	Score
Not Likely	0
Likely	1
Very Likely	2

Responses when added that provide a score of 0 will be considered low risk project. If adding all responses will result to a score of 1-4 and that no score of 2 was given to any single response, the project will be assigned a medium risk category. A total score of 5 or more (which include providing a score of 1 in all responses) or a 2 in any single response, will be categorized as high risk project.

Result of Initial Screening (Low, Medium, High):
Other Comments:

Prepared by:

[11] If possible, provide details on the sensitivity of project components to climate conditions, such as how climate parameters are considered in design standards for infrastructure components, how changes in key climate parameters and sea level might affect the siting/routing of project, the selection of construction material and/or scheduling, performances and/or the maintenance cost/scheduling of project outputs.

Appendix 3 - Outline of an Environmental Assessment Report

This outline is reproduced from ADB' Safeguards Policy Statement 2009 (SPS*)* to provide guidance on the preparation of the required category B assessment and reporting. The outline will produce a PER under Solomon Islands' CSS with additional elements as required to also comply with the SPS.

A. Executive Summary
This section describes concisely the critical facts, significant findings, and recommended actions.

B. Policy, Legal, and Administrative Framework
This section discusses the national and local legal and institutional framework within which the environmental assessment is carried out. It also identifies project-relevant international environmental agreements to which the country is a party.

C. Description of the Project
This section describes the proposed project; its major components; and its geographic, ecological, social, and temporal context, including any associated facility required by and for the project (for example, access roads, power plants, water supply, quarries and borrow pits, and spoil disposal). It normally includes drawings and maps showing the project's layout and components, the project site, and the project's area of influence.

D. Description of the Environment (Baseline Data)
This section describes relevant physical, biological, and socioeconomic conditions within the study area. It also looks at current and proposed development activities within the project's area of influence, including those not directly connected to the project. It indicates the accuracy, reliability, and sources of the data.

E. Anticipated Environmental Impacts and Mitigation Measures
This section predicts and assesses the project's likely positive and negative direct and indirect impacts to physical, biological, socioeconomic (including occupational health and safety, community health and safety, vulnerable groups and gender issues, and impacts on livelihoods through environmental media [Appendix 2, para. 6]), and physical cultural resources in the project's area of influence, in quantitative terms to the extent possible; identifies mitigation measures and any residual negative impacts that cannot be mitigated; explores opportunities for enhancement; identifies and estimates the extent and quality of available data, key data gaps, and uncertainties associated with predictions and specifies topics that do not require further attention; and examines global, transboundary, and cumulative impacts as appropriate.

F. Analysis of Alternatives
This section is not required for an IEE.

G. Information Disclosure, Consultation, and Participation
This section: (i) describes the process undertaken during project design and preparation for engaging stakeholders, including information disclosure and consultation with affected people and other stakeholders;

(ii) summarizes comments and concerns received from affected people and other stakeholders and how these comments have been addressed in project design and mitigation measures, with special attention paid to the needs and concerns of vulnerable groups, including women, the poor, and Indigenous Peoples; and

(iii) describes the planned information disclosure measures (including the type of information to be disseminated and the method of dissemination) and the process for carrying out consultation with affected people and facilitating their participation during project implementation.

H. Grievance Redress Mechanism
This section describes the grievance redress framework (both informal and formal channels), setting out the time frame and mechanisms for resolving complaints about environmental performance.

I. Environmental Management Plan
This section deals with the set of mitigation and management measures to be taken during project implementation to avoid, reduce, mitigate, or compensate for adverse environmental impacts (in that order of priority). It may include multiple management plans and actions. It includes the following key components (with the level of detail commensurate with the project's impacts and risks):

(i) Mitigation:
(a) identifies and summarizes anticipated significant adverse environmental impacts and risks;
(b) describes each mitigation measure with technical details, including the type of impact to which it relates and the conditions under which it is required (for instance, continuously or in the event of contingencies), together with designs, equipment descriptions, and operating procedures, as appropriate; and
(c) provides links to any other mitigation plans (for example, for involuntary resettlement, Indigenous Peoples, or emergency response) required for the project.

(ii) Monitoring:
(a) describes monitoring measures with technical details, including parameters to be measured, methods to be used, sampling locations, frequency of measurements, detection limits and definition of thresholds that will signal the need for corrective actions; and
(b) describes monitoring and reporting procedures to ensure early detection of conditions that necessitate particular mitigation measures and document the progress and results of mitigation.

(iii) Implementation arrangements:
(a) specifies the implementation schedule showing phasing and coordination with overall project implementation;
(b) describes institutional or organizational arrangements, namely, who is responsible for carrying out the mitigation and monitoring measures, which may include one or more of the following additional topics to strengthen environmental management capability: technical assistance programs, training programs, procurement of equipment and supplies related to environmental management and monitoring, and organizational changes; and
(c) estimates capital and recurrent costs and describes sources of funds for implementing the environmental management plan.

(iv) Performance indicators: describes the desired outcomes as measurable events to the extent possible, such as performance indicators, targets, or acceptance criteria that can be tracked over defined time periods.

J. Conclusion and Recommendation
This section provides the conclusions drawn from the assessment and provides recommendations.

Appendix 4 - Outline of Semiannual Safeguards Monitoring Report

(annotated)

I. EXECUTIVE SUMMARY

Short summary of the following items: (i) Summary of EMP/RP Implementation; (ii) Description of monitoring activities carried out (e.g. field visits, environment effect monitoring, survey questionnaire, public consultation meetings, focus group discussions, etc); (iii) Key issues, any corrective actions already taken, and any grievances; (iv) Key activities planned in the next reporting period; and (v) Recommendations

II. PROJECT OVERVIEW, GENERAL SAFEGUARDS MATTERS

1. Project Overview

2. Project Progress

(Using the most recent project progress report, describe status of project implementation, including full list of contracts, status of contract awarding and implementation, name of contractor, Engineer, Project Supervision Consultant)

3. Safeguards Plans Implementation Arrangements

(Describe institutional arrangements and responsibilities for EMP and RP implementation, internal and external monitoring, and reporting, defining roles of PMU, Engineer, Implementation Consultant, Contractors)

4. Updated EMPs and RPs, Incorporation of Safeguards Requirements into Project Contractual Arrangements

(Define manner by which EMP and RP requirements are incorporated into bidding documents, contracts. Indicate when updated EMPs and RPs were submitted for approval to ADB (Table format appropriate)

III. ENVIRONMENTAL PERFORMANCE MONITORING

1. Status of EMP Implementation (Mitigation Measures)

(Summarize main mitigation/protection measures implemented in the reporting period (narrative section). Structure in accordance to phases (detailed design, construction preparation, construction, and operation; Include EMP table or updated EMP table if applicable. Assess compliance of environmental management activities with the original or updated EMP. For that purpose, include additional columns entitled “Compliance Status”, "Comment or Reasons for Non-Compliance", and "Issues for Further Action".)

2. Health and Safety

(Provide narrative of occupational and community health and safety issues that occurred during the reporting period. Any accident involving injury or death of workers or community

members must be reported. Include investigation report of DOLISA as attachment to the report. Provide details in tabulated form)

3. Environmental Effect Monitoring

Monitoring Plan. (Present the environment effect monitoring plan as defined in the EMP or the updated monitoring plan. Describe monitoring responsibilities)

Monitoring Activities in the Reporting Period. (Describe the environment effect monitoring activities in the reporting period, including number of monitoring campaigns, number of samples, etc. Confirm compliance with the monitoring plan, or justify any deviation from the plan)

Present monitoring result in a tabulated form. Any non-compliance should be highlighted for attention and follow-up.

Assessment. (Compare monitoring results with baseline conditions (if baseline data is available) and relevant government standards in qualitative terms. Additional explanatory comments should be provided as necessary. Possible reasons for non-compliance should be identified).

IV. INVOLUNTARY RESETTLEMENT PERFORMANCE MONITORING

(Provide narrative of status of implementation of the RP(s), including but not limited to: status of RP or Resettlement Framework updating; number of households relocated during the reporting period; outstanding resettlement activities; etc).

V. COMPLIANCE WITH SAFEGUARDS RELATED PROJECT COVENANTS

(List all environment and resettlement related loan covenants, and assess project's compliance with the covenants (Table format is appropriate, with concluding statement on compliance, partial compliance or non-compliance, and corrective actions as needed).

VI. PUBLIC CONSULTATION, INFORMATION DISCLOSURE, CAPABILITY BUILDING

(Describe public consultation activities during the reporting period. Confirm compliance with consultation plan defined in the IEE/EMP and the RP(s), or justify deviation from these plans. Present planned consultation activities in next reporting period. Use Tables as appropriate).

VII. GRIEVANCE REDRESS MECHANISM

(Describe mechanisms established to address and redress public complaints and grievances related to social and environment safeguards. Summarize grievances received, if any, and measures implemented to redress them).

VIII. CONCLUSION

(Highlight important results from the implementation of EMP and RP monitoring; recommendations to improve EMP and RP management, implementation, and monitoring; key activities planned in next reporting period).

ATTACHMENTS

(consents / permits, monitoring data (water quality, air quality, etc.), photographs, etc.)

Appendix 5 - Stakeholder Consultation Meetings in Honiara

Minutes of the Initial Public Consultation and Information Disclosure held at Star Events, Tongs Building, Point Cruz, Honiara City, 13 July 2018

Opening/ Presentations:

The public consultation started at 9:30 A.M with Ian Gooden, SW's General Manager, welcoming the participants and encouraged them to participate actively in the meeting. He gave a brief presentation regarding the proposed project. This was followed with a presentation by Mark Waite, SW's PMU, on SW's strategic plan and information regarding the Solomon Islands Urban Water Supply and Sanitation Development Sector Project. The PPA consultants presented the details of each proposed subproject. The participants were informed that this is only an initial public consultation and SW will conduct more consultations in the future.

Comments, Views, Issues and Concerns

Comment and Question No. 1. Dennis Meone, Chief Executive Officer, Solomon Islands Chamber of Commerce and Industry (CEO, SICCI)

Dennis had three points to make:

1) That the Information in the presentations be dispersed and made available to the wider public. For example, SICCI has 200 members, therefore it (SICC) is an avenue through which information can be channelled and made available to its members.

Information such as the next phase of the project should be made known and available, specifying who might be directly affected by any new infrastructure Solomon Water plans to install in Honiara. e.g. digging of drains or laying of pipes. Some members of the Chamber and the Business Community might or will be directly affected so these are the types of Information Dennis thinks should be made available to SICCI members so they can plan accordingly to accommodate these future changes.

2) His second point was a concern about the road works. The road is currently being constructed and improved. Should new infrastructure be laid, will it mean laying pipes across the newly built road?

The answer to that concern was that any new infrastructure laid will be alongside the road, not across it and if it requires crossing the road, that it will be underneath the road, not directly across the road.

3) Dennis would like Solomon Water to share any of its initiatives in any of the phases with SICCI so these can be shared to the Business community and the Private sector.

Comment and question No. 2. Charles Kelly, City Clerk, Honiara City Council (HCC)

Charles is optimistic and hopeful that the study currently being undertaken will not end up being shelved as some other past studies have been done. From the presentations, he is able to discern that ADB, EU and World Bank are interested and if that interest continues, it will have a positive impact on the City and the Council.

Charles thinks there is a lot of work to do regarding the logistics. At this stage however, he has not laid eyes on any plans regarding logistics yet.

However, there is much to do in the city right now. The City is growing very fast and rapidly and the more people there are, the more problems and challenges they will bring. For example, more people means more people needing more water to drink and more water to use.

Charles is of the opinion that the HCC needs to be more involved in the logistics and the plans of construction and looks forward to seeing the Council being more involved right up until the completion of the Solomon Water project.

Something worth considering is how these plans will affect the greater Honiara. The city is moving eastwards as more people shift and build towards the east. The greater Honiara has been mapped and marked.

One of the issues as more people move and shift eastwards will be the issue of provision of Water for all these people.

However, within the city itself, people are not accessing water. Some of the people are still collecting water from boreholes, even though they have already been living in these areas for the last ten to twenty (10 to 20) years. (*So how do you plan to address the issue of water in the greater Honiara especially as the city grows and shifts towards the east, if the issue of access to water within the city itself is still not being addressed?)*

Part of the study shows this can be improved on.

