



Project Information Document/ Integrated Safeguards Data Sheet (PID/ISDS)

Concept Stage | Date Prepared/Updated: 26-Sep-2016 | Report No: PIDISDSC19800



BASIC INFORMATION

A. Basic Project Data

Country Solomon Islands	Project ID P161319	Parent Project ID (if any)	Project Name Tina River Hydropower Development Project (P161319)
Region EAST ASIA AND PACIFIC	Estimated Appraisal Date Nov 14, 2016	Estimated Board Date Apr 28, 2017	Practice Area (Lead) Energy & Extractives
Lending Instrument Investment Project Financing	Borrower(s) Ministry of Finance and Treasury	Implementing Agency Ministry of Mines, Energy and Rural Electrification	

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Financing (in USD Million)

Financing Source	Amount
Asian Development Bank	30.00
Borrower	70.00
KOREA, Rep of: Economic Development Cooperation Fund	30.00
AUSTRALIA, Government of	8.40
International Development Association (IDA)	24.70
IDA Grant	8.90
International Finance Corporation - Syndicated Loan-Private	2.00
Foreign Private Commercial Sources (identified)	24.00
Total Project Cost	198.00

Environmental Assessment Category

A-Full Assessment

Concept Review Decision

Track II-The review did authorize the preparation to continue

Have the Safeguards oversight and clearance functions been transferred to the Practice Manager? (Will not be disclosed)

No

Other Decision (as needed)

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B. Introduction and Context

Country Context

The country's geography and remote location makes the provision of services, including electricity particularly challenging. The Solomon Islands has an ethnically diverse population of just over half a million people dispersed across 90 inhabited islands and one of the lowest population densities (18 persons/km²) and urbanization rates (17 percent) in the world. The wide distribution of the population and the low densities make the capital costs of connecting consumers very high relative to the revenue generation. As a result, less than 20% of the population has access to any electrical power supply with the rural areas having access rates of less than 5% on average. When electricity is available it is many multiples more costly than elsewhere in the world and is often less reliable. Lower cost hydropower from the proposed TRHDP will partially displace higher cost diesel-based power resulting in a reduction in the system average unit cost of power production. The availability of power at reduced and therefore more affordable costs will help to ease constraints to growth.

Sectoral and Institutional Context

Constraints to meeting power demand: Solomon Islands Electricity Authority (SIEA) is the state-owned power utility that is responsible for generation, transmission, distribution and retail of electricity. Its power system comprises the main grid in Honiara, the capital city on Guadalcanal Island, and nine mini-grids serving provincial centers in the outer islands. There are also small privately owned generators which are for self-consumption. SIEA's Honiara power system is almost entirely diesel-based, except for a 1 MW solar farm being commissioned. The total installed generation capacity in Honiara is 32.6 MW, but its available (de-rated) capacity is 30.7 MW. This includes the new 10 MW diesel units commissioned in 2016, but many of the other diesel units are old and inefficient with reduced outputs. SIEA plans to retire 7 MW in 2024, 3 MW in 2037 and 10 MW in 2039. Total power generation was 85.5 GWh in 2015 of which 77.9 GWh was produced by the Honiara grid and 7.5 GWh by the provincial grids.

Peak demand on the Honiara grid has remained generally stagnant since 2009 due to generation constraints as units are frequently taken out for maintenance, electricity retail tariff is expensive, and due to the limited distribution network coverage and the number of customers. Peak demand has only increased by an average of 1% per annum from 12.9 MW in 2009 to 14.4 MW in 2015. However, power supply reliability has improved due to the commissioning of the new 10 MW diesel units in 2016, and SIEA has embarked on an ambitious plan to double its number of customers from 15,500 to 30,000 by 2021.

The most recent least-cost system expansion study performed by SIEA's consultants suggest that peak demand will grow at about 5% per annum to nearly 50 MW by 2040. To be able to meet this demand with sufficient reserve margins, SIEA plans to increase generation capacity in the next several years. In the absence of the TRHDP developed by a private investor, SIEA's plan is to add more diesel units as the old ones are decommissioned.

Relationship to CPF

The proposed project supports the Government's medium term economic development strategy set out in its NDS for the period 2011-2020. The key goals of the NDS are to secure sustainable growth; increase social and economic



opportunities for all Solomon Islanders; and maintain peace and stability. The Solomon Islands National Infrastructure Investment Plan (SI NIIP) prepared for the Government by independent consultants in June 2013 under the guidance of the Pacific Region Infrastructure Facility (PRIF) and the Asian Development Bank (ADB) presents an integrated plan for development priorities of key infrastructure sectors, including electricity. The proposed operation supports the Government's development strategy as articulated in these documents by helping to: (i) ease constraints to growth through provision of lower cost and reliable electricity; (ii) facilitate private sector development; and (iii) promote clean development through substitution of hydropower for diesel power production.

