

P-4 Human Resources and Labour Management Plan

Aim and Objective				
<p>The aim of the Human Resources and Labour Management Plan (HRLMP) is to present a recruitment strategy prioritizing local workers from the Solomon Islands, with a focus on the local Benefit Share Community (Bahomea and Malango Wards) and to implement the Gender Action Plan (GAP). The HRLMP will apply to employees, contractors and sub-contractors during the construction phase of the project. Specific objectives of the HRLMP are to:</p> <ul style="list-style-type: none">Establish the mechanisms and procedures through which the Project will meet its agreed quantitative hiring and procurement targets.Attract and retain a skilled and competent workforce.Ensure employees are aware of their rights and entitlements including pay, holiday, sickness and bereavement leave, and rest breaks.Deliver a fair and equitable environment that includes mechanisms for responding to and resolving employees' questions, difficulties or concerns.Ensure compliance with relevant industrial relations legislation, and any applicable requirements of Project lenders and SIG.Ensure employee relations issues are managed justly, and in a coordinated and consistent manner.Incorporate performance targets and actions identified in the Gender Action Plan (GAP) relevant to human resources and labour management of women. <p>The HRLMP has links with a number of other plans including P-3 Stakeholder Engagement and Communication Plan (SECP), P-5 Influx Management Plan (IMP), P-6 Grievance Redress Mechanism (GRM), P8 Workers Health and Safety Plan (WHSP), P-9 Workers Code of Conduct (WCC), and P-10 Community Health and Disease Vector Management Plan (CHDVMP).</p>				
Summary of Impacts and Risks				
<p>The impacts on local communities from a large construction project include disruption of daily life, loss of natural resources and loss of land. Local people want jobs but often need training and direction to be successful. Non-local workers and job seekers coming into the area can also increase the demand for land, food, services and resources.</p> <p>There can also be significant benefits for local communities, such as an increase in employment, opportunity to provide goods and services, and opportunity to complete relevant training, if managed and implemented appropriately. The priority employment of women, recruitment of members of the local Benefit Share Community (BSC) over other workers, as well as the preferential recruitment of Solomon Islands' nationals is a key mitigation measure of the Project.</p>				
Mitigation and Management Actions				
#	Issue or Risk	Action	Timing / Frequency	Responsibility
P-4-1.	Lack if employment of local people	<p>The Project Company, contractors, and sub-contractors, including the EPC Contractor shall not, employ or engage a non-Solomon Islands national for an unskilled, semi-skilled or skilled occupation unless the position has been advertised within Solomon Islands; and reasonable remuneration has been offered for the position. Targeted recruitment, promotion, and training shall be undertaken to assist in meeting the recruitment objectives set for the project.</p> <p>The following hierarchy will be followed for recruitment with the aim of achieving the recruitment targets.</p> <ol style="list-style-type: none">First, to local members of the Community Benefit Sharing Project (CBSP); thenOther Guale people (Indigenous people of Guadalcanal), who are not members of the CBSP but live locally in the Malango and Bahomea communities, followed by;Guale people who are from elsewhere; thenNon-Guale residents of Guadalcanal (including Honiara); thenSolomon Islands nationals usually resident in other islands; and thenForeigners. <p>Annex P-4-I Unskilled and semiskilled occupational positions identifies the positions available during the construction period for skilled, semi-skilled or unskilled workers.</p>	During mobilization, pre-construction and construction	HEC Administration Manager HEC HR Manager
P-4-2.	Lack of a transparent recruitment process	<p>A Human Resources Policy and Procedure (Annex P-4-II) will be implemented. The key components are:</p> <ul style="list-style-type: none">Locally publicising employment opportunities via websites, local newspapers and notice boards with sufficient notice prior to construction, with priority given to locals as per the hierarchy in P-4-1.Applications will be received via post, online submission, or through CBSP contacts and Community Liaison Officers working with communities.Interviews will be conducted at the HEC office.A Register of Interest will be used to maintain a list of people interested in employment, contact details, qualifications and types of roles for which they would be suited. <p>By following this process, job-seekers will be discouraged from going directly to the construction site.</p>	During mobilization, pre-construction and construction	HEC HR Manager
P-4-3.	Use of day labour	<p>Use of day labour shall be minimised where possible. If day labourers are used, they shall be employed under a day contract and be subject to the same labour laws, health, safety and environmental requirements as regular employees. Day labourers shall be:</p> <ul style="list-style-type: none">Sourced from (or added to) the Register of Interest of local workers, to be maintained by HEC Human Resources department.Employed via a casual contract to be signed by both parties (employer and employee), with employment conditions, hours of work and pay rates to be clearly stated.Subject to a site induction and health, safety and environment training as per all other employees and site visitors.Employed for tasks that they are qualified or otherwise able to perform, and be provided with adequate supervision.Paid at market rates in accordance with their skills and experience (for avoidance of doubt, at or above the minimum wage).Provided transport via the free company shuttle, to minimise day labourers congregating at the site entrance.	During mobilization, pre-construction and construction	HEC HR Manager