Charles would like to see more flexibility in the current Solomon Water (Solomon Islands Water Authority) SW)) policy especially with regards to allowing more people to have access to water. The current Policy states one must be the owner of a piece of land or one must have title to the land before water is made accessible. Because of these stringent policies, many people are not able to access water. For example, people who live in informal settlements such as Gilbert Camp and the Border line area and communities have been living in these settlements for the last 10 to 20 years and they are still collecting water from streams. They have been continually approaching HCC to support their requests and pleas for more access to piped water. Although these may be minor points, Charles hopes Solomon Water will take these minor points into account so that a document that is more practical and workable will be produced.

The City Clerk also looks forward to the Waste Water treatment plant. In the presentations, it was identified where the Outfalls are and the City Clerk now realises that the whole city does not know but that the whole sea-front in front of Honiara is 100% polluted. Yet People are still using the sea water to wash their fish.

The solution to these challenges would be through improved technology and although it is going to be an expensive exercise, the City clerk hopes ADB, EU and the World Bank will be able to resolve the challenge of pollution through the construction of a Waste- Water Treatment Plant.

Answer Mark Waite Project Manager- Project Management Unit- Solomon Water

Mark thanked Charles Kelly for his comments and mentioned that there is a plan to construct a Waste Water treatment plan but it will be later in the project, not in the first five years of the strategic plan.

Ian Gooden- General Manager Solomon Water

Ian agreed with Charles on the fact that people have been using creeks and streams for many years. However, he has also noticed in his many walks through parts of the city that people have been siphoning off water through little pipes and gadgets connected to the main pipes.

From Ian's observations, one of the biggest problems and challenges Solomon Water faces is that people generally are reluctant to pay for water and rather expect water to be delivered freely. Should people want free water, they will have to collect it themselves from the streams using their buckets but if they want Solomon Water to pump the water, treat it and deliver it to their houses, they will have to pay for the added service

He has noticed though that most people are able to afford to pay for water, because when they make calls to complain about their water disconnections, they are using a cell phone to make the call. So it seems as if they are prioritising buying cell phones over paying water for their families because they are able to purchase a cell phone but are not prepared to pay for water which they would rather steal. This is quite a big and challenging issue which Solomon water is confronted with.

The Solomon Water Communications team headed by Michelle will be communicating the message to people and letting them know that, ''People who steal water are actually stealing money from you and I because we are subsidising and paying for that water for them! It is therefore, the paying customer/client who ends up paying more as a result of people stealing water from illegal water connections."

In addition to what Mark had rightly said with regards to the waste water, Ian added that future Outfalls will be extended further out into the ocean where there is more ocean currents which will take the effluent away and give better flushing and dilution. Screens will also be put on the outfalls to screen out plastics and larger solids so that the actual biological loading into the ocean is reduced.

While the construction of the wastewater treatment plant is still many, many years away, the upgrades planned for the pump stations will have a major effect on the quality of the effluent. Because the Outfalls will be extended further out, it means the effluent will not be coming back on to the foreshore and we should be expecting these significant improvements within a year or two.

The City council has planned the city into zones with conditions on building sites for people to adhere to. The SW General Manager sought the support of the City Clerk in enforcing legislation and managing the water catchment areas in the city.

For example, Solomon Water has a catchment area in Panatina and another one in the Rove area. SW has not been actively managing and enforcing legislation in these areas but if they are to start activating legislation, they will be evicting people from these areas. There will be no point in building a house with a septic tank quite close to a bore hole because there will be direct contamination of the water source/table. It will be in enforcing the legislation around the management of the boreholes and water sources that SW is seeking the support of the City Clerk and the Honiara City Council.

With regards to Informal settlements, Solomon Water is seeking solutions as to how it could be more inclusive and accommodating of these areas. Donors such as the European Union and the ADB are showing particular interest in Solomon Water's approach.

One of the major challenges Solomon Water has encountered with informal settlements is people refusing to pay their water accounts and bills. For example, two years ago, Solomon Water officers were chased out of Burns Creek and threatened with weapons because they had gone into the area to disconnect water metres from lack of payment of bills. A lot of Solomon Water infrastructure was also smashed and damaged. For safety purposes, Solomon Water has had to withdraw their services from the area but are still optimistic and if settlers in the Burns Creek area have a changed attitude and are willing to pay for Solomon Water's services, Solomon Water is open to further discussions and negotiations.

A probable solution to the above challenge in informal settlements would be to install Cash water. Similar to Cash Power and the use of cell phones, people disconnect themselves when they choose not to pay for top ups. It would therefore be a case of, No top up for cash water, no water!!

Solomon Water has found though, that people use less water and are a lot more conscious of the cost of water when they have to pay for Cash Water. Everyone including the 'wantoks' and relatives in the house can all chip-in, each contributing $50.00 to buy more water if the water stops. This will work better than paying for water through a water metre in which users will keep using the water and just taking it for granted until they have accumulated an account of say $5000.00 which they will not be able to pay. In the long run, installing Cash water would be a win-win situation for everyone.

The SW General Manager again appealed to the City Clerk and the Lord Mayor to communicate, collaborate and work together with SW in dealing with and managing people in the informal settlements. If there were less people in the informal settlements or if SW had more control over how the informal

settlements are developing and growing, or even if the settlers could be moved to formal settlements, SW would be able to work better to supply water.

Question and Concern 3- by Andrew Mua, Mayor of Honiara City Council

The Mayor of Honiara City Council had three points and concerns to raise.

1. The Mayor is concerned that the Sea in front of Honiara is totally contaminated and he feels that Solomon Water is ignoring the pollution of the sea in front of the city. Although it is polluted, people continue to use the sea water to wash fish that is being sold in the main Honiara market including fish sold at the Fishing village market. HCC usually carries out sampling of the sea water every two days and it has been proven over and over again that the sea water is 100% contaminated.

Due to this concern, the Mayor is asserting that rather than waiting for five years before constructing the Sewerage Treatment Plant or delaying the construction of one until the second Phase of the project, he would like to see that Solomon Water sees it as Priority to install a simple sewage treatment plant with extended outfalls further out to sea that will help to alleviate the current polluted waterfronts. He asserts that Solomon Water is ignoring the pollution caused along the sea front for example the Kukum sea front that is polluted by effluent from the GG's valley right down to Naha out into the Kukum sea front. So what he is asking for is not to wait for the second phase before constructing the Sewerage treatment plant but to prioritise it during the first phase and to deal with what is a prevalent health challenge and risk right now.

2. Secondly, the Mayor is concerned about the cutting of the road again if new infrastructure is constructed under the Solomon Water project. Two years ago, there were some consultations on the construction of the road and if Solomon Water had come on board then, there would have been some understanding by everyone as to where the new infrastructure under the Solomon Water could be installed. The mayor asserts that all the damage to the roads in Honiara are done by three (3) companies, SW (Solomon Water), Telekom and SIEA (Solomon Power) and this all the way to Didao refilling station.
3. If everyone puts their heads together and these future developments are mapped out by all stakeholders and partners, there would be less damage done. Currently HCC does not have the machines to repair roads that are being dug up to make way for new infrastructure such as laying down of new pipes.
4. The Mayor's third concern is that Solomon Water activate and enact the Solomon Islands Water Authority (SW) Act. The General Manager of Solomon Water raised the issue of where SW is going to put in bore holes but to the Mayor's knowledge, he has not seen Solomon Water enforcing the SW Act which is a very powerful Act specially to evict people who build close to the bore holes. All the Mayor has seen is the disconnection of water metres in times of no payment of water. He uses the example of the Botanical Gardens where the Honiara City Council has moved in and demolished houses built in that area because they are too close to the water source. However, it was easy for HCC to do that because HCC had jurisdiction, title and ownership over the area so they were able to move in and enforce the demolition of houses and move people elsewhere. In like manner, the Mayor would like SW to take authority and enforce the SW Act especially in the Panatina Area that SW has title and ownership.
5. The Mayor's fourth concern was that he thinks the cost of the Consultancy and the Project package for the Project Management Unit is almost as much as much as the future project itself. So in his opinion, these would have been funds better utilised for the project itself.

Answer from Ian Gooden, General Manager (GM), Solomon Water (SW)

Solomon Water is doing the best it can with the resources it has. The GM showed his appreciation over the specific directives outlined by the Lord Mayor and conceded that there is contamination of the sea

water with some of the outfalls. (The GM showed on a map, the areas SW is responsible for in the city, about a 1/4 of the total city) whereas the rest of the city is either on septic tanks, long drops, open defecation and use of the bush.

The GM pointed out firstly, that streams and rivers in the city have become brown and black due to contamination from pig pens built over rivers and streams and secondly, from all the houses that have very poor septic tanks and exacerbated by the geology of the city which does not attenuate effluent well.

He acknowledges that in some areas, Solomon Water is putting in more sewage, but there is a very large area, about 80% of the city made up of the domestic parts of the city which is contaminating the river and the water courses as well.

Solomon Water is trying, over time, to improve the collection of sewage in the areas its work is based in, for example, in the Rove area. Rove is still not up to standards yet, but SW is trying to pump the Sewage from Rove to the foreshore right next to the cinema and it will eventually find its way to Point Cruz. Eventually, the Outfalls will be extended further out into the sea which will enable better flow and dilution.

At the moment, Solomon Water is financially constrained and it is trying to negotiate an increase in its fees with the government but this will take a couple of months. An increase in the fees would enable SW to make more improvements because at the moment, SW is absolutely reliant on donors and its own small contributions. The other areas which are priority to Solomon Water are the Tuvaruhu and the Vara Creek areas in which there is direct discharge of sewage into the Mataniko River.

Question and Comment No.4 by Henry from Climate Change, Ministry of Environment

Henry's concern was about the Sewage. Henry understands, 15% of the population living in Honiara already have access to running water.

As for sewage, it is the first time Henry has heard of the Sewage Treatment Plant that Solomon Water operates and that there is a central point of collection for sewage. As far as Henry knows, all the houses he has ever lived- in in Honiara, (and he has moved four houses since he has lived in Honiara), only use local septic tanks built purposely for those houses and not connected to any main sewage lines.

His question was whether there will be plans or future regulations for every single house in Honiara to be connected to the main sewage treatment plant? Does Solomon Water, in the future, plan to increase the number of people connected to the main sewage treatment plant?

Answer- Ian Gooden

Thirty percent (30%) of the city's population will be connected to the Sewage Treatment Plant. At the moment, Solomon Water's area of responsibility is relatively small in terms of the entire city and will increase to about 30% of the total city while the rest will be the responsibility of the Honiara City Council. While it may be small area, Solomon Water is still seeking the support of the City Council. Over time, responsibilities might change but currently, that is where SW responsibilities are.

Part of the project includes some septage facility which Mark has mentioned, but most of the city will use septic tanks which is the responsibility of the City Council to monitor and manage. Septic tanks will need regular cleaning which people need to pay for. If a septic tank is not cleaned out, the overflow will seep out and be discharged into the ground, and into the streams. In Honiara, the septic system is further excercebated by its topography and geology, made up of coral rock which is not permeable and does not provide good biological treatment and attenuation.

Ian explained that with a septic system, a septic tank is constructed and fitted with pipes about two feet long and extended into the ground. It is covered with gravel all around and is shallow, enabling aeration and oxygen flow which allows bio-film and bugs to grow. When effluent comes into the septic tank at a very low rate, the bugs will eat the sewage.

The septic tanks built in Honiara are usually constructed with an end chamber at the bottom with no disposal fuel which will allow for vaporization and transpiration. When the effluent is discharged into the septic tank, it goes directly into the ground and because the coral rock does not attenuate it, the waste water finds its way into the water course. This is the reason why Solomon Water is very concerned about human development taking place near its boreholes.

Question and Comment No.5 by Mike from Ministry of Industry and Development (MID)

Mike had three (3) comments to make:

Mike wanted more knowledge about Solomon Water's 30 year Strategic plan because he now understands that most of the infrastructure and contractors will be working along the main highways. Similarly, MID has plans for the next 10 years and Mike wonders whether Solomon Water plans to do the construction within the next ten (10) years.

The new highway being constructed is from the Honiara City Council to the Ministry of Fisheries at Kukum. The next phase of improvement will be from Ministry of Fisheries to the Airport after the development of the new International Airport which will be in three to four years' time. MID has initiated talks with ADB about funding a project for the improvement of the road from the roundabout at the Ministry of Finance right up to White river on which a new four (4) lane road is being planned.

If all these plans, (MID's plans as well as Solomon Water's plans) can be better coordinated, the work could be implemented at around the same time frame so that issues such as relocation can be avoided. MID has learnt from past experience and with the current road works that a big chunk of money has been spent just for relocation and reacquisition of land, which has been quite a considerable cost to the government and for which MID is still carrying the cost now.