The proposed operation is aligned with the Country Partnership Strategy (FY2013-2017) priorities, the World Bank's Energy Directions Paper and other Bank operations. The World Bank Group's Country Partnership Strategy for Solomon Islands (CPS) is structured around two engagement areas: strengthening economic resilience and improving public service provision. The proposed operation supports the Bank's engagement on economic resilience by helping to ease constraints to growth, leveraging private capital and promoting climate friendly growth. In particular, the project will support the CPS outcome # 5 of lower cost and reliable electricity from cleaner energy sources. The operation, through provision of lower cost electricity would reinforce the efficient performance objectives of SISEP. At the same time, performance gains achieved through SISEP would make the SIEA a more credible off taker of electricity from the TRHDP.

The TRHDP supports the two corporate goals of helping to end extreme poverty and increasing shared prosperity for the poorest 40% of the population. By reducing the cost of power supply, the TRHDP would make electricity more affordable to lower income households. This would enable these households to enhance their income earning capacity through use of power for productive and social purposes. Lower costs of power would also reduce the costs of doing business for small and medium enterprises, thus increasing profits and stimulating investment and job creation leading to increased prosperity for lower income households.

Finally, the TRHDP is consistent with the objectives of clean renewable energy development of the World Bank's Energy Directions Paper.

C. Proposed Development Objective(s)

To lower the system average cost of electricity supply and diversify the source of generation.

Key Results (From PCN)

The direct beneficiaries of the proposed project are electricity consumers of SIEA as the power off-taker and distributor of electricity generated by the TRHDP, and the communities in the project area who will receive a dedicated share of project benefits.

A significant benefit will be fuel import savings that will result from the substitution of diesel for hydropower. The Government, or the nation at large, and the project-impacted communities of Bahomea and Malango will share the fuel savings or avoided costs of diesel generation. The affected communities will receive a dedicated percentage of up to [15%] of SIEA's lowered generation cost as part of a benefit sharing arrangement. The Bank is providing



technical assistance to help define institutional and process arrangements for use of the communities' share of project benefits.

A reduction in the cost of electricity supply will improve the financial performance of SIEA and thereby provide the utility with more resources with which to finance system expansion and to maintain existing assets, thus, improving the population's access to electricity and the reliability of its supply. A financially stronger SIEA will reduce the fiscal risks of having the Government subsidize its operations, in particular, the operations of loss-making outstations that are limited in their outreach to poor rural communities.

Environmental co-benefits will accrue from the improvement in air quality in and around the capital city of Honiara because of reduced diesel-based power production, and also reduced the risk of fuel spillages in the oceans and ports.

The proposed Development Objective indicators for the Project include:

- Reduction in system average cost of electricity supply relative to an all-diesel system (US\$ per kWh); and
- Amount of private funding mobilized (US\$ million) – core sector indicator.

The Project's intermediate indicators will measure implementation progress of the project. These will be decided during the Project appraisal after selection of the project sponsor. The intermediate indicators will likely include:

- Generation capacity of hydropower constructed under the project (MW) – core sector indicator;
- % of energy generated from renewable energy sources (GWh);
- Net greenhouse gas (GHG) reduction (tCO₂-eq)
- Direct project beneficiaries (number), of which female (percentage) – core sector indicator; and
- Actual progress relative to planned implementation schedule as well as actual investment expenditures in relation to budget plans.

D. Concept Description

The TRHDP will consist of four components: (i) a hydropower facility (HPF) with an installed capacity of 15 MW to be developed and operated by an independent power producer (IPP) under a [33-year] concession and sell power to the SIEA under a long-term Power Purchase Agreement (PPA); (ii) an access road to facilitate construction and allow operational access to the power station and dam; (iii) a transmission line to evacuate electricity from the power station to Honiara grid; and (iv) technical assistance to the SIG to monitor and support project implementation and ensure social and environmental safeguard risk mitigation including the sound execution of the Environmental and Social Management Plan as well as the Land Acquisition and Livelihood Restoration Plan.

Component 1: Tina River Hydropower Project Facility (HPF): This component is to develop, finance, construct and operate a hydropower generation plant with the capacity of 15 MW, but designed to accommodate another 5 MW unit when the demand grows further. The HPF will be located on the Tina River, east of Honiara. The HPF will be implemented on a build-own-operate-transfer (BOOT) basis by a "Project Company" to be set up by an IPP to be selected through a competitive bidding process.



Component 2: Access Roads: Construction of an access road to facilitate construction and HPF operations will be designed and constructed in two lots. The first lot will require an upgrade of the existing 13.2 km road from Black Post Junction to Managikiki Village. The second lot involves a 5.5 km greenfield road through steep heavily forested terrain from Managikiki Village to the Dam and Power Station sites.

Component 3: Transmission Lines: The transmission lines will evacuate the power from TRHDP to the Honiara grid. The lines will be 33 kV (or 66 kV) double-circuit transmission line of 23 km to the existing Lungga Power Station. The transmission lines will generally follow Black Post Road and then the new access road to the Tina River power station.