P-4-4.	Exploitation of workers, requiring them to work longer hours to complete construction activities	<p>During construction of the access roads (Lots 1, 2 & 3), HEC employees and subcontractors will be contracted to work 88 hours per fortnight as standard, as follows:</p> <ul style="list-style-type: none"> Monday to Friday: 8 am to 5 pm, with a 1-hour break between 12-1 pm (total of 8 hours worked on each working weekday). Saturday: 8 am to 12 pm. <p>During main works construction, two shifts covering 24 hours continuously will be operated. Workers shall work up to 6 days per week for a maximum of 10 hours per day, comprising 8 hours plus 2 hours overtime (60 hours per week or 260 hours per month) if approval from the Commissioner of Labour is granted (*refer section P-4-A):</p> <ul style="list-style-type: none"> Day shift: 7 am to 6 pm, with a 1-hour break between 12-1 pm (total of 10 hours worked per day). Night shift: 7 pm to 6 am, with a 1-hour break between 12 midnight -1 am (total of 10 hours worked per day). Shift change times: 6am to 7am / 6 pm to 7 pm (2 hours total, to transport workers to and from site, unpaid) <p>In compliance with the Solomon Islands Labour Act 1996:</p> <ul style="list-style-type: none"> Workers will not be required to work more than 45 hours per week.* Workers will not be required to work more than 9 hours in any working day.* Workers will take a mandatory 1-hour break during each 8-hour working day. Workers shall not be required to be at the place of work for more than 12 hours per day, accounting for hours of work and breaks. Workers will be allocated a weekly rest of at least twenty-four continuous hours (currently proposed to be Saturday or Sunday). Workers that are required to work on public holidays will be paid at a rate of not less than twice the regular hourly rate of pay. Workers shall be supplied with all personnel protective equipment needed to protect them from occupational and environmental hazards associated with their job. If it is necessary for employees to work beyond their regular contracted hours, or on public holidays, any of these additional hours worked will be paid at overtime or public holiday rates as applicable. The overtime hours shall be managed to restrict weekly working hours to 57 including the normal working hours or 228 working hours in a calendar month in accordance with the Labour Act Cap. 12, unless approval from the Commissioner of Labour is granted (*refer section P-4-A). 	Throughout construction	HEC HR Manager
P-4-5.	Gender bias or harassment of female workers, women and girls in the community	<ul style="list-style-type: none"> HEC and THL will provide equal opportunities for women to participate in the Project and its associated community projects as outlined in the GAP (P-4-III Gender Action Plan). This includes creating a work environment that encourages and supports female workers by: <ul style="list-style-type: none"> Offering equal pay. Targeting a workforce gender ratio of at least 30% women (supported by targeted recruitment, promotion, and training). Offering a range of working conditions, including managerial, full time, part time and temporary contracts. Providing annual gender bias training to the HEC Administration Manager, HEC HR Manager, and HEC Project Manager, along with senior managers within THL. This training will increase managers' awareness of gender bias in the workplace, particularly encouraging male managers/workers to create a space and opportunity for women to participate equally in the workplace. A suitably qualified provider will be identified (and a course delivered) with the help of THL and PO. Workers will be required to comply with P-9 Workers' Code of Conduct (WCC) at all times when contracted to work on the Project. The WCC includes rules regarding inappropriate behaviour to other workers and members of the public (including sexual/physical/verbal harassment). Any non-compliance will be subject to sanctions/disciplinary action, including termination of employment where appropriate. The protocols outlined in Annex P-4-IV Workers Harassment Policy will be followed in the event of any allegations/incidents of sexual or other forms of harassment and/or gender-based violence. The PO, THL and HEC will each employ at least one female Community Liaison Officer (CLO) to facilitate women-only meetings in communities and serve as a point of contact for female stakeholders. 	During mobilization, pre-construction and construction	HEC HR Manager THL E&S Manager PO
P-4-6.	Exploitation of underage workers	<p>HEC employees and subcontractors will not employ children in a manner that is economically exploitative or is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.</p> <ul style="list-style-type: none"> The minimum age of workers shall be 15 years of age. Children below the age of 18 years will not be employed in dangerous work (e.g. underground, under water, at dangerous heights or in confined spaces; work with heavy machinery, equipment and tools, or which involves the manual handling or transport of heavy loads; exposure to hazardous substances, temperatures, noise or vibrations). <p>This policy will be extended through to procurement of goods and services.</p>	Throughout construction	HEC HR Manager
P-4-7.	Attraction and retention of workers by providing basic benefits	<p>HEC employees will be able to access the following basic benefits required under section 60 of the Solomon Islands Labour Act 1996:</p> <ul style="list-style-type: none"> 15 days paid annual leave per year, accrued on a pro rata basis. 22 days paid sick leave per year 3 days compassionate leave upon the death of an immediate family member, up to a maximum of 12 days per year. Holiday passage payment. 12 weeks' maternity leave for female employees and up to one hour paid absence twice daily to nurse their child during working days, for up to two months following completion of their 12 weeks' maternity leave. <p>In addition, HEC will provide:</p> <ul style="list-style-type: none"> Free accommodation in the workers' camp for any foreign workers. A free company shuttle(s), which will operate daily between Honiara, the workers camp, and the site office to transport workers prior to the start of their shift, and return at the end of each day. Monetary allowances, depending on each employee's role, working hours, accommodation and transport requirements. Workers shall be paid at market rates in accordance with their skills and experience (for avoidance of doubt, at or above the minimum wage). 	Throughout construction	HEC HR Manager