If MID is aware of Solomon Water's 30 year Strategic plan, especially of future activities being planned, MID can also align their work plans and programmes with Solomon Water's. It will save MID having to lay down infrastructure and later having the infrastructure being dug up by Solomon Water when it needs to construct and lay its own infrastructure.

As the Mayor has pointed out when he mentioned the new section of road from the HCC roundabout to the Ministry of Fisheries in Kukum, the type of material being used on the road is not available here, so it will be a big challenge to repair and clean up the mess if it is dug up later after it has been newly constructed and completed. Access to Solomon Water's 30-year Strategic plan will enable MID to coordinate its work plans and programmes together and in tandem with each other. The life span of the currently constructed road will be from ten (10) to twenty (20) years so MID and Solomon Water all need to think along the same lines to avoid future costs and challenges.

Mikes second point was on the Outfall and Sewage. He is aware of local planning schemes being put together by Honiara City Council, Ministry of Lands and the Guadalcanal Province.

Mike wants to know whether Solomon water is aware that the location for the proposed site for the Outfall in Rove is being planned for a recreational area. It would not be very pleasant to have an outfall located next to a planned recreational site so Mike is asking if these plans have been considered by Solomon water as they plan where to locate the Outfalls.

Mike's third concern was about the sewage line that is being planned to run from Tuvaruhu, Vara creek the Mataniko area and connect to the National Referral Hospital Pump station. His concern is about the China Town area and whether it can be included along the way with the Mataniko and Vara Creek areas. It is a commercial area with lots of activities happening in its location and vicinity. Currently, most of the rubbish and solid waste from this area is being dumped in the Mataniko River creating an environmental hazard. Mike therefore, would like to see that China Town is captured along with Tuvaruhu, Vara Creek and Mataniko with the main sewage line that will be connected to the National Referral Hospital pump station.

Answer- Ian Gooden

Ian expressed his appreciation for Mike's comments about the road interment and also acknowledged the Lord Mayor's comments on the subject as well.

He shared his experience in working with a big roading company in New Zealand and agreed from experience, that the biggest problems his company encountered was from Water, Electricity, Telekom and companies digging the road especially if they have to dig across or over the road. If they dug along the road it was not too bad, but when they cross the road, it might mean some interment.

Ian does not want Solomon Water to dig up the brand-new road in the next twenty five years. If there is a need to place pipes across the road, a tunnel dug underneath the road will probably be the best solution. Pipes can be pushed underneath the ground using a technique called the "Thrust." Solomon Water will do all it can to protect the road.

In the Rove Area, there are Sewage main trunks that will run from Rove to Point Cruz and Solomon Water will certainly be working with MID in advance on this. If there are pipe lines that Solomon Water needs to install in future, they will have them prepared for when the MID road project will be concentrated in the Rove area to White river area so that Solomon Water does not need to come back to work in the area after MID has done the work but the two organisations can complete the work together.

With regards to the China town area, Solomon Water will look more into the issue and could pick up areas along the way but currently, these areas of responsibility come under the Honiara City Council to manage.

Question and comments No. 6, by Charles Kelly, HCC Clerk.'

HCC is in the process of reviewing its City Council Building Ordinance which was developed thirty (30) years ago. It is still being used but the council wants to improve on it by inserting a Risk and Disaster Assessment clause. In particular, the current Building Ordinance lacks a Risk Assessment regarding Water. For example, building on the slopes or building too close to river beds and so forth. The Ordinance is silent on the system and process of water and the risks of contamination.

SW is on the Town and Country Planning Board and a member of SW usually attends the Board meetings. As the Building Ordinance is in the process of being reviewed, the HCC Clerk would like SW to contribute to improving the Building Ordinance by working in partnership with HCC in strengthening and improving the Ordinance. If HCC and SW can work together in partnership, they could come into agreement and be on the same page on whether those planning to build are meeting the criteria or not meeting the disaster risk assessments. If anyone does not meet all the Risk Assessments, then they will not be issued with permits to build. It would be ideal if SW and HCC could forge a partnership to achieve this.

The other concern the City Clerk has is the issue of Public toilets which is not enough for the city. Because of lack of land, there are not enough Public toilets being built. The City Clerk is appealing to Solomon Water to work with HCC to identify land so that more public toilets can be built. He reiterated, the more people there are, the more problems there are to be dealt with.

Question and Comment No. 7, by Kenneth, Property Manager, Solomon Islands National University, (SINU)

Kenneth emphasised the importance of Water quality and that the quality of water will be an issue as more students are enrolled and accommodated at the Solomon Islands National University (SINU).

In a Student Protest which took place earlier in the year, one of the issues highlighted in the student's petition presented to the SINU Management was the quality of water in the students' hostels. It is an important issue because the quality of water will have impacts on the health of the students.

The second issue for Kenneth is about land. Kenneth mentioned development because he had sighted the communications about using SINU land. He asserted that he is aware of Solomon Water's proposal

to use SINU land under the Solomon Water Project. However, if Solomon Water is interested in using SINU land, both SINU and Solomon Water need to continue with discussions because both SINU and Solomon Water each have their own plans. More discussions will enable both organisations to coordinate and align each other's plans together so that both are on the same page, otherwise, it will end up in a situation where each organisation just gets on with its own plans which would not be to the advantage of both.

His third point was on Sewage. Currently, the houses and buildings on each of the three SINU campuses, Panatina, Ranadi and Kukum are all using septic tanks connected to each building. However, SINU is interested in Solomon Water's future plans of linking the sewage to a Waste Water Treatment plant and that SINU would consider being linked to the sewage treatment plant as well.

Ian Gooden (answer)

It was clarified that the water quality being referred to by Kenneth was about the piped water coming into the houses.

Ian explained that once the water goes though the water metre on to other people's property Solomon Water cannot guarantee the quality of water.

Even water collected from roofs into tanks could be dirty, however, the water provided at the water metre by Solomon Water meets World standards at about 98% of the time. Water supplies in Honiara from the Kongulai water source are chlorinated and Solomon Water is doing some extra work to improve the quality. This is because when it rains, the Kongulai water source gets some sediment and silt so it has to be shut down. Although it sounds silly, the water supply is shut down when it rains because the Kongulai gets dirty including over Kobito as well for the same reason. Solomon water is considering putting in filters on the Kongulai water supply, so water can be supplied at twenty four hours a day.

However, Solomon Water does test and monitor the quality of the water. The Ministry of Health also does a bit of testing on the water so generally, about 98% of the time, Solomon water meets the World Health Standard in terms of e-coli and coliforms which may cause stomach aches and problems. So generally, Solomon Water is compliant with World Health Standards.

Solomon Water has a separate dedicated water quality team whose only role is to manage the water quality. If there is any concern by the Solomon Islands National University (SINU) on the quality of water, SINU can approach SW who could conduct some tests on SINU's property and locations and identify where the source of the problem might be.

Kenneth mentioned that tests had been done on the water in preparation for the Melanesian Arts festival, and the Police who did the tests found the water was very clean.

Question and concerns, no. 8, by Janet Tuhaika from the National Council of Women (NCW)

Janet's concern was that information presented by Solomon Water needs to be communicated across to all levels of the community/society especially to the ordinary household.

Although Janet has been living in Honiara for many years, much of the information presented is new to her and is quite technical. Janet though, is better educated and literate than most of those in her community. It is these ordinary people who really need to understand the information being presented so they will be able to appreciate not only the work that SW is doing but also the challenges that SW faces in trying to provide water.

In Janet's opinion, it is the issue of Access and Affordability to clean water that are major issues. A number of people in her community usually buy bottled water for drinking from the shops because they do not trust the water that comes from SW.

Janet also understands that SW has had issues with the Kongulai water source which is sometimes shut down by the land owners. Water source shut downs affect people, so how will the project address these issues? Janet reiterated again the issue of Access and Affordability because it affects the communities and she hopes the issues highlighted will be addressed by the sub-projects mentioned in the presentation.

Ian Gooden- Answer

Ian explained that it is the heavy rain catchment that usually affects the quality of water as the water gets dirty.

In terms of the Konguali source, Solomon Water has been facing land issues at Kongulai and if the Lunga plant water source is up and running or is in operation, Kongulai may have to be shut down because of the land issues. Solomon Water has experienced issues with the land owners but if they are interested in providing an ongoing solution, then Solomon Water might be prepared to continue using that water source.

Solomon Water has also had lengthy discussions and representations with the Government and its various Ministers. It has been working with the Ministry of Land to actually hold the lease to Kongulai which is currently leased by the government through the Ministry of Lands. Land ownership over water sources is a contentious issue and is the same with all Solomon Water's sources such as in Ziata in Noro, Tulagi and most of the places in which Solomon Water does not own the land. Solomon Water is working with the government to resolve these issues but it is a slow process and will take time to finalise.

Questions and concern no. 9, by Debra from the Ministry of Environment

Debra noted that the Solomon Water project will have impacts on the environment and she emphasised the importance of the project to include an Environmental Impact Assessment (EIA).

Other issues of importance highlighted by Debra are the legal requirements of obtaining land ownership and land issues as these will be of importance in considering where infrastructure will be constructed.

Answer Ian Gooden

Ian thanked Debra for raising the issue and reassured Debra that the Environmental Impact Assessments and the legal requirements in obtaining land ownership will be closely adhered to.

Question and Concern No.10 by Charles Kelly

Charles understands that although the project is a National Project the discussions have been very Honiara focused and there has been little mention of other towns outside of Honiara. He wants to know if the project mentions towns such as Noro, Auki and so forth. Charles also wants to know how much has been allocated to improve access to water in the other towns.

Charles also wants to see more tangible outcomes as he thinks there is sometimes too much talk and discussion on the process but little on deliverables and tangible outcomes.

Ian Gooden- Answer

Ian thanked Charles for his comments and remarked that Solomon Water is also interested in ensuring more action takes place. To this end, Solomon Water's first physical works and contracts will be based in Auki which Solomon water will be conducting within the next two months.

With regards to the construction of waste water plants, there is secure funding from European Union which has been available for the last three years. Secondly, Funding from ADB has also been secured

and confirmed but it still needs to be signed off by the Government as the Government will be the entity overseeing/managing the funding. Some of that funding will be in the form of loans and some will be in grants.

Thirdly, Solomon Water has also been assured of the World Bank funding facility. It is not much and Solomon water will be going back to them in three years' time during WB's next funding cycle to seek more funding.

I do not want to make promises and assurances that I will not be able to carry through but since I have been here for the last three years, I have been able to deliver on some of the things I said I would deliver. I am therefore assuring you today, that I will be here for the next three years, so you are stuck with me!!But I can assure you we will do everything we can to get these projects into action, so that we can turn words into projects and projects into something that we can all see!

At the end of the day, if the donor funding does not come through, then we are in big trouble, but that is a risk that we will take. From the number of customers we have who are registered in Honiara, there are about 9,000 registered customers. If the average Honiara household comprises of five to seven people, then in total, Solomon Water is servicing about eighty thousand people.

In auki, Noro and Tulagi, Solomon Water's customer base is much smaller and is therefore only servicing a couple of thousands which is why ALL of Solomon Water's attention is in Honiara. Because of the spurt of growth in Honiara, water and waste water are absolutely important.

That is the reason, Honiara takes up about 98 % of my time and also why all of our establishment and focus is on Honiara. There are Solomon Water officers looking after the Provinces, otherwise, most of the attention is on Honiara.

Charles Kelly,

Thank you because you know, I know the system of the World Bank and the EU, it takes a long process and sometimes when they've got stuck somewhere until they go so I put my trust in you.

Ian Gooden- Response

Although we will have access to European Union money/funding, it will be channelled through ADB which will be administering it.

The World Bank money will come as a separate source of funding which will come later so it is a little bit more un secure but we are doing everything we can to secure it.

The other one is Green Climate fund. We are putting together an application which will be submitted to the Green Climate fund. So Solomon Water is not putting everything in one basket and relying on just one single donor, but it is working with several donors. Ian and Solomon Water are even talking, for example, to Taiwan because they have offered to build the stadium for the Pacific games. A while ago, Taiwan was talking to Solomon Water about Water and Waste water at the National Stadium for the Pacific games (2024?) So I negotiated with them and discussed that instead of constructing only a treatment plant just for the games ,how about supporting SW improve our infrastructure and then it will be there for the long term.