Component 4: Technical Assistance: As part of project preparation technical assistance is being provided through various Bank-administered trust funds to support the implementation of the process agreement on acquisition and use of communal tribal lands, the sharing of benefits with landowners through royalties and land lease income, and the design and preparation of a benefit sharing scheme for the broader communities living in the project area to benefit from the project. Under this component the Bank will finance technical assistance for the SIG to monitor project implementation, monitor and support social and environmental safeguard arrangements, maintain a Dam Safety Advisory Panel, liaise with various government counterparts and other stakeholders, support the implementation of arrangements agreed under the land acquisition process, and support communities in utilizing their share of project benefits for community development.

SAFEGUARDS

A. Project location and salient physical characteristics relevant to the safeguard analysis (if known)

The hydropower site is located on the Tina tributary of the Ngalimbiu River on the north of Guadalcanal and thirty kilometers east of Honiara. The site was selected based on relatively favorable geological conditions and consideration to avoid physical relocation of affected people. The dam site (and all alternatives considered for it) is located in the Tina Gorge, a narrow valley comprised of steep slopes that constrain the river in a narrow channel, and narrow ridge crests. The valley sides at the site of the dam abutments, are very steep (30° to 45° slope), and rise to the ridgeline that crests at approximately 200masl. The catchment area upstream of the dam is 125 km². The upper catchment is characterized by mountainous terrain, with peaks ranging from 800masl to 2300masl. Approximately 60% of the catchment is higher than 800masl. The river there is a series of pools and rapids, with sharp meanders. The gradient lessens downstream of the dam, and the river meanders through a wider valley with lower slopes; the powerhouse is located in this reach. Where the Tina and the Toni River converge, they form the Ngalimbiu River that flows through the coastal plane to the sea, with a small delta at its mouth. The river evidences very good water quality upstream of the reach affected by settlements, which begins at the proposed dam locations and extends downstream. Some villages (e.g., Mangakiki and Marava) are located on flat, low elevation ridges above the Tina River. Other villages (e.g., Koropa, Choro, Sengue, Habusi, Pachuki, etc.) are situated along the river edge. Human settlements are more numerous along the Ngalimbiu River.

The vegetation cover in the upper catchment (although well above the reservoir area) is dominated by montane forest, much of it undisturbed although increasingly threatened by logging. The catchment in the middle river is covered by lowland forest, some of it undisturbed, but showing increasing disturbance with distance downstream. In the vicinity of the villages downstream of the dam, the forest is largely disturbed, by settlements, garden plots, and logging. Terrestrial biodiversity is high, with a large number of animal species endemic to Solomon Islands, and, with the exception of the avifauna that evidences a preference for undisturbed areas, did not vary significantly between



disturbed and undisturbed habitat. The Tina is a valuable aquatic habitat, with 57 species identified during the ESIA baseline surveys, all migratory.

The project area consists of over 30 villages and hamlets, within the Malango Ward, of mainly indigenous people originating from the central Guadalcanal mountain lands, and several official —settler villages made up of people originating from South Guadalcanal/Weather Coast. The Bahomea tribal villages and their component hamlets are mainly stretched out alongside the Ngalimbiu River and lower-mid sections of the Tina River, and are often only hundreds of meters apart. Settlements range in size from two-house hamlets with one extended family, up to villages with dozens of houses and over a hundred residents. These larger villages tend to be arranged around a village square/green with a substantial church, and perhaps a meeting house and other facilities.

The mountainous interior of Malango Ward is essentially unpopulated apart from periodic expeditions by the traditional owners for hunting and camping, and to reconnect with customary homelands. The indigenous people of the Tina area are therefore aware of the locations of their key originating villages and important cultural sites. Since membership of particular clans is claimed through kinship connection with people from successive historic settlements and originating places, knowledge of such places is important for establishing identity and land and resource rights.

The project comprises a 64m high RCC dam located in a narrow gorge in the river which will form a reservoir which will extend for 2.6 km and with a surface area of 30 hectares at full supply level (FSL) at EL 175m. The dam height and the FSL were determined through an optimization process, and with due regards to avoid karstic geology in the reservoir area to ensure water-tightness. The total reservoir volume will be 6.9 million cubic meters (MCM) of which 1.4 MCM is the active storage, 3.2 MCM is dead storage and the balance is volume between the minimum operating level and the invert of the power intake. The dead storage is calculated to fill up only after 65 years based on the expected bedload inflow of 50,000 m³/year.

The design discharge of 18 m³/s will be conveyed through the 3.3 km pressurized headrace tunnel with an internal diameter of 3.0 m. The tunnel is expected to be excavated by a combination of drill-and-blast method and machine excavation. At the end of the headrace tunnel will be a 30 m high surge shaft with internal diameter of 9.0 m. From there, water is conveyed through an 85 m concrete power shaft and then through a 140 m steel penstock which trifurcates and connects to three 5 MW vertical-shaft Francis turbines. The turbine discharge is returned to the river through a short tailrace channel. The river stretch between the dam and the tailrace is 5.4 km. Environmental flow of 1.0 m³/s, determined through a detailed study on aquatic habitat, will be discharged through the riparian outlet of the dam.