P-4-8.	High demand for accommodation and other resources	<p>A temporary Workers' Accommodation Camp (WAC) has been established to house foreign workers during the Project construction period. It is located outside of Core Land at Grass Hill along Black Post Road. The workers' camp will be operated in compliance with the IFC and European Bank for Reconstruction and Development (EBRD) <i>Guidance Note on Workers' Accommodation: Processes and Standards 2009</i> and the site-specific Camp Impact Assessment prepared. The minimum services that will be provided in the Worker's Accommodation Camp, and as outlined in World Bank Environmental and Social Standard 2 (ESS 2), include:</p> <ul style="list-style-type: none">adequate and easily accessible supply of potable water for drinking, washing and other domestic purposes;adequate sewage and garbage disposal system;sleeping quarters with appropriate space for all workers;appropriate protection against heat, cold, damp, noise, fire and disease-carrying animals;adequate sanitary and washing facilities; andall meals (fresh and cooked food will be provided on site by a local catering subcontractor engaged by HEC). <p>Workers staying in the camp will not be charged for access to any camp facilities; nor will there be any deductions from workers' remuneration to cover accommodation costs. Opportunities for recreational activities will be provided onsite to reduce the need for workers to access the local communities.</p>	Throughout construction	HEC Camp and Office Manager	
P-4-9.	Worker boredom and undesirable behaviour	<ul style="list-style-type: none">HEC will provide a range of extra-curricular activities and services to its employees staying at the WAC.No unauthorised visitors shall be allowed into the WAC.Free condoms, contraceptive advice, and information regarding sexual health, hygiene, and the risks associated with STDs and HIV/AIDs will be available to all Project workers in the site medical facility.Workers will receive sexual health and hygiene awareness training when they attend the general induction (for all new workers) and during annual refreshers.Community health awareness programs will be implemented as described in P-10 Community Health and Disease Vector Management Plan.	While worker accommodation camp is occupied	HEC Administration Management HEC Camp and Office Manager HEC Training Supervisor	
P-4-10.	Language and cultural misunderstandings	<ul style="list-style-type: none">Cultural awareness training is to be provided to all expatriate workers on employment, with annual refresher training.Workers shall be given English proficiency tests prior to employment. Managers shall be fluent in written and verbal English. Workers shall be able to understand basic verbal instructions given in English as a minimum.Key documents including employment agreements, project information (e.g. introductory packs given to workers), and all safety signage will be available in the three commonly used languages across the workforce – English, Solomon Islands Pijin, and Korean.HEC to consider English language training as part of employee training programmes and/or extra-curricular activities.	Throughout construction	HEC HR Manager HEC Construction Manager HEC Training Manager	
P-4-11.	Management of grievances from workers	HEC is committed to providing the workforce with a transparent process through which workers can express their concerns and lodge grievances. The workforce will be able to lodge grievances using the Project-wide P-6 Grievance Redress Mechanism . This will extend to all employees and subcontractors across the Project (including THL), and wider stakeholders. All employees will be informed of the GRM during the site induction. The GRM will also be extended to all residents and workers within the Workers Accommodation Camp.	Throughout construction	HEC HR Manager THL Governance Lead	
P-4-12.	Worker misconduct	Disciplinary action and/or termination of employment may occur when a worker continually displays unsatisfactory conduct or misconduct. For unsatisfactory behaviour two formal written warnings shall be required before potential termination on the third offence. Where a serious misconduct has occurred, HEC may terminate employment without prior notice. Refer Annex P-4-V Employment Termination .	Throughout construction	HEC HR Manager	
P-4-13.	<ul style="list-style-type: none">Redundancy	<p>In the situation that retrenchment is required, HEC commits to the following:</p> <ul style="list-style-type: none">Prior to any collective dismissals, HEC will first analyse available alternatives to retrenchment (e.g. reduced working hours, job share arrangements, cost-cutting in other areas of the Project).If a viable alternative cannot be identified, HEC will develop a Retrenchment Plan to be shared with all affected employees that will:<ul style="list-style-type: none">Be developed and implemented with the objective of reducing the adverse impacts of retrenchment on workers.Not discriminate against workers (in accordance with the employment commitments and the EPC Contract (Clause 6.4(c))).Be developed in consultation with affected employees, their organisations, and the Solomon Islands Government, and will comply with any collective bargaining agreements (if these exist).Comply with all legal and contractual requirements including notification of public authorities, and provision of information to, and consultation with workers and their organisations.Includes advice on reemployment including CV development, industry training and job hunting.All workers will receive one month notice of dismissal and redundancy payments mandated in accordance with Solomon Islands law and collective agreements.All outstanding pay, back pay and social security benefits and pension contributions and benefits will be paid on or before the date of termination.	At the completion of the construction phase and/or if collective dismissal is required	HEC HR Manager	
P-4-14.	COVID-19	Protocols for managing COVID-19 are covered in P8 Workers Health and Safety Plan and P-10 Community Health and Disease Vector Management Plan .	Throughout construction	HEC Medical personnel;	
P-4-15.	Influx and inflation	Implement a range of influx controls to manage the potential adverse impacts of the Project (e.g. attracting outsiders into the Project area) in accordance with P-5 Influx Management Plan..	Throughout construction	HEC Administration Manager	
Monitoring Requirements					
#	Title	Description	Target / Performance Indicator	Timing / Frequency	Responsibility
P-4-A.	Labour Law exemption	<ul style="list-style-type: none">Approval of the Commissioner of Labour must be sought for the proposed 60 hour week, which exceeds the regulated maximum 57 hour week and 228 twenty-eight hours in any calendar month.	Hours of worker reduced OR Commissioner approval received	Prior to Main Works	HEC HR Manager
P-4-B.	Recruitment targets	<ul style="list-style-type: none">Local Employment: Ratio of Solomon Islanders to expatriatesCBSP Employment: Ratio of CBSP to Solomon Islanders (non-BSC and the other provinces)Gender: Ratio of women to men employed on the projectAge: No underage workers	20% local (SI) employment vs expat 20% CBSP employment vs. other SI 30% women employed 0% underage workers	Throughout construction To be reported monthly and in quarterly E&S reports	HEC HR Manager