Question No. 11 by Mike of MID

In the first presentation, it was mentioned that there would be a reduction of 15 Outfalls to 4. Mike wants to know if that plan, to reduce the number of outfalls, would be the same for the sewage treatment plants.

Comment and question No. 12 by City Mayor- Andrew Mua

Andrew made the comment that HCC does daily checks of water and HCC has found that bottled waters e.g such as Blue Water's bottled Water is not as clean or as safe as Solomon Water's piped water. HCC has found that Solomon water's piped water is cleaner than water bottled by local companies and sold in the shops because these water companies in particular, Blue Water, actually get their water from bore holes which is pumped from bore holes in the ground. The water which is being bottled is not necessarily clean and safe whereas, Solomon water's piped water is cleaner and safer to drink than bottled water sold in the shops. On the other hand, water from SW and Solomon Water line is checked and it has been proven that it is clean and safe to drink.

Ian Gooden- answer

Ian was appreciative of the comments made by the Lord Mayor on the quality of Solomon Water's piped water.

Comment and question No. 13 by City clerk, Charles Kelly.

Charles shared information on how the Honiara City Council had engaged JICA to share their knowledge and demonstrate a technology from Japan which allows for effluent to enter a chamber, pass through a soak away or soak hole before passing through a mat which absorbs and sucks in the waste water while the solids are retained in the chamber. The water can be used to water grass, flowers and trees. An example of the technology and system being used is at the Public toilet next to the Public Library. The Public Toilet system is not connected to a septic but uses the soak away method. If one goes to the Public Library, one will be able to see nice gardens and there is no odour or smell.

If this technology from Japan can be used, and the criteria for its construction is included in the City's Risk Assessment and the Building Ordinance, this sort of technology can be used when building and constructing houses in Honiara. Most houses in Honiara are usually designed with small families in mind, including the septic tanks which are designed for small families. The reality though, is these small houses can be filled by ten (10) or more people or the whole population of one's village can come and reside with the house owner, with all of them all using a septic tank designed for small families. It is the reason small septic tanks fill up very quickly, within a span of three to four months.

In Charles opinion, it is a matter of choosing to be connected to the main sewage line or introducing the system and technology used by the Japanese.

The Building Ordinance is studying the various systems and will be determining which best suits a building plan for certain locations.

Ian Gooden- Answer

Ian knows one of these systems is set up in Saint Nicholas College. The system is ideal for an isolated area which is not near to another water source and in which land is available and one has ownership over the land.

One of the things not included in the Strategic plan is costing out the life of and the cost of the septic tank system which has to be dug every seven (7) to ten (10) years.

Solomon water has since worked out the cost of the last cycle of septic tanks versus the reticulation system and it has found a sewage system is a lot cheaper per property over a reticulated system.

The system and technology described by the City Clerk is very good technology and does work well, but in an environment such as Honiara where there is usually a lot of rain with a lot of trees, there might not be enough transpiration taking place which is most needed. Additionally, in a city environment in which people are living very close to each other, it might not be the most suitable system. However, there will be places where this system will be absolutely useful and successful to have this type of technology.

Mike MID

Mike was asking again if he could have a copy of Solomon water's 30 year Strategic plan.

He was assured by Ian Gooden that a copy would be made available to him and also the website he could go to access a soft copy. Ian also assured Mike that Solomon water will be communicating what the priorities of the project are.

Mark's role entailed turning the Strategic Plan into actual Projects, and an example is the consultancy work currently conducted by Egis which concentrates on five(5) projects:- Honiara Water, Waste Water, the Trunk Mains, Gizo Water and the Reservoir. Mark's role is to oversee all these projects. The rest of the Strategy has not been turned into a priority plan yet so Solomon water would not be able to provide MID with a definite work priority plan but in the next year or so, it should be able to come up with more work priority plans based on the Strategic plan which it can share with MID. Solomon Water will certainly work with MID so it does not need to dig up the new road again.

Charles Kelly

Charles wanted to know about the situation in Gizo. Since this is a National Project, Charles wanted to know if it also includes Gizo and what the situation in Gizo is like.

Ian Gooden-Answer

Solomon Water has been talking to the Western Province for the past two years, with the Solomon Water board agreeing in principle as to what will happen in Gizo.

Solomon Water has secured donor funding for Gizo with part of the funding including salaries for staff when Solomon Water moves in to manage the facilities.

Solomon Water has not gone in to Gizo yet, because it can't create water and if it does go in tomorrow, it would create an embarrassing situation for itself and the Government because people will be asking where the water is.

If Solomon Water does move in to Gizo, it will have to be Cash water right from day one!

Solomon Water has been doing a lot of work with the Ministry of Mines and Energy and they have been looking at some short term solutions in Gizo. The short term solutions may include building dams at Tirokogu, Mile 2. Some water is coming through into the town, but it is either lost or stolen before it comes into the town. The rural WASH programme has also been supplying tanks and roofs to service some villages on the other side of Gizo.

In 2012, a brand new, highly automated plant was built in Gizo. Since then, it has not been used because no water is coming to it and through it.

Solomon Water therefore believes in long term solutions.

A long term solution would be to build a dam on Kolombangara, bring the water down in pipes into the ocean and bring it up to Gizo.

The other option is desalinisation. Desalinisation could also supply water to Gizo. However, while a desalinisation plant is cheaper to build, it will be more expensive to operate and run therefore making the water more expensive. Desalinisation plants will need high maintenance costs such as replacing membranes and other parts that may break down and need replacing.

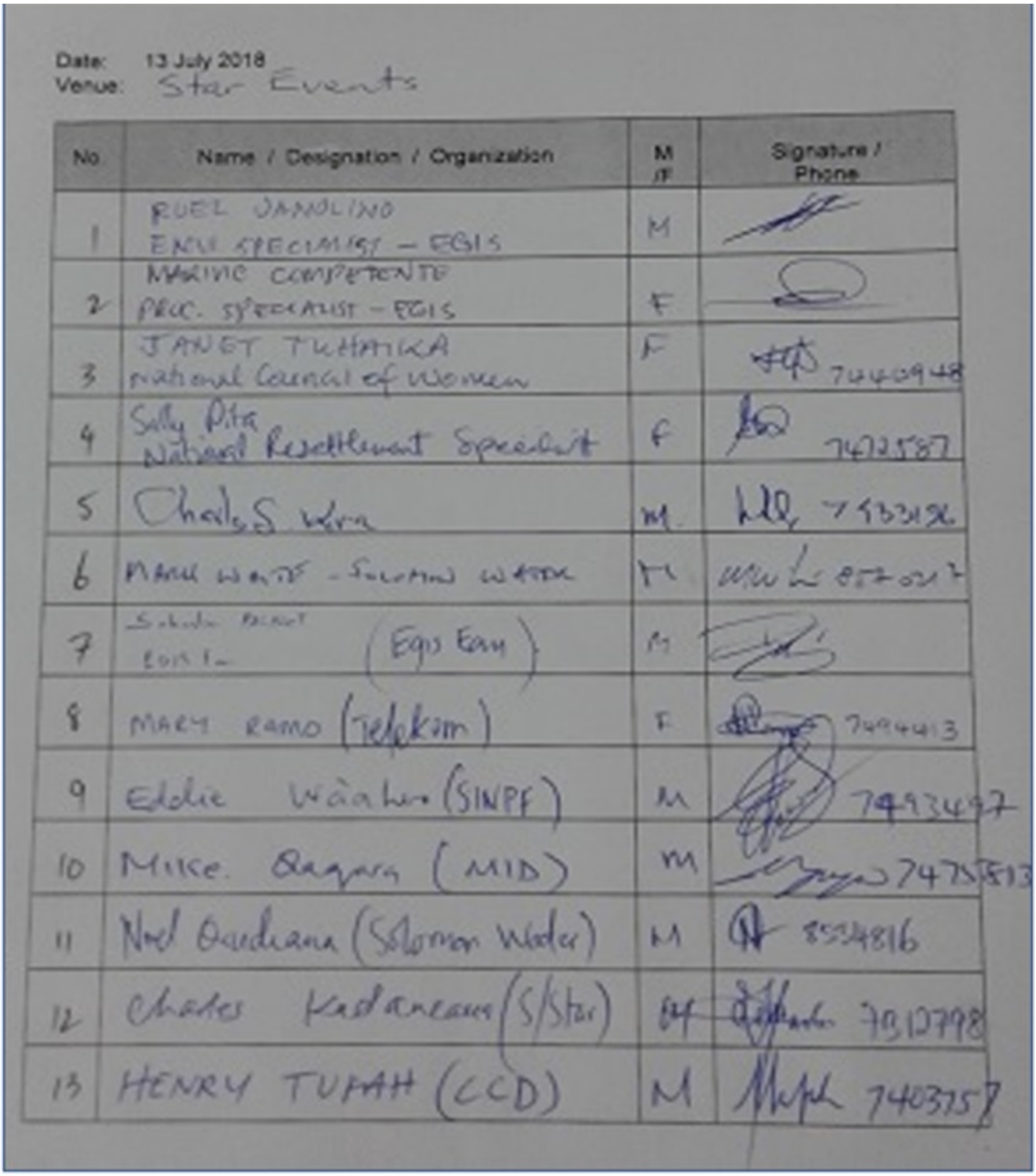
A dam built on Kolombangara on the other hand will initially be expensive to build and construct and will mean running two pipes on the ocean bed and surfacing in Gizo but in the long run will be less expensive to maintain making the water landed in Gizo much, much cheaper.

It will be similar to how Tulagi is supplied with water. In Tulagi, water is taken from the main island of Gela, and it is piped and comes on the reef and landed at Tulagi. This is all done by gravity feed and Tulagi has water twenty four hours a day. So this is one of the solutions to be looking into.

Meeting closed at 11:50 AM.

Meeting Notes Prepared by: Elsie Wickham (Egis Eau)

Attendance Sheet of Initial Public Consultation and Information Disclosure (13 July 2018)



Date: 13 July 2018
Venue: Star Events

No	Name / Designation / Organization	M /F	Signature / Phone
1	RUEL JANOLINO ENV SPECIALIST – EGIS	M	[signature]
2	MARINO COMPETENTE PROC. SPECIALIST – EGIS	F	[signature]
3	JANET TUHAIKA National Council of Women	F	[signature] 7440948
4	Sally Pita National Resettlement Specialist	F	[signature] 7472587
5	Charles S. Kera	M	[signature] 7533156
6	MARK WAITE – SOLOMON WATER	M	[signature] 8520217
7	[illegible] (Egis Env)	M	[signature]
8	MARY RAMO (Telekom)	F	[signature] 7494413
9	Eddie Waahu (SINPF)	M	[signature] 7493497
10	Mike Qaqara (MID)	M	[signature] 7475813
11	Noel Ouduana (Solomon Water)	M	[signature] 8554816
12	Charles Kadaneau (S/Star)	M	[signature] 7912798
13	HENRY TUPAH (CCD)	M	[signature] 7403757

No.	Name / Designation / Organization	M /F	Signature / Phone
14	KENNETH BO'O / HUMAN RESOURCES / SINU	M	7494103
15	DONALD MAKINI / EGIS	M	8667856
16	ANDREW HUA / HCC	M	7900020
17	Michelle Maelaua (SW)	F	8556550
18	Dennis Meone CEO (SI Chamber)	M	[illegible]
19	BRYAN PITAKIA	M	
20	Kennedy Folasi	M	
21	C. Kelly (HCC) Charles Kelly	M	
22	Peter Bulka (SDA)	M	7522
23	Mathew Korinihona Distribution Manager SIEA	M	7496693
24	Debra Kereseka / Chief Environmental Officer / MECDM	F	26036

PHOTOGRAPHS OF INITIAL PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

Photo No.1: Registration of participants for the initial public consultation [13 July 2018]

Photo No.2: SIWA's GM discussed SIWA's strategic plan on water supply and sanitation during the initial public consultation [13 July 2018]

Photo No.3: Project consultant discussed details of the proposed subprojects [13 July 2018]

Photo No.4: Honiara City Mayor raised some issues [13 July 2018]

Photo No.5: Representative of the National Council of Women raised some points [13 July 2018]

Photo No.6: SI National University representative raised some points [13 July 2018]

Photo No.7: Honiara's City Council representative raised some issues [13 July 2018]

Photo No.8: SIWA's PMU answered queries on specific details about the subprojects and SIWA's overall plans [13 July 2018]

Photo No.9: Representative of the SI Chamber raised some points [13 July 2018]

Photo No.10: Project consultant discussed details of the sewerage and sanitation masterplan and the immediate subprojects to be implemented [13 July 2018]