The project will annually generate an average of 80 GWh which will displace diesel generation. The expected net greenhouse gas emission reduction (after deducting potential emissions during construction and from the reservoir during operation) is calculated to be 2.53 million tCO₂e over the life of the project.

B. Borrower's Institutional Capacity for Safeguard Policies

Component 1: Tina River Hydropower Project Facility (HPF) will be developed and operated by a private sector developer through a Build, Own, Operate, Transfer (BOOT) modality. The responsibility for implementation of safeguard mitigation measures will, therefore, largely lie with the developer and the Bank's Performance Standards will be applied via the triggering of OP 4.03— Performance Standards for Private Sector Activities. Importantly, the project would satisfy all of the "Scope of Application" requirements in Clauses 3 – 6 of OP 4.03. Limitations identified in Clause 7 of OP 4.03 would not apply. It is noted that the World Bank PS will apply to Component 1 irrespective of



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whether IFC is involved in financing the private entity as use of OP4.03 is linked to the private entity, not IFC. These activities are reflected in Component 1 of the project. All eight of the Performance Standards would be triggered and assessed as part of appraisal. The preferred bidder, Korea Water Resources, is familiar with the Performance Standards through their implementation of IFC-financed PPP projects, including Nenskra hydropower project in Georgia and the Patrind hydropower project in Pakistan.

Bank OPs 4.10 *Indigenous Peoples* and 4.12 *Involuntary Resettlement* also apply to Component 1, because land acquisition for the dam and powerhouse was carried out by SIG. The borrower’s capacity to implement these policies is discussed under Component 2 below.

Component 2: Access Roads, will be developed by the Ministry of Mines, Energy and Rural Electrification (MMERE) as a public investment, therefore the Bank’s OPs apply. MMERE, through its Tina River Hydropower Development Project Office (the Project Office) will be responsible for the implementation of safeguards mitigation measures for the access roads. Through project preparation, the Project Office of MMERE has already had considerable experience with Bank policies, especially OP 4.10 and 4.12, for which it organized and conducted most of the consultations for FPIC and the confirmation of broad community support for the project. The PO includes environmental and social specialists, and they will be supplemented with consultants to assist in oversight of ESIA implementation, funded under Component 4. In addition, the independent Environmental and Social Panel will remain in place, and an independent monitor will be engaged. Under Component 4, the project will also provide capacity-building including training, equipment, and vehicles to the Environment and Conservation Department of MECDM to enable it to fulfill its monitoring and enforcement functions for the project.

Component 3: Transmission Lines, is expected to be financed by IDA resources which will be on-lent by the Solomon Islands Government to SIEA. SIEA will be responsible for the implementation of safeguards mitigation measures. As a public investment, the Bank’s OPs apply. SIEA has a single HSE officer on staff. Given the relative straight-forward nature of the task of constructing a 66-kV transmission line as a part of SIEA’s normal business of line extension, he will be able to oversee compliance with the ESMP. However, since his expertise is more in the areas of health and safety than environment, Component 4 will provide a consultant to assist him. SIEA also has considerable experience in applying Bank OPs through its ongoing implementation of the Solomon Islands Sustainable Energy Project (SISEP).

Component 4: Technical Assistance: There are no physical investments involved under Component 4. The technical assistance is intended to assist the Project Office and SIEA to manage the project through provision of financing support for the daily operation of the Project Office as well as to retain external experts including Dam Safety Advisory Panel; Environmental and Social Panel; and independent monitoring agents for environment and land acquisition. The Bank will review all terms of reference prepared for consultancies in order to ensure that Bank safeguards policies are properly taken into account.

C. Environmental and Social Safeguards Specialists on the Team

Thomas E. Walton, Ross James Butler, Nicholas John Valentine

D. Policies that might apply

Safeguard Policies	Triggered?	Explanation (Optional)
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Environmental Assessment OP/BP 4.01 Yes

Environmental impacts would occur during the construction, operations and maintenance phases of the project and would occur in locations including the reservoir and possibly the river and its basin further upstream, the dam site, tunnel corridor and power plant location, a section of the Tina River between the dam and powerhouse that will experience significantly reduced flows, the downstream waters, and the corridors of the transmission line and access roads. Impacted areas would also include the construction areas, quarry areas, spoil disposal areas and construction equipment service areas.

Component 1 of the project will satisfy all of the "Scope of Application" requirements in Clauses 3 – 6 of OP 4.03. Limitations identified in Clause 7 of OP 4.03 would not apply. Accordingly, the World Bank PS will apply to Component 1 irrespective of whether IFC is involved in financing the private entity as use of OP4.03 is linked to the private entity, not IFC. For Component 1, the developer will be responsible for addressing seven of the eight World Bank Performance Standards, beginning with Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts. Government has completed and disclosed a Draft ESIA as part of the Feasibility Study and tendering process to attract a private developer. The selected developer will then submit its own full ESIA and Environmental and Social Management Plan (ESMP) to SIG in order to receive Development Consent from the Director of Environment in the Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM). The Bank will review the ESIA and the developer's ESMS and prepare a draft Environmental and Social Review Summary (ESRS) as required by the World Bank Performance Standards prior to appraisal.