P-4-C.	Local procurement	<ul style="list-style-type: none"> Procurement: Ratio of locally sourced to non-local providers, and locally sourced versus non-locally sourced goods and services. Ratio of goods and services provided by local communities (CBSP, Bahomea and Malango Wards) to non-local communities. Number and type of goods and services provided by local communities, in different locations (e.g. Black Post Road, near Camp, Near HEC office site). 	20% local (SI) procurement 20% CBSP procurement vs. other SI	To be reported monthly and in quarterly E&S reports	HEC Administration Manager
P-4-D.	Training	<ul style="list-style-type: none"> Pre-employment training attendance completed and recorded (disaggregated by location, gender, participant status (employee, community member etc) Gender Awareness training completed, including training on sexual harassment, abuse and exploitation (SEAH). 	Record of training kept	Training conducted monthly and reported in quarterly E&S reports	HEC Training Manager
Supporting Documents					
Annex	Name		Description		
P-4-I.	List of unskilled and semiskilled occupational positions		Provides a list of semi-skilled and unskilled positions available during construction of the project, and the level of skill required for these positions in terms of equivalent qualifications.		
P-4-II.	HEC Human Resources Policy and Procedure		Policy and procedure covering recruitment, selection and induction procedures, performance management, employee development, compensation and benefits, employees' duty of care, and separation/termination.		
P-4-III.	Gender Action Plan		GAP prepared in support of the TRHPDP and the World Bank Japanese Social Development Foundation Benefit Sharing Program.		
P-4-IV.	Workers Harassment Policy		Policy statement, definitions, complaints procedures, disciplinary measures, implementation, monitoring and reporting		
P-4-V.	Employment Termination		Procedure for termination of employment when a worker continually displays unsatisfactory conduct or misconduct		
P-4-VI.	Camp Impact Assessment		Updated Camp Impact Assessment		