Photo No.11: MECCDMM representative asked some clarifications [13 July 2018]

Photo No.12: SIWA's GM answered queries of stakeholders [13 July 2018]

APPENDIX 6

OUTCOME OF SECOND ROUND OF CONSULTATION MEETINGS (FEBRUARY 2019)

Stakeholder Questions and Answers

No.	Question/Comments	Raised By	Response	Response By
1	• Ongoing Consultations	Atenasi Ata - SICCI	• This is start of the process; there will be further consultations during the detailed design process and approvals for designs.	IG
2	• Will illegal settlers be compensated more than Landowners	John Tupe – Tintinge Landowner	• Will depend on assessment and evaluation as per resettlement plan and as per SIG rates for resettlement and compensation	Lulu
3	• Coordination with phase 2 road consultants on design • Pre-treatment at outfalls • Industrial/Business waste and discharges	Mike Qaqara - MID	• Noted and will coordinate with road consultants • Designs as per AS/NZ Dispersion standards for appropriate dilution and dispersion. EIA Report • Assess application and type of discharge, pre-treatment if necessary	MW MW MW
4	• High installation cost	Jessica Warahiru-SIWIBA	• SIG is reviewing submissions to reduce the different fees • Pre-paid meters	
5	• ADB policy and compensation focus on women and not youths	Duddley Teuwauri - HCC	• ADB policy refers to vulnerable households which includes female, youth and male that are on low income	Lulu, Sonia
6	• Delivery of WASH and coordination with MID	Mike Qaqara - MID	• International NGO to be engaged for delivery of wash in collaboration with local NGO's • Happy to suppor coordination at design stage especially in the provinces • IWC to help identify delivery mechanisms of WASH in informal settlements.	MW

No.	Question/Comments	Raised By	Response	Response By
7	• Why is water in SI expensive compared to Fiji or PNG	Ellen – Ex SW and candidate for National Parliamentary Elections	• Government subsidies in Fiji is about 80% whilst in SI it is about 2% • Current cost reflects cost for providing the service	IG
8	• Meter reading based on estimates • High water bills • Schools and Churches should not be classed as Commercial customers	Holmes - SICA	• Raise issue with to Customer Care through Michelle to address • Was considered but not allowed under SW policy/classification rules	IG
9	• Consideration for climate proofing of infrastructure • Were environmental issues addressed in the design	Gareth - OXFAM	• Climate change report compiled and will support the detailed design input. • GCF application will be submitted next month that addresses adaptation and not mitigation	Sonia
10	• Was the previous JICA improvements ineffective	Mike Qaqara - MID	• No but this project will build on improvements by JICA from Supply Duration of 5hrs to 22hrs, target is 24 hrs.	MW
11	• Note logging activities around Kongulai area	Tautele – Kongulai Landowner rep.	• SW is aware and is working with relevant authorities such as Forestry and ECD to address.	Ray Andresen
12	• Coordination and working together with SIPA for future demand • Outfall at Port area	Spencer Ala – SI Ports Authority (SIPA)	• Agree to consult and work in close collaboration with SIPA • SIPA to provide a forecast for future requirements	IG
13	• PPP and capacity building opportunity for local contractors • Could local contractors bid for works	Mathew - MOFT	• Major projects would require international expertise and experience because of the value, nature and complexity of projects • SW want to encourage local participations as subcontractors or JV • Propose contractors forum for information sharing in April this year	MW
14	• Challenges for water access to informal settlements and peri-urban areas	Elma – Live and Learn	• IWC work to help identify delivery mechanisms of WASH in informal settlements.	IG, MW

No.	Question/Comments	Raised By	Response	Response By
			• SW will be consulting with NGO's working in this area to support effective project design and delivery.	
15	• Propose boring option over open cut construction methods for roads	Mike Qaqara - MID	• Noted as a key issue and concern and will look into exploring boring options	IG
16	• Any support to village/rural supplies to support SIDT's 'Helpem Village People' theme	Beven - SIDT	• SW is legislated to provide for urban areas including peri-urban areas only and not rural areas	IG

APPENDIX 7

Attendance Sheet of Second Public Consultation and Information Disclosure (20-21 February 2019)

FULL NAME	ORGANIZATION/POSITION	EMAIL/CONTACT	SIGN
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Dudley Tovuanuri	HCC-YD	Dudley.tovuanuri@gmail.com	
John Tupe	Titinge Landowners	MOB 7139580	
Thurele Kiaraliake	KONGULAI	7475257	
Jessica Wanalona	SIWIBA	7637847	
Leah Alufo'oa	SIWIBA member	7500780	
Spencer Alex	SIPA Ports	7398583	

FULL NAME	ORGANIZATION/POSITION	EMAIL/CONTACT	SIGN
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Atenasi Ata	SICCI	ceo@solomonchamber.com.sb 39542	[signature]
Ellen Maruniga	Wetside Lodge	7419511	[signature]

DATE: 21st FEBRUARY 2019 – HONIARA STAKEHOLDERS CONSULTATION

DATE	Name organ Post ORGANIZATION/POSITION	CONTACT/EMAIL	SIGN
21.02.2019	Naomi Kalamui Solbren /QC Manager	8436916 / naomi.kalamui@solbren.com.sb	[signature]
21.02.2019	John Tasima Kongulae Water Source	7489051	[signature]
21.02.2019	ADRA SI / PManager	7737837 Pmesa@adra.org.sb	[signature]
21.02.2019	Landsurvey / Tasahe DAVID ANISI	7486082	[signature]
21/02/19	SUEZ RICHARD BAKER	8423590	[signature]
21/02/19	MDPAC	8663722	[signature]
21/02/19	(Manita) UNICEF / WASH Specialist	7225836	[signature]
21/02/2019	CPU – Partners LENT DONNE	7477063	[signature]
21/02/2019	TRUDY RAMO MDPAC	7563292 Tramo@mdpac.gov.sb	[signature]

NAME??

DATE	ORGANIZATION/POSITION	CONTACT/EMAIL	SIGN
21/02/2019	SINU / STO (FRANK)	8579786	
"	HCC-Youth division whiteer (Lorio)	7459032	
"	Solomon Toleken LEONARD UVIKATSI	7494625	
"	Augustine Omearo KGVI Schol	7900642	aomearo@gmail.com
21/02/2019	HCC-Youth division Dudley Tauwauri	8546201	
21/02/2019	HCC-ADMIN NANCY JOLO	7844545	
21/2/2019	KCM Properties Ltd/Director	7688888 Kwandavid@outlook.com	
21/2/2019.	General Secretary (SICA).	7575635 saeve.holmes@gmail.com	HOLMES SAEVE
✓	SICCI CEO Atkosi Atu	ceo@solomonchamber.com.sb	

NAME/

DATE	ORGANIZATION/POSITION	CONTACT/EMAIL	SIGN
21/02/19	Naomi Hara SICCI/MSO	services@solomonchamber.com.sb	
21/02/19	Noel Oruduana / SW	noel.oruduana@solomonwater.com.sb	
21/02/19	AE Enterprises Ltd - Japhlet Limapu	jlimapu@yahoo.com . A4 - 7468975	
21/02/19	Bruno Mishack SOLOMON POWER	BrunoT@solomonpower.com.sb 7243077	
21/02/19	RAY ANDRESON SW	7961445	
21/02/19	Agnes Atkin . SW	7419077	

APPENDIX 8

PHOTOGRAPHS OF SECOND PUBLIC CONSULTATION AND INFORMATION DISCLOSURE

Appendix 6 - Stakeholder Consultation Meetings in Noro

1 Introduction

Following finalization of the UWSSSP project scope formal stakeholder consultations were held in Noro on the 25 February 2019. This document provides a summary of the meeting, the presentation given and questions arising from the meeting. The focus of the meeting was on the work to be carried out under the Water Supply System Upgrade in Noro.
Formal invitations were issued to stakeholders 2 weeks prior to the meetings being held. A list of invitees to the meetings is included hereafter. A total of 23 people attended the consultation – the list of attendees at the meeting is given hereafter.

2 Meeting Agenda

2.1 Opening Prayer
The meetings were opened with a prayer given by Mr Ray Andresen, Solomon Water Strategic Manager.

2.2 Opening Address
A brief opening address was given by Ms Michelle Maelaua, Solomon Water Head of Communications. She welcomed all participants to the meeting and asked everyone present to introduce themselves and the organization they represented. She gave an outline of the format of the meeting and rounded off her address by asking for everyone to participate, ask questions, make comments etc.

2.3 Presentations
A presentation was made to provide background to the project, and specific detail of how the project will be defined. SW noted that this meeting was the start of a series of discussions and consultations that would continue throughout the project cycle. The Team Leader of the SAFEGE Detailed Design team (Mr Richard Baker) was introduced to the meeting. It was noted that SAFEGE will be visiting Noro in early May to start the fact-finding work in order to prepare the Feasibility Study for the project they will assess land, environmental and social issues prior to commencing detailed design and all necessary safeguards requirements will be identified. Further consultations will be arranged during the consultants input to address design and safeguards issues.
A summary of questions asked and responses given at the meeting are included hereafter.

2.4 Discussions – Q&A
On completion of presentations participants were given the opportunity to ask questions, raise concerns and make comments on the proposed project plans. Summaries of questions asked and responses given at both meetings is included hereafter.

2.5 Meeting Close
Ms Michelle Maelaua thanked the attendees for their active participation. Participants were invited to lunch and opportunity for further informal discussion.

Invitation List – 25th February 2019

No.	Stakholders	Munda/Noro	Name
1	Our Telekom - Noro	Noro	Elsiva Koroi
2	Minisrty of Lands	Noro	Stephen Kadi
3	Solomon Power - Noro	Noro	Jay Pitavoqa
4	Solomon Islands Ports Authority	Noro	Gravis Sie
5	SINPF	Noro	N/A
6	Sol Tuna Ltd	Noro	Jim Alexander (GM)
	Church Rep		
7	*SDA*	Noro	Pastor Blaise
8	*Anglican*	Noro	Fabian Fanakitonu
9	*Wesly United*	Noro	Pr. Reginald Niva
10	*Roman Catholic*	Noro	Fr. Anil
11	Agriculture	Noro	Mark Hoala
12	Mother's Union	Noro	Philomina
	Western Provincial members		
13	*Noro*	Noro	Hon. Billy Veo
14	*Munda*	Noro	Rex Biku / Selina Boso (Ziata LO)
15	Youth Rep - Noro	Noro	Panda Sesa
16	Schools rep - Noro	Noro	Frank Naqu (Principal NCHS)
17	BSP	Noro	Richard Bero
18	Island Enterprise	Noro	Job Tokisiaki
19	Noro Town Council	Noro	David Mamupio
20	Silent World	Noro	Edmundo Mayamaya
21	NFD	Noro	Frank Wickham
22	NFD	Noro	Lenny Palmer
23	SPO	Noro	Uria Ila
24	Noro Town Council Clerk	Noro	David Mamupio
25	Immirations Office	Noro	Billy Guporo
26	Health	Noro	Tina Mamupio
27	Fisheries Office	Noro	Derick Suimae
28	Customs Office	Noro	Sam Iro
29	Local Business owner	Noro	Ivan Ngai
30	Local Business owner	Noro	Virginia Prakash

Attendees on Monday 25th February 2019

DATE: MONDAY 25TH FEBRUARY 2019 – NORO CONSULTATION

FULL NAME	ORGANISATION/POSITION	EMAIL /CONTACT	SIGNATURE
ELIJAH SAIPUH	Noro United Church	7630678	
ALEX ATANI	VAD FARMING	7400462	
GRAVIS. SIE	SIPA	gsie@sipa.com.sb 7647148	
JAY PITANOGA	SOLOMON POWER	Jay.Pitanoga@solomonpower.com.sb 7470721	
ALICK MAEOREA	MINISTRY OF FISHERIES	7950677	
Luxton Pitavid	NFD.	7470010	
Frank Nickham	"	7495819	
Michael Keni	Solomon water Noro.	7751496	

①

DATE: MONDAY 25[TH] FEBRUARY 2019 – NORO CONSULTATION

FULL NAME	ORGANISATION/POSITION	EMAIL /CONTACT	SIGNATURE
Billy Gupoo	Immigration	biliguporo/7614578	
Paunda Sesaft	S.DA	7416217	
Lox Palmer	ZPC LTD.	7470004	
Rex Sesa	Silent World	61071	
David R Mamupio	NTC	7466485	
Richard Biro	BSP	7492610	
Tanya Bailey	KIN ENT	7811475	
Elsina Koroi	Telekom	61042	