The members of the Environmental and Social Panel have been contracted by the Project Office since July 2013. They provide ongoing advice, in particular on the preparation of safeguards documentation, including the design and costing of mitigation measures and review of monitoring reports. Terms of Reference for consultants advising the government



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on environment and social safeguard risks will continue to be approved by the Bank to ensure the requirements of the World Bank PS and safeguards policies are effectively integrated into the TA work under Component 4.

For Components 2 and 3, OP 4.01 is triggered as the access road construction activities undertaken by the government and the transmission line construction by SIEA are likely to result in environmental and social impacts. The potential impacts and their mitigation are covered in the ESIA for Component 1, since the access road and transmission line are associated projects of the dam and power plant construction.

The draft ESIA, prepared by government, was disclosed on the Bank’s external website on August 15, 2016.

OP 4.04 is triggered for Components 2 and 3. Natural habitat is addressed under PS6 for Component 1. The discussion below applies to all three components. In preparation of the ESIA, fauna, flora and fish surveys have been carried out and project affected communities have been extensively consulted through social surveys and mitigation workshops. The main impact during operations would be on aquatic ecology, related to the presence of the dam, an impassable obstacle to all fish due to its height. As on other tropical islands of the Indo-pacific, all native species encountered in inland fresh water are migratory species with a life cycle between ocean and river. The draft ESIA concludes that while the upper catchment plays an important role in fish life cycle it is not considered to be a critical natural habitat since the fish do not show homing behavior (meaning that juveniles will colonize any rivers and not only their native one), and the Tina River mouth is more important to life cycle than upstream areas, being the only entry point for all fishes. The draft ESMP proposes mitigation measures including environmental flow (riparian flow), a “trap and haul” system to allow migratory fish to pass the dam, protective devices for fish mortality in turbines, and fish monitoring, to allow major impacts to be mitigated to moderate significance. The “trap and

Natural Habitats OP/BP 4.04

Yes



haul” system was adopted in lieu of a natural channel fish pass after evaluation of alternatives by a fisheries expert engaged to supplement the work of the ESIA consultant. Both approaches are suitable for fishes able to climb, such as eels and gobies, and trap and haul is more practical and adaptable and less costly and has proven effective for similar species on hydroelectric projects in New Zealand. Neither is effective for free-swimmers such as *Kuhlia* spp., but it may be possible to capture them with nets and transfer them upstream. The 5 m operating range of the reservoir would necessitate a complicated system of hydraulic structures at the upstream end of a conventional fish pass to maintain a constant flow under the range of reservoir levels. Other advantages of a “trap and haul” system are that it is simple, can be operated by local people and it would provide a record of fish migrations. Some reduction in the populations of swimmers upstream of the dam is likely.

The undisturbed montane forests in the upper catchment (located well above the furthest extent of the reservoir) meet the definition of natural habitat. The project is not expected to have direct impacts on those forests. The project’s access road approaches the site from the downstream side of the dam and is located well away (4-10km) from the montane forest areas. The project does not anticipate an increase in the accessibility of the forest. It is expected that given the substantially increased level of oversight and management of the catchment by the operator that impacts which otherwise may be created by informal logging which is common in the area will be reduced. None of the upper catchment is presently in a protected status although it possesses the potential to become a protected area. Additional information is needed to make such a determination. However, several rare, endangered and vulnerable species and plants were observed during limited inventories of the area. The ESIA and ESMP will detail how this area will be subject to ongoing monitoring by both SIG and the project developer with an adaptive management approach to ensure that potential impacts on natural habitats related to the project are fully understood and managed by a conservation plan and/or



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mitigation measures in particular if there are significant impacts on critical nature habitats. Furthermore, the Bank will support any action by SIG to protect the area upstream of the reservoir.

The approximately 400 ha acquired for the dam, powerhouse, access road and transmission line contains a great deal of heavily modified habitat but natural habitats as well. The project will achieve no net loss of biodiversity by restoring and protecting modified habitat at least equal in area to natural habitat that is converted. This area will also be subject to detailed monitoring by both SIG and the project developer.

For Component 1, the developer will be responsible for addressing PS 6, Biodiversity Conservation and Sustainable Management of Living Natural Resources. Terms of Reference for consultants advising government on topics related to this PS will be approved by the Bank to ensure the requirements of the Performance Standards are effectively integrated into the TA work under Component 4.

For Components 2 and 3, potential impacts on biodiversity and natural habitats are addressed in the ESIA for Component 1 since the access road and transmission line are associated projects.

Forests OP/BP 4.36

Yes

Many areas on the left bank of Tina River have been logged, and some of the project area, in particular the banks of the reservoir, is too steep to be accessible for logging. Nonetheless, erosion due to logging is an important concern for the local population, as the slope is steep, erosion quickly affects water quality of the river. Being located upstream from the dam site, logging activity represents a potential threat to water quality and could increase siltation processes in the reservoir and create landslides; accordingly these activities will be carefully monitored by the project operator so as to ensure they are minimized as far as possible. The draft ESIA estimates that 5.85 ha of undisturbed forest (mainly for quarry sites), 10.42 ha of disturbed forest, and 3.56 ha of remnant forest would be affected by project construction. Due to the poor reputation of this industry in the Solomon Islands and Guadalcanal, the draft ESIA recommends



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that the company responsible for logging of project sites be subject to the strict contractual measures and best environmental and social management practices, and that all its activity be monitored by an independent environmental expert. Good practices such as keeping the canopy “sealed” by minimizing large tree clearing to maintain canopy connectivity and reduce the edge effect are also recommended and will be costed as part of the ESMP.

For Component 1, the developer will be responsible for addressing Performance Standard 6, Biodiversity Conservation and Sustainable Management of Living Natural Resources.

OP 4.36 is triggered for Components 2 and 3, as access road construction will involve forest clearing. The potential impacts and their mitigation are covered in the ESIA for Component 1.

Pest Management OP 4.09

No

None of the project components will involve, or promote, pesticide use.

Physical Cultural Resources OP/BP 4.11

Yes

There are numerous tambu sites in the project area, many of which have been identified during the Social Impact Assessment part of the draft ESIA. These are sites that have local spiritual, historical, or other cultural importance and are considered sacred or restricted as to use or access. The draft ESIA recommends that prior to any construction commencing, the government or project developer carries out a survey in consultation with community representatives to identify cultural heritage, tambu sites in the construction areas. A suitably qualified heritage expert, working closely with knowledgeable elders and the Solomon Islands National Museum, should undertake this survey. The details of the sites should remain confidential. This inventory and assessment work has already commenced as part of the process agreement for the acquisition and use of communal tribal lands identifying all assets of the tribes occupying the core land area. Prior to construction, it is also recommended that the developer, in conjunction with culturally knowledgeable locals and a botanist, should also survey the project and road construction sites to identify culturally important medicinal and magical plants that may need to be protected or relocated. A



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requirement for chance find procedures will also be included in all bidding documents for the developer.

For Component 1, the developer will be responsible for addressing Performance Standard 8: Cultural Heritage. For Components 2 and 3, SIG and SIEA will address the requirements of OP 4.11 by applying the same procedures presented in the ESIA and ESMP.

As outlined in the ESIA, several groups or communities could be affected by the project or are present in the project area, including: the indigenous Malango people of the Bahomea district who own and occupy the 'core land area' for the project; the indigenous Malango people of Malango district, some of whom are customary 'shareholders' in the core area; the 'settler' Guale people in the Bahomea district; the indigenous coastal Ghaobata people of the Guadalcanal Plains, and; 'squatter' peoples of various origins, who are living on 'unoccupied' government/alienated land in the northern part of the project area without the formal approval of the local indigenous customary tribes. For the purposes of the social impact assessment and social safeguards compliance, the vast majority of groups resident in the project area can be considered indigenous Solomon Islanders.

Indigenous Peoples OP/BP 4.10

Yes

Throughout project preparation, the Government has been engaged in extensive consultations with affected indigenous communities, guided by the use of a Stakeholder Engagement Plan. Numerous community consultations and meetings with a range of stakeholder groups on a range of topics have been carried out during project preparation and these have been carefully documented by the Project Office through reports, surveys, photos and videos. As part of the process agreement for the acquisition and use of communal tribal lands and the sharing of benefits with landowners through royalties and land lease income, the Project Office has worked with indigenous groups to identify the tribes that are landowners of the core land area which has previously been acquired by government via the statutory process. The land identification, which is a critical part of the process agreement, has involved chiefs and storytellers who are cognizant of the



history of the land was initiated in November 2012. A number of meetings - which were open to community members - were convened to reach agreement by consensus on ownership and boundaries. This indigenous initiative has been of critical importance, not only because an agreement has been reached with government on the ownership and boundaries required for the subsequent agreement on land acquisition, use, and associated benefits but perhaps more importantly because of the participatory process through which agreement and consensus between tribes and custodians of land was achieved. The land identification, as part of the process agreement, has also contributed to the emergence of legitimate community leaders that can speak on behalf of the affected tribes which will be critical during the land acquisition and benefit sharing processes.

For Component 1, the developer will be responsible for addressing Performance Standard 7: Indigenous Peoples. Under Components 2 and 3, SIG and SIEA will have the corresponding responsibility under OP 4.10. OP 4.10 also applies to Component 1, specifically to the land acquisition and resulting impacts on livelihoods.

A separate Indigenous Peoples Plan is not being prepared in keeping with the provision of OP 4.10 that IPP requirements can be integrated into the overall project design when the overwhelming majority of direct project beneficiaries are indigenous people.