(2)

DATE: MONDAY 25[TH] FEBRUARY 2019 – NORO CONSULTATION

FULL NAME	ORGANISATION/POSITION	EMAIL /CONTACT	SIGNATURE
Verginia Prakal	Mbalal Ltd	747002	
Job Takisiaki	IEL N...	7491550	
Fr. Viswasam	NORO Catholic community	7876063	
Jim Alexander	Soltuna	747.0011	
Ataban Mose	Anglican	7400151	
Philomena Rigon	Catholic Rep	7811743	
Uria Ila	SPO	7810640	

(3)

Minutes of Questions and Answers

No.	Question/Comments	Raised by	Response	Response by
1	Where can we get Prepaid meters?	Jim Alexander - Soltuna	Prepaid or Cashwater meters are being installed in Honiara first. BSP mobile banking setup by June. Cashwater meters will be installed under the upgrade project.	IG
2	Technical report – unaccounted water, What is the current water loss, what will be done?	David Maepio - Noro Clerk	Loss about 40 %, SW did leak detection work. Target lower than 30% (Honiara target) The project will address wastage from source to tap. A portion of the loss is due to illegal connections where is effectively delivered but not paid for – SW will be undertaking messaging campaigns to encourage everyone to connect legally. The people who do pay are subsidising those who steal.	MW IG
3	Concern raised on security of the current water pump /water areas – what Solomon Water plans to make the area become safer/restricted	Billy Guporo - Immigration	SW has in its plan to install a full security system to protect all sites	IG
4	The Noro water source is within customary land. There has been no agreement with landowners and there have been disputes that have not been resolved for the last 48 years. This needs to be addressed – changing source to avoid the issues is not an option. The land	David Mamupio - Noro Clerk	SW acknowledge the comments made. SW lands team will look into issue. The issues will need to be addressed in order to be able to use development partner funds	IG

	acquisition process/land issue is a problem. What does SW think about the capacity of existing water sources given the future growth in populations? Concerns were raised that during the 2007 tsunami the water system was polluted Disaster sea level rise? Suggest: i. The current issue over land use at Ziata should finally be addressed . ii. Look at options for boreholes Overall to ensure legal acquisition is completed to ensure address capacity as water is not enough		Reducing physical water loss will allow the saved water to go to other customers; at the same time additional sources will be identified as art of the Feasibility Study to address long terms sustainability The SAFEGE design consultants will review historic information and take environmental issues into account during their designs SW noted and agreed that to secure funding the land other safeguards must be properly addressed in accordance with development partner requirements. The SAFEGE design team will cover this in their work.	MW
5	Does SW have any formal responsibility for catchment protection.	Jay Pitavoqa - Solomon Power	Yes SW has an interest and a responsibility in this regard. SW is becoming more actively involved with the relevant ministries ad is pushing for catchment areas to be legally designated in order to protect future water supply. We have issues in all areas in realtion to catchment protection	IG
6	Noro town council has a development plan – will this be taken into account in the water supply design Problem – continuity development in urban infrastructure,	David Mamupio-Clerk/Noro	Sharing of Noro development pan is if great importance to the roject. The Design engineers will work with the town council during their field visits to understand what future estimates of water use, where these will occur etc. in order to	IG

	Funding should be available – problem lack of providing infrastructure in the informal settlements – state fail to provide. Where SOE do comes in? Services need to be provided for the people Raised there is illegal connection Noro due failed infrastructure & system		effectvly plan for the oing term of the water supply system. Government provide limited support to SW. There is CSO funding for provinces but committmenta re not always passed through and gerneraly CSO budgets have reduced significantly for all areas of activity in the past few years. Govt lack of support to SOE reduce 2018 to on 3m SW operational practice is to eliminate illegal connections and to turn in fully legalised and paying customers.	
7	For the Noro scoping will it look at providing water storage support at the household level	Frank Wickham – National Fisheries Development (NFD)	This is currently not in the project scope. There may be an opportunity through the urban WASH program to consider this. The Design consultants will be asked to consider this in their technical assessments.	IG MW
8	There plans to develop Noro as Hub and increase volume dry goods, vessel – will SW consider the impact of this on water demand	Frank wickham – National Fisheries Development (NFD)	This will be addressed by the design consultants at field study stage in May	MW
9	Is there any population model for Noro for next 10 – 20 years	Frank Wickham – National Fisheries Development (NFD)	There was a model used in the SW strategic plan. This will be refined by the design consultants with input from the council and other relevant stakeholders in Noro.	IG
10	Majority of FTE areas lack of water supply but developments take place and water (SIWA) comes behind (area close to police quarters)	Luxton Piriuve – National Fisheries Development (NFD)	Currently SW Operations Manager, Scravin Tongi is involved in the development of the network. The work that will be done by the design consultants will confirm areas for expansion and this will be	IG MW

			funded through the water supply upgrade project	
11	Concerning the Munda system – where are the target areas in the project	Jay Pitavoqa-Solomon power	The main target area is the area within the town boundary – however those populated areas aog the mains from source to the town may wel be included.	MW

Consultation photographs

Appendix 7 - Stakeholder Consultation Meetings in Tulagi

1 Introduction

Following finalization of the UWSSSP project scope formal stakeholder consultations were held in Tulagi on the 27 February 2019. This document provides a summary of the meeting, the presentation given and questions arising from the meeting. The focus of the meeting was on the work to be carried out under the Water Supply System Upgrade in Tulagi.
Formal invitations were issued to stakeholders 2 weeks prior to the meetings being held. A list of invitees to the meetings is included hereafter. A total of 17 people attended the consultation – the list of attendees at the meeting is given hereafter.

2 Meeting Agenda

2.1 Opening Prayer
The meeting was opened with a prayer given by the pastor present at the meeting.

2.2 Opening Address
A brief opening address was given by the Permanent Secretary for Central Province (PSAllen Chris Siale), welcoming all participants and Solomon Water to the meeting. This was followed by Ms Michelle Maelaua, Solomon Water Head of Communications who thanked the PS for his opening remarks and thanked all participants for attending the meeting. She asked everyone present to introduce themselves and the organization they represented and then gave an outline of the format of the meeting and rounded off her
address by asking for everyone to participate, ask questions, make comments etc.

2.3 Presentations
A presentation was made by SW to provide background to the project, and specific detail of how the project will be defined.

SW noted that this meeting was the start of a series of discussions and consultations that would continue throughout the project cycle. It was noted that SW have hired and international consulting company – SAFEGE – to undertake feasibility and detailed design work for the water supply upgrade in Tulagi. The project team will be visiting Tulagi in
early May to start the fact-finding work in order to prepare the Feasibility Study for the project. They will work with the community to assess land, environmental and social issues prior to commencing detailed design and all necessary safeguards requirements will be identified. Further consultations will be arranged during the consultants' input.

After the SW presentation the Tulagi Tourism development officer presented the final draft of the Central Province Tourism Development plan. The particular plans for Tulagi were shared and it was agreed that these would be given very careful consideration by the consultant's project team when preparing demand forecasts and siting of critical infrastructure.

2.4 Discussions – Q&A
On completion of the presentations (by SW and Provincial Tourism officer) participants were given the opportunity to ask questions, raise concerns and make comments on the proposed project plans. Summaries of questions asked and responses given at both meetings is included hereafter.

2.5 Meeting Close
Ms Michelle Maelaua thanked the attendees for their active participation. Participants were invited to lunch and opportunity for further informal discussion.

Invitation List – 27th February 2019

1.OUR TELEKOM (JOHN MALLY)
2.PROVINCIAL GOVERNMENT (PS.ALLEN CHRIS SIALE & PM.PATTRICK VASUNI)
3.SILENT WORLD (GREGY)
4.TULAGI HOSPITAL (JOCAB MANEGARU)
5.TOURISM OPERTORS – VANITA (ANNET DENNIS)
- RAIDERS (BOB)
6.MOTHERS UNION (LILLIY AITORA)
7.WOMEN GROUP (NAOMI LARRY)
8.SOLOMON POWER (CLAVIS DAGI)
9.CHURCH REP – S.S.E.C (JIMMY HOTO)
- UNITED (MINISTER)
10.TULAGI POLICE (HUGO MAELASI)
11.MCMAHON SCHOOL PRINCIPAL (THOMAS KOININI)
12.YOUTH REP (PATTSON SALE)
13.AGRICULTURE (FRANK OMELANGA)
14.FORESTRY (PERCIVAL)
15.TOURISM OFFICER – (ANABELA & SIMON TEVA)
16.YOUTH AND WOMENS REP (RICHARD SAPIA)
17.HEALTH DIVISON (STANLEY SENI)
18.ADMIN DESK (EDWARD NAMO)

Attendees on Wednesday 27th February 2019

NAME	ORGANIZATION/POSITION	TELEPHONE CONTACT/EMAIL	SIGN
RICHARD SAPIA	PROV YOUTH COUNCIL	7440806 (rsapia512@gmail.com	
Moses Garu	Forestry	7604066	
John Mally	Telekom	7454600	
Ben T. Kameda	L/Council	7963558	
John Kapemoa	Planning	7440711	
Julian M. Aitora	Finance/Women's Rep	7938298	
Frank Gwelanga	Agriculture Dev.	7440788	
Edward Namo	Admin	7483717	
Stanley Seni	Medical	7521057	
Nigel Zebo Libasabo	United church	7812547	
Joash). Hoto	SSEC	7800373	

NAME	ORGANIZATION/POSITION	TELEPHONE CONTACT/EMAIL	SIGN
Simon Teva	Tourism Division	7897591	
Annabelle Hender	Tourism Mentor (AVI)	7370177	
MING	AVI VOLUNTEER	7370182	
CHARLES SABANGA	WORKS DIVISION	7139179	
Andrew Kaipua	Education.	7509670	
A.C. Siale	PS Provincial Govt	7258732	

Minutes of Questions and Answers

No.	Question/Comments	Raised By	Response	Response By
1	There might be a break in the current piping mains from the source – please review video that was taken.	Annabelle – AVI Volunteer	Video evidence was reviewed and the leak reported to SW operations	MW
2	Please discuss Tulagi Zoning plans	PS	The Design consultants will discuss zoning plans with the province and incorporate as necessary into their water system upgrade design	MW
3	Second Township proposed for Pavuvu in Russell Islands. Opportunity for expansion of service in Pavuvu	PS	PS comments were noted and will be fed back to SW CEO	MW
4	Tourism development plans for Tulagi	PS	Design consultants will incorporate Tourism development plans into the detailed design	MW
	Logistics support for Tulagi Operations. Province has been supporting operations every day.	PS	The PS comments were noted. SW appreciates the Province support to SW and will feedback to the SW CEO.	MW
5	Have there been any UXO risks and incidences in the past in Tulagi	Noel Orudiana - SW	There are risks with UXO's and there have been some finds in the past year that have been dealt with by the authorities. UXO survey will be carried out as part of the detailed design work (along with topo' and geotech); Any clearance works necessary will be carried out prior to project construction.	PS MW
6	Ownership of catchment, dam and pipeline is unclear – there is no formal agreement with SW or Government for use of the land	Gabriel – Provincial Treasurer	Currently source is still customary land Funding will come from ADB and WB; they have strict safeguards and resettlement requirements - any land issues and compensations will have to be addressed appropriately in advance of any construction	AA MW

7	Mr Teva's father signed an MOU with SIG in the past to resolve land issues at the source and catchment but no agreement in place	Simon Teva - Tourism	SW Lands Officer will look into this and provide further advise on any legal implications; The comment about the need to resolve any land issues in	MW

No.	Question/Comments	Raised By	Response	Response By
			order to access ADB and WB funding was reiterated.	
8	Catchment tank up at No. 1 house earmarked for Museum. Look into options to relocate existing tank to another location.	Simon Teva - Tourism	The comment is noted. This will be covered under the May/June discussions with the detailed design team	MW
9	Existing pipes are from long ago. Rusted, leakages. Will new project take this into account.	Richard	The detailed design will take into account the age and condition of all water system assets and identify where assets are to be replaced. In addition there will be new pipe distribution around the island in order to improve operational efficiency dn water quality.	MW
10	Bigger storage – will there be more storage in the system through the project Cash Water – will water be metered using cash water meters	Lillian – Provincial Council of Women	The design consultants will advise on the amount of storage required and recommend sizes and locations in Tulagi. Modern systems will include better control of water pumping. The project will also include improved chlorination facilities to ensure good quality water at all times. Yes SW will introduce cash water meters to all residential connections under the project	MW
11	Water stops during heavy rains sometimes up to 3 weeks	Ming – AVI Volunteer	The reason for the outages is that with heavy rain the water becomes very turbid. SW curtails supply at these times. The detailed design will include for treatment facilities to ensure that the water can be treated effectively at all times so there is no longer any impact on supply because of heavy rains.	MW
12	PS noted that recently water pressure has been very low	Allan Siale - PS	This is most likely linked to the burst pipe reported by Annabelle. It will be raised with SW operations personnel and resolved as soon as possible.	MW