Involuntary Resettlement OP/BP 4.12

Yes

One of the primary challenges of the project is to attract a private developer willing to engage in the construction and operation of the hydropower facility. The acquisition and use of land in a country with predominantly customary land ownership and very limited experience with private sector development of a large-scale investment project, was seen as one of the most significant impediments to attracting a private developer and the feasibility of the project. Therefore, the government has been working for a number of years to identify the rightful customary owners and reach agreement with the tribes on a process to have access to the land



required for the project, and to be able to ensure that it can acquire and/or use the land in advance of finalizing an agreement for the construction and operation of the hydropower facility. In the absence of an agreement or assurances to have access to the land needed, a developer would not be expected to express an interest in investing in the Tina Hydro project and sign such an agreement. By putting together a process agreement on the acquisition and use of communal tribal lands, and the sharing of benefits with landowners through royalties and land lease income, the SIG has managed to substantially reduce one of the key project risks and impediments. The land acquisition process is outlined below. Substantive documentation on this process is being prepared and will be completed prior to appraisal.

The project will not cause any physical displacement requiring relocation. Based on the technical design in the final feasibility study, the minimum area required for the hydroelectric plant and auxiliary facilities, the transmission towers and lines, and during construction, for the access roads, quarries, construction camps, and disposal sites has been identified and referred to as the “core land area.” The core land area covers 428 ha. This land is uninhabited, and it is utilized by customary landowners primarily for hunting, non-timber forest products and, potentially, the sale of timber. The tribal registries for the five tribes identified as landowners identify 781 individual people as affected by the land process agreement of the core land.

The Land and Titles Act provides two different ways by which the Government through the Commissioner of Lands may acquire land. Part V (Division 1) provides a process through the use of a Land Acquisition Officer who is appointed by the Commissioner. However, the experience of the indigenous owners has been that this process does not lead the parties whom they consider the “rightful” owners being correctly identified and dealt with in a culturally appropriate manner. In an effort to address this shortcoming, the government has approached the land process through the use of extensive consultation to address the issues raised by



the indigenous owners for land/owner/issues identification while another statutory process, one that exercises the provisions of Part V (Division 2), acquisition for public purpose, is being used as the actual legal instrument for land acquisition.

For the catchment area which includes approximately 13,200 ha and all the tribal groups with an interest in this land are registered with either the Malango House of Chiefs or the Bahomea House of Chiefs or both. These Tribal Groups have been strong and consistent supporters of the TRHDP from its inception. As the investigations into the feasibility and viability of TRHDP proceeded, it became clear that TRHDP did not require the acquisition of the whole of the Tina catchment (whether by leasehold or freehold). Instead the concept of the Core Land emerged. The rest of the catchment can and should fully remain in customary ownership – and procedures are being discussed with the traditional owners to protect this important land from inappropriate development. A group of elders from within Bahomea community commenced in 2012 a process of identifying the boundaries and names of traditional Blocks of Land which formed part of the Core Land required for TRHDP.

Using traditional methods of inquiry and storytelling the Bahomea Land Identification Committee (BLIC) also completed a process of documenting the Land Ownership of these blocks and tested the outcomes with the tribal chiefs of the land owning groups identified. This resulted in endorsement of the outcomes recorded. The BLIC was self-initiated and conducted by its members, independently of SIG.

This process has facilitated land identification by indigenous groups in the core land area. Through the signing of the Process Agreement with the four identified tribes (Kochiabolo, Roha, Buhu Garo and Vuralingi) in August 2014 they confirmed their agreement for the Government to acquire the land for the purposes of the project under a comprehensive agreement as to its use and benefits provided to the landowning tribes.



The land process agreement includes the following elements (i) The acquisition by declaration under the Lands and Titles Act of the Perpetual estate in the Core Land; and (ii) the purchase by agreement of the Intellectual Property of the Core Tribes in their traditional relationship with the Core Land. In return, under the provisions of the process agreement, the Core Tribes will receive: (i) compensation for the interests in the core land which cease to subsist by virtue of the provisions of Section 75 of the Lands and Titles Act; (ii) consideration for the Intellectual Property described above which they agree will be vested in a [yet to be established] Tina Core Land Company; and (iii) Shareholding in the Tina Core Land Company (TCLC) which will enable landowning tribes to continue to participate in the planning and future development of the core area and (iv) a share in the benefits of the Tina Core Land Development Fund which will be established by TCLC.