No.	Question/Comments	Raised By	Response	Response By
13	Will there be fencing around reservoirs – at the moment anyone can access the sites	Stanley	The intention is to fence all SW assets – this will be included in the detailed design by consultants	MW
14	Sometimes it smells like there is too much chlorine in the water. Is the use of chlorine safe	Frank Omelanga – Agriculture Division	SW undertakes chlorination to disinfect the water supply; Dosing rates in the water should be set to achieve a residual chlorine level in the system(usually around 0.1 mg/l – at these levels the water is perfectly safe to drink) We will take it up with Provincial Operations to ensure that their dosing regine is correct.	MW
15	There are quite often meter reading errors and inconsistencies leading to variable billings over time	Edward	We will provide feedback to SW billing department and ask them to resolve any outstanding issues. The use of cashwater meters in the future will remove many problems related to billing	MW
16	Work together with planning department for zoning/planning/reports Land allocation approved by province based on submission by SIWA	John Rapemora PS	SW looks forward to a close relationship with the planning department A new elevated storage site was identified by SW last year – this information will be shared with design consultants to include in their designs for the system	MW
17	Disturbances of water catchment area by resource owners and further consolations' Meter reading errors	Moses Garu - Forestry	SW will look into this during the design and consultation process. It is important to have effective agreements in place with landowners As above his was noted and feedback will be provided to SW billing team	NO

No.	Question/Comments	Raised By	Response	Response By
18	There are some issues with management of septic waste n Tulagi: Septic tanks overflow Sewerage outfalls Discharge locations and environmental issues	PS	This is not part of the project design. However SW will work with the PS to understand the issues and see if recommendations can be made to assist the Province to solve these problems – this will be important for the Tourism Development plans for Tulagi. A septic management strategy would be of great help for provincial centres	MW
19	It is recommended that SW undertake a review and coordination of relevant Acts (Forestry Act and SIWA Act) to protect catchment area	Simon Teva - Tourism	The comment was noted - this is an area that SW is becoming increasingly involved in and is working with various ministries in all areas of operations to protect water supplies.	MW

Consultation photos

Appendix 8 - Stakeholder Consultation Meetings in Munda

1 Introduction

Following finalization of the UWSSSP project scope formal stakeholder consultations were held in Munda on the 25 February 2019. This document provides a summary of the meeting, the presentation given and questions arising from the meeting. The focus of the meeting was on the work to be carried out under the Water Supply System Design project for Munda.
Formal invitations were issued to stakeholders 2 weeks prior to the meetings being held. A list of invitees to the meetings is included hereafter. A total of 7 people attended the consultation – the list of attendees at the meeting is given hereafter.

2 Meeting Agenda

2.1 Opening Prayer
The meetings were opened with a prayer given by the local chief Mr Rex Biku.

2.2 Opening Address
A brief opening address was given by Ms Michelle Maelaua, Solomon Water Head of Communications. She welcomed all participants to the meeting and asked everyone present to introduce themselves and the organization they represented. She gave an outline of the format of the meeting and rounded off her address by asking for everyone to participate, ask questions, make comments etc.

2.3 Presentations
A presentation was made to provide background to the project, and specific detail of how the project will be defined.

SW noted that this meeting was the start of a series of discussions and consultations that would continue throughout the project cycle. The Team Leader of the SAFEGE Detailed Design team (Mr Richard Baker) was introduced to the meeting. It was noted that SAFEGE will be visiting Munda in early May to start the fact-finding work in order to prepare the Feasibility Study for the project they will assess land, environmental and social issues prior to
commencing detailed design and all necessary safeguards requirements will be identified.
Further consultations will be arranged during the consultants' input.

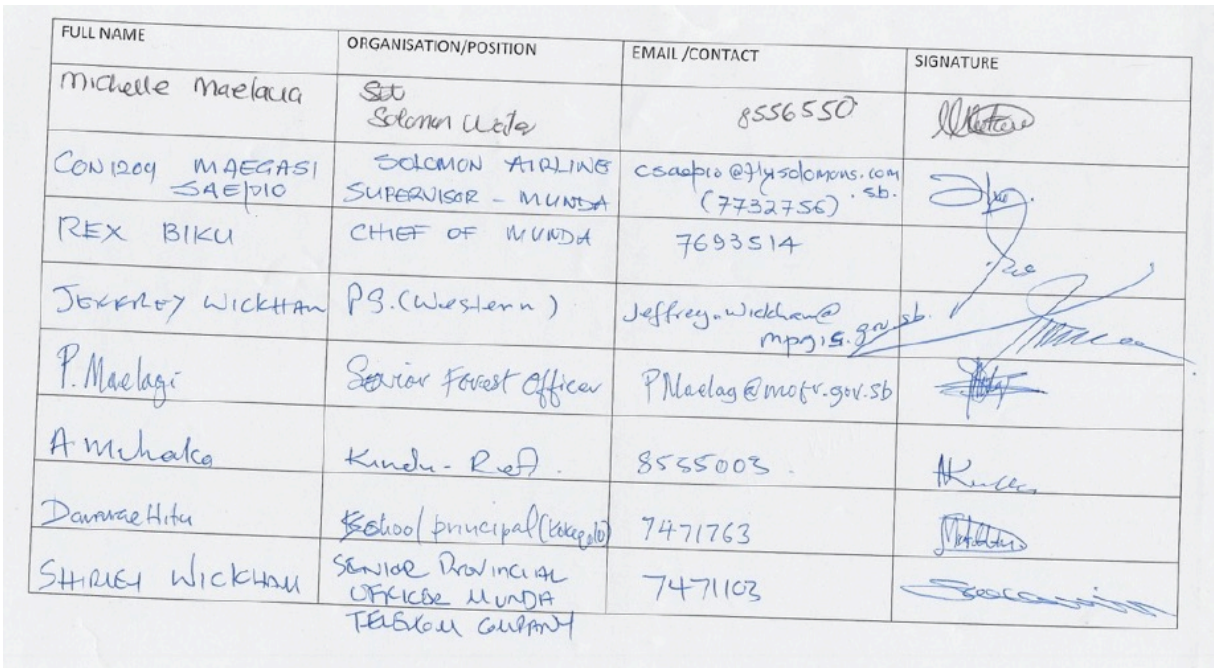
2.4 Discussion Q & A
After the presentation Ms Michelle Maelaua opened the floor for discussions.
A summary of questions asked and responses given at the meeting is included hereafter.

2.5 Meeting Close
Ms Michelle Maelaua thanked the attendees for their active participation. Participants were invited to lunch and opportunity for further informal discussion.

Invitation List – 25th February 2019

No.	Stakholders	Munda	Name
1	Our Telekom - Munda	Munda	Sherly Wickham
2	Solomon Power - Munda	Munda	Elington Maelagi
3	Solomon Airlines	Munda	Conroy Saepio
	Church Rep		
4	Forestry	Munda	Peter Maeragi
5	Mother's Union	Munda	Rep
6	Agnes Lodge	Munda	GM Agnes Lodge
	Western Provincial members		
7	Schools rep - Munda	Munda	Principal Kokegolo CHS
8	Munda Chief	Munda	Rex Biku
9	Provincial PS	Munda	Geoffrey Wickham

Attendees on Wednesday 25th February 2019



FULL NAME	ORGANISATION/POSITION	EMAIL /CONTACT	SIGNATURE
Michelle Maelaua	SIU Solomon Water	8556550	
CONROY MAEGASI SAEPIO	SOLOMON AIRLINE SUPERVISOR - MUNDA	csaepio@flysolomons.com (7732756) sb.	
REX BIKU	CHIEF OF MUNDA	7693514	
JEFFREY WICKHAM	PS. (Western)	Jeffrey.wickham@mpgis.gov.sb	
P. Maelagi	Senior Forest Officer	PMaelag@mofr.gov.sb	
A Michaka	Kundu - Ref.	8555003	
Dawnne Hita	School principal (Kokegolo)	7471763	
SHIRLEY WICKHAM	SENIOR PROVINCIAL OFFICER MUNDA TELEKOM COMPANY	7471103	

Minutes of Questions and Answers

No.	Question/Comments	Raised by	Response	Response by
1	Land Owner / Land acquisition issue in Noro. Seek status on Provincial Government on status/on land Shared his/landowners Grievances on Land acquisition status with Solomon Islands Government/Ministry of Land	Rex Biku - Chief Biku	Ziata source (6 acquisitions attempt done) Land dispute/ last acquisition 2014 Issue for Ministry of Mines & Energy, need to activate consultations	Jeffery Wickham - PS Western Province
2	The PS noted the following: Water supply in both Munda & Gizo is an issue. SW is the authorized SOE to carry out water service and they are in the process of being requested to support – hence the projects. He highlighted there are alternative sources available in Munda He also noted that it is important to resolve the Ziata source/acquisition which is long outstanding and needs to be addressed as soon as possible. The PS welcome SW consultation and plans The PS noted that there are existing pipes also in the villages however issue with the capacity of sustainability, eg leakages, theft	Jeffery Wickham – PS Province	SW acknowledged the PS comments. SW stands ready to take over water supply service in Munda and Gizo. The water projects have been identified as priority and included with the UWSSSP. Development partners have very clear expectations concerning land ownership, environmental and resettlement issues – these all need to be addressed properly and will be a key focus of the feasibility work that is to be done by the design consultants. SW is committed to work with lands /government to address the land issues.	IG RA IG
3	PS suggested that critical land issues need to be overseen by SW working closely with Lands Department	PS Province – Jeffery Wickham	SW is keen to work closely qith Government to mitigate delays and ensure the project progresses in a timely manner.	IG

4	Chef Biku noted that he fully agrees on the developments proposed in Munda	Rex Biku- Chief Munda	SW Acknowledged the Chief and his commitment to the project.	IG
5	PS noted that there are a good number of underground water sources in Munda area The PS also asked whether water system will go through the villages	Jeffery PS	SW confirmed that the design consultants will be undertaking field visits in May a key part of which is to identify potential water sources. SW noted that the SOE legislation limits service to within town boundaries. In the case of Munda this nmay not be clear and connection woudlalso be impacted by the financial and economic project assessments to be undertaken by the design consultants.	IG
6	The PS asked a question abot payment for water and metering	IG	SW noted that prepayment (cashwater) meters will be used in all SW operated systems. All SW systems are based on user pay, with minimal government support in the form of CSO.	
7	What is the project /water access timeframe ? Highlighted importance of chiefs role in this process	Agnes Lodge rep	SW advised that detailed design would be complete by end of 2019 with construction taking place in 2020. This requires that any land issues are all effectively dealt with during the design period	IG
8	The schools representative noted the importance of water for schools; he asked that the Province and Lands Officers work with SIWA to ensure the Project is not delayed.	From school	SW acknowledged the comments and re-iterated the need for effective safeguards management	MW

9	Need focus group to fast track the process	Agnes Lodge	The suggestion was noted by SW. There will be a number of consultations throughout the project cycle all aimed at ensuring effective communication, and efficient project delivery	IG
10	The PS asked if the current funding could be used and resolve the current Lands issue	PS western	SW noted that development partner funds can't be used to may payments for land or other compensation; this would have to be managed by SW or SIG SW will follow development partner rules.	IG MW
12	Mr Saepio thanked SW for the meeting and acknowledge the plans for development of the water supply	Conroy Maegasi Saepio – Solomon Airlines Noro	SW thanked Mr Saepio for his comments and noted that support to Airline operations in Munda is a key component of the project.	IG
13	PS noted that there are a number of critical Provincial projects coming up, including • Slip way project • SP oil, • Gizo expansion plans PS recommended SW to amend the SIWA act to access non-urban areas	PS western – Jeffery Wickham	SW acknowledged the Province's proposed plans; the water supply upgrades will take these into account and SW looks forward to working closely with the Province; SW noted PS comments about access to non-urban areas.	IG

Consultation photographs

Appendix 9 - Stakeholder Consultation Meetings in Auki

A stakeholder consultation and engagement campaign was carried out in Auki between the 18th and 21st June 2018 in Auki. The aim was to ensure widespread, ongoing, and meaningful participation of the key stakeholders and ensure stakeholder issues and concerns are taken into account.

The project team met with the Deputy Premier, Honourable David Maeaba on the 18th of June. The Deputy Premier reiterated his governments backing for the project and assured the team the provincial government will do everything in its power to support the project.

A stakeholder meeting was held on 19th June in Auki Lodge to brief participants on the Solomon Water 30 years Strategic Plan (2017 – 2047) and its 5-year Action Plan (2017 – 2022). The meeting was aimed at disclosing information about the project and engage, discuss and document the stakeholder interest, roles and responsibilities including concerns on Land and easement, Environmental assessment and social issues and on relevant regulatory decisions on permits or licenses required with respect to the project.

A broader public awareness was held in Auki market on the 21st of June for public information disclosure and awareness which are essential for maintaining support and mitigating grievances during project period.

List of key stakeholder and identified and dates of consultation held with several stakeholders.

Name	Position	Role	Organisation	Requirements
Ian Gooden	Project Sponsor an Board	• Overall accountability for the *project*	Solomon Water	• Timely approvals
Mark Waite	Project Manager and team	• Overall responsibility for the successful initiation, planning, design, execution, monitoring, controlling and closure of the project.	Solomon Water	• Quality project delivered on time and within budget
Scravin Tongi/ Frank Daukalia	Operations Manager and Provincial Ops	• Project Owners	Solomon Water	• Fit for purpose • Addresses Operational KPI's
Unni Kesavan, Steve Blaik	Chief Financial Officer ADB	• Funding and payments	Solomon Water, ADB	• Managing finance with ADB • Procurement of goods and services • Timely release of contract payments
Michelle Maelaua	Communications Team	• Required to lead and manage external project communications and media	Solomon Water	Communication on project
Internal Solomon Water Executive	Project Steering Committee	• Provide support, guidance and oversight of project progress and deliverable	Solomon Water	Project guidance
Joe Horokou	Director - ECD	• Approval of Environmental Consultant • Approve EIA • Issue Development Consent	ECD, Honiara	Issue of Development Consent

Name	Position	Role	Organisation	Requirements
Nelson Naoapu (Consulted April 2018)	Commissioner of Lands (Land Board)	• Land Approval • Transfer of FTE • Subdivision • Valuation	MoLHS, Honiara	Land approval. Approval given
Hon. David Maeaba (Consulted 18 June 2018)	Deputy Premier Malaita Province	• Local government support	Provincial Government , Auki, Malaita	Support
Jackson Gege, Robert Wales Feratalia (Consulted 19 June 2018)	PS, DPS – Malaita Province	• Support project at local government level • Facilitates any compensation event arising from AP • Work with TCPB to issue approval • Work with MOLHS to acquire land as water catchment area	Provincial Government, Auki, Malaita 7983853	Support
Malcolm Moli	Auki Ward Provincial Member	• Support project at local government level	Provincial Government , Auki, Malaita	Support
George Hoatamauri (Consulted 21 June 2018)	Secretary – PTCB Lands Division	• Issuing of Planning and Building Permit	Provincial Land Office, Auki, 7489926 40515	Building Permit
Michael Sikwae	Lands Officer, Auki	• Land issues	Lands Office , Auki	Land issues
Wendy Sade (Consulted 18 June 2018)	Lands Officer, Auki	• Support Land Issues	7489926 40515 Lands Office, Auki	Land Issues

Name	Position	Role	Organisation	Requirements
Ledley Diudi	Director – Agriculture, Auki	• Valuation for any Agricultural/Crop compensation event	40241 Agriculture Office, Auki	Crop valuation
Joshua Keniore (Consulted 18 June 2018)	OIC - SIEA	• Access and Provision of power • Location of underground and overhead power cables	40114 Solomon Power, Auki	SW to submit formal request and application and SIEA to assess
Paul Elo (Consulted 18 June 2018)	OIC - Telekom	• Telekom connections	7496042 Solomon Telekom, Auki	Location of underground and overhead Telekom cables
Timothy Apaeasi, Frederick Pado (Consulted 18 June 2018)	Provincial Police Commander Operations Manager	• Security	MPNSCS, 40489 Auki	Support
Various (Consulted 20 June)	Community and Landowning Groups	• Land Issues • Compensation for fruit trees and crops	Auki	Support
Marthar Rurai, Geli Relmah (Consulted 18 June 2018)	President, Vice President - Provincial Council of Women	• Advocate project	Auki	Support
Anthony Maelasi Catherine Lamani,	DS – Auki Diocese President , Coordinator - Mothers Union	• Church Support	ACOM Diocese of Malaita, Auki	Support

Name	Position	Role	Organisation	Requirements
Sidionia Reuky (Consulted 18 June 2018)				
Various	Contractors and Suppliers	• Construction	Honiara/ Auki/ Overseas	Quality construction as per specification
Various (Consulted 20 June 2018 through public awareness)	Customers	• End users	Auki	Satisfied
Various	Pedestrians and Road Users	• Support	Auki	Support. Minimal disturbance to traffic

June 19, 2018 consultation participants

NO.	NAME	ORGINISATION/COMPANY	POSITION	PHONE CONTACT	EMAIL ADRESS	SIGNATURE
1	Wendy Sade	MoLHS	Chief Lands officer	7517153	WSade@mlhs.gov.sb	
2	Sidonia Renky	Mothers Union	Coordinator	7363317	-	
3	Paul Elo	STCL	Reg Rm.	7496042	Paul.elo@telekom.com.sb	
4	Geli Relmeth	MPCW	Vice President	7480533	-	
5	FREDERICK PADO	MPNS&CS	Operation Manager	7928031	Frederick.pado@mnpcs.gov.sb	
6	ROBERT WALES FERATALIA	MPGI	DPS	8[illegible]922	rwferatalia47@gmail.com	
7	Solomon Lofanga	Solomon Star	Reporter	7496329	Solofanga23@gmail.com	
8						

Minutes of Questions and Answers

Date Time & Venue of Meeting: 19 June | 9am – 3 pm | Auki Lodge Conference Room

- Noel Orudiana – asked a question on the process and requirements need to connect power to the proposed pump station. Update also on submission of application for development to the lands division in Honiara. Also who would like to have details on provincial process and procedures for constructing of the infrastructure in Auki.

- Sol-power – for power to reach the site, SP need to assess the site, ensure it is fit for connections:
    - o If all requirements are met then SP will carry out connections if all requirements are met.
      Since it's in the government, it is even easier;

    - o Scravin – actions to be done by SW to connect power to the proposed pump stations – Scravin asked Adam to lock up the actions for Sophie to document and distribute for all the stakeholders at the end of the consultation.

- Deputy Permanent Secretary (Robert Wales Feratalia) raised a question on the time frame for this project. Construction and completion of the project.

o Adam provided some heads up on the time frame for the project. Tender is 4 weeks, 4 weeks for evaluation and possible work is scheduled at the end of November, construction period will take 6 months to complete

- Deputy Permanent Secretary highlighted that the current Town and Country planning board of the province is yet to be gazzeted and approved. DPS is worried about the time frame as the Town and Country Board is still not formalized and this might slow the progress of the development.

- Deputy Permanent Secretary, asked the questions regarding why the proposed tank was proposed to be placed not on a hill but in the valley. Are their also environment impact reportwritten for the proposed construction of the valley.

o Adam Searancke explained that they need to optimized and have exactly the right level for supply as pressure will cause a lot of Non-Revenue Water. AS is aware of the environmental impact and is waiting for SW environmental expert to construct. The tank is 16 meters wide, 8 meters tall

o ScravinTongi- Reason we choose the current location is to ensure the tank is situated in a safe location as well as to ensure SW has the right pressure as this is necessary to protect the water system against Non-Revenue Water

o Noel Orudiana – briefed on the progress on the environmental impact study. Currently draw up a proposal application to be submitted to the environmental conservation division. The community consultation and public awareness that SW did in Auki will be documented and presented to the ECD by the end of this month. A report will also be provided to the ECD regarding the consultation and awareness and will be compiled and submitted to the ECD and progress will depend on the advice from the ECD. The report will be made accessible for the public as this is crucial for the public to provide feedback and any issues regarding any environmental issues at the proposed site for construction.

o No settlement of people around. We foresee that there will be minor or no adverse environment impact. It was identified as a catchment area and it is safe for the construction

- Deputy Permanent Secretary – With the new infrastructure, will SW maintained its Kwaibala supply

  o Benjimen Billy – Yes – same feeder will provide from Kwaibala will connect to SP and then up to the proposed pump station

- Deputy Permanent Secretary- concerned about contamination. – concerned about squatter settlements or people building their houses on the proposed area. Residential area must not be close to where the tank is built as this will have adverse environmental impact on the quality of water supplied.

  o Lands Officer - Agnes – approval for the project – purposely for the project – given where the route of the pipeline and for the construction of the tank. Currently the area is restricted from the public to build and construct their houses. In terms for the catchment area, status of the catchment area is with the commissioner of lands, deliberated on but awaits further details. The details of the proposed area that the commissioner seek is the allocation status of the area within the catchment and variation of the development with the catchment area. Commissioner has given approval for the project to go ahead but there are minor details that the commissioner needs to deliberate on further for the progress of the project.

- Deputy Permanent Secretary asked questions on chlorination of the high raised tank. But Water from Kwaibala is chlorinated 100 percent and it makes up 60 percent of the total water supplied. Construction of the chlorination system was completed last year. The borehole feeds the high raised tanks and water supplied is not chlorinated

- Noel Orudiana – Along the corridor for the construction of the tank, a new pipeline will also be laid up to the proposed new tank and already work has started on its

construction. The 1 Megalitre tank and Borehole Pump Station will be built close to Borehole No.3

- ScravinTongi – In terms of the board approval, is there anything that the lands might need from Solomon Water

    o Land Officer (Wendy) – the current board is the only option for SW to work with, given the fact that the current board is the legitimate body to deal with approvals and permission that SW will need for the constructions. There was an amendment of the current act where the PS is the new person for endorsement but it was not gazzeted but the secretary is the one responsible to hand in decision for the constructions work

    o Deputy Permanent Secretary – reiterate the idea for proper board set up of the board to give endorsements and caution SW to deal with the constructions according to the legal and legitimate processes and procedures. There is no short cut. o Lands Officer (Wendy)– Auki has been without a Building Planning Board for nearly 10 years and most of the buildings constructed are done with following the proper process and procedures and said that since water is an essential to life, the board or whoever is responsible must give permission for the building of the new infrastructure.

- Deputy Permanent Secretary – the board must be responsible to give endorsement for the construction of the tank and if it is not functioning, the SW must seek the current approval from the current town and country planning board so as to follow the right process and procedures.

- Womens Rep – advised that this is an important development and women in Auki will support all development of the project to put an end to the water issues they faced in Auki. She explained that they have to paddle to a source some kilometers away and much of their time are spent collecting water for their daily needs. Water is an essential resource and its important that due approval is given for the work to go ahead.

    o ScravinTongi – gives a reflection of the need of the people in Auki to have water. Women and children will benefit and it is only fitting that the people in Auki support the project to its completion.

- Solomon Power Rep – it is important that people pay for the water they use and the public in Auki must support the project as the immediate beneficiaries to this project are our women and children.

- DPS – States that fact that the law must be followed, the current Malaita Province town and country planning board must be the responsible authority to give approval and endorsement for the project. It is a prerequisite to follow the right process and procedures and he assured SW that Malaita Province will render all support necessary for the completion of the project.

- Women's Rep – asked on future plan of SW to carry our awareness to Auki communities. The women's groups is willing to assist and advocate for SW. The women's group will support SW communications team when carrying out their programs in Auki

- Noel Orudiana – basically the project has its community awareness plan. This is the start and we are planning to have two more, community consultation on project construction and project completion

ScravinTongi – very impressed with the meeting and looked forward into working together with the key stakeholders and partners in this project.

Solomon Power (Joshua) – very happy with the project and effective awareness is necessary to inform and aware people in Auki of our services, operations and projects undertaken in Malaita. Sol power and Sol Water should work together in informing and educating people in Auki of the two SOE's essential services in Auki.

Police Rep – awareness is necessary and the police will support SIWA in its developments here in Auki

Noel Orudiana – Sums up with words of appreciation to the stakeholder, partners and those that are involved in the consultation

Consultation Photographs