Subsequent to signing the Process Agreement, the government has completed the statutory procedures under Division 2 of the Land and Titles Act, including the appeals period. The Commissioner has made offers to all five land-owning tribes (a fifth tribe was identified during the claims period) and, none of the tribes responded to the offer, thereby, making the offer final. As of January 2017, two tribes have received compensation and a third is in the process of establishing accounts for its members. Under the terms of the Process Agreement, the members of each of the landowning tribes will be supported by SIG to register as members of a tribal cooperative association and receive compensation through individual bank accounts. Whilst discussions are underway with the remaining two tribes to establish their cooperative associations and associated accounts, SIG has placed the required amount of funds for compensation in an escrow account and will transfer the funds to each tribe as soon they proceed to establish cooperative associations. It is important to emphasize that the signing of the Process Agreement and the agreement and consensus on the statutory process would not have been possible without the successful and lengthy indigenous land identification process which in turn was based on



many years of in- depth stakeholder engagement.

To ensure that the process agreement is in line with Bank policy, the Bank will undertake a detailed due diligence prior to appraisal. The due diligence would assess among other things eligibility of land claims, compensation criteria, consultation process, access to grievance redress mechanisms and livelihood restoration. The due diligence will identify gaps between the agreement and applicable Bank policy and include a corrective action plan and measures as needed.

The Government has contracted a consultant to prepare a Land Acquisition and Livelihood Restoration Plan (LALRP).The draft LALRP was disclosed on the Bank’s external website on August 15, 2016.

Beyond the compensation being provided by the Government for land claims, and the benefits provided for in the Process Agreement, communities in the broader project area, including downstream, will receive community development benefits from a benefit sharing scheme which Government is developing in consultation the project area communities. The scheme will not be fully implemented until the hydropower facility begins to operate and payments for electricity commence under the Power Purchase Agreement. In the meantime, Government is likely, through financing by the Japan Social Development Fund, to (i) establish the implementation arrangement; (ii) build the capacity of the communities to identify, implement and operate the community projects; and (iii) to implement early investment projects (i.e. water supply) in advance of the launch of the scheme. The benefit sharing scheme will be designed to be delivered in a highly consultative – community driven manner.

For Component 1, Performance Standard 5: Land Acquisition and Involuntary Resettlement is not triggered because the developer will not have any responsibilities that fall beyond government’s responsibility via its acquisition of land. OP 4.12 will



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be triggered for Component 1 as the land process agreement is mainly the responsibility of the SIG. OP 4.12 is also triggered for Components 2 and 3 as the final road alignment and transmission line route have not been fixed and could entail the acquisition of additional land. Terms of Reference for consultants advising on topics related to OP 4.12 will be approved by the Bank to ensure the requirements of the World Bank are effectively integrated into the TA work under Component 4.

Since the Performance Standards apply to Component 1, the developer will be responsible for addressing dam safety under Performance Standard 4: Community Health, Safety and Security rather than OP 4.37: Safety of Dams. OP/BP 4.37 have nevertheless been used in addressing dam safety as described below, because they provide detailed guidance not included in PS4.. Terms of Reference for consultants advising on topics related to this PS will be approved by the Bank to ensure the requirements of the Performance Standards are effectively integrated into the TA work under Component 4.

Safety of Dams OP/BP 4.37

No

As part of project preparation, in July 2013, the Project Office contracted three international experts, approved by the Bank, as members of the Dam Safety Advisory Panel, basing the Panel’s terms of reference on World Bank OP/BP 4.37. The members of the Panel provide ongoing advice on technical aspects of the project. They have been particularly active in advising on the completion of the Feasibility Study, including the preparation of a Geotechnical Baseline Report which is being used to negotiate Component 1 design with the developer. The Panel members also played an instrumental role in the selection of the final preferred location for the dam and other facilities, recommending a site which was further upstream than the site which the Feasibility Study consultants had previously identified, but which turned out to have superior geological conditions as well as more favorable financial and economic returns.

As part of Component 4, the Panel will continue to advise the Project Office, and government more broadly, through contracting, construction and initial



operations.

Components 2 and 3 do not trigger OP/BP 4.37

Projects on International Waterways OP/BP 7.50	No
Projects in Disputed Areas OP/BP 7.60	No

E. Safeguard Preparation Plan

Tentative target date for preparing the Appraisal Stage PID/ISDS

Nov 16, 2016

Time frame for launching and completing the safeguard-related studies that may be needed. The specific studies and their timing should be specified in the Appraisal Stage PID/ISDS

A. Target date for the Quality Enhancement Review (QER), at which time the PAD-stage ISDS would be prepared:
N/A

Time frame for launching and completing the safeguard-related studies that may be needed. The specific studies and their timing should be specified in the PAD-stage ISDS.

For Component 1, the ESIA, incorporating a detailed social assessment and management plan, was disclosed to the public on the World Bank website on August 15, 2016. Components 2 and 3 are covered in the ESIA as associated projects. The Land Acquisition and Livelihood Restoration Plan (LALRP) was also disclosed at the same time as the ESIA. Formal completion and approval of the ESIA and issuance of a development consent by the government cannot occur before the investor is selected which is planned for October 2016. This is because the Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM) does not allow the transfer of development consent; it must be issued to the actual developer. However, the MECDM’s participation in an early review of the draft ESIA documents, in advance of official submission by the developer, will facilitate more rapid approval of the study and issuance of development consent to the developer.

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APPROVAL

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