ANNEX P-4-I LIST OF UNSKILLED AND SEMISKILLED OCCUPATIONAL POSITIONS

ANNEX P-4-I – LIST OF UNSKILLED AND SEMISKILLED OCCUPATION POSITIONS

The table below outlines the semi-skilled and unskilled positions which will be required during construction of the Project. The level of skill required for semi-skilled and unskilled positions has been defined on the basis of equivalent qualifications frameworks commonly referenced in the Pacific region; namely the Australian Qualifications Framework (AQF) and New Zealand Qualifications Framework (NZQF). Potential employees on the Project will be required to demonstrate that they can meet the qualification, experience and skill requirements equivalent to those listed for the type of position they are applying for. The basic requirements for each skill level, and equivalent qualifications, are respectively outlined in **Tables D1 and D2** below.

This approach is commensurate with agreements reached during the EPC Contract negotiation period.

Useful definitions:

Job:

A set of tasks designed to be performed by one person for an Employer in return for payment or profit.

Skill Level:

A function of the range and complexity of the set of tasks performed in a particular occupation.

Skill level is measured operationally by:

- *The level or amount of formal education and training.*
- *The amount of previous experience in a related occupation.*
- *The amount of on job training.*

List of Unskilled and Semiskilled Occupation Positions

Occupational Description	Peak	Experience	Education	Certificate (License)	Skill Level	Language
Document Controller	3	Over 3 years	Min Bachelor	Not Required	Skilled	English with fluency
Officie Clerk	3	Over 3 years	Min Bachelor	Not Required	Skilled	English with fluency
Construction Supervisor	1	Over 7 years	Min Bachelor	Not Required	Skilled	English with fluency
Civil Staff	26	Over 3 years	Min Bachelor	Not Required	Skilled	English with fluency
Architecture staff	2	Over 3 years	Min Bachelor	Not Required	Skilled	English with fluency
Quality team	4	Over 3 years	Min Bachelor	Not Required	Skilled	English with fluency
H&S Supervisor	1	Over 7 years	Min Bachelor	Not Required	Skilled	English with fluency
H&S Officer	10	Over 3 years	Min Bachelor	Not Required	Skilled	English with fluency
Emergency Supervisor	1	Over 5 years	Min Bachelor	Not Required	Skilled	English with fluency
Training supervisor	1	Over 5 years	Min Bachelor	Not Required	Skilled	English with fluency
Training staff	1	Over 1 years	Min Bachelor	Not Required	Skilled	English with fluency
E&S Supervisor	2	Over 7 years	Min Bachelor	Not Required	Skilled	English with fluency
Environmental Officer	5	Over 3 years	Min Bachelor	Not Required	Skilled	English with fluency
Social Supervisor	1	Over 7 years	Min Bachelor	Not Required	Skilled	English with fluency
CLO	4	Over 7 years	Min Form 6	Not Required	Semi-skilled	English with fluency
Doctor	1	Over 10 years	Min Bachelor	Required	Skilled	English with fluency
Nurse	2	Over 10 years	Min Bachelor	Required	Skilled	English with fluency
HR staff	5	Over 3 years	Min Bachelor	Not Required	Skilled	English with fluency
Admin staff	5	Over 3 years	Min Bachelor	Not Required	Skilled	English with fluency
Camp Manager	1	Over 10 years	Min Bachelor	Not Required	Skilled	English with fluency
Camp Maintenance	15	Over 3 years	Min Diploma	Not Required	Semi-skilled	English with fluency
Mechanic	9	Over 3 years	Min Diploma	Not Required	Skilled	English with fluency
Excavator operator	3	Over 5 years	Min Form 6	Required	Skilled	English with fluency
Dump truck driver	8	Over 3 years	Min Form 6	Required	Semi-skilled	English with fluency
Wheel loader operator	2	Over 5 years	Min Form 6	Required	Skilled	English with fluency
Mixer truck driver	4	Over 3 years	Min Form 6	Required	Semi-skilled	English with fluency
Cargo crane operator	3	Over 5 years	Min Form 6	Required	Skilled	English with fluency
Roller operator	1	Over 5 years	Min Form 6	Required	Skilled	English with fluency
Dozer operator	1	Over 5 years	Min Form 6	Required	Skilled	English with fluency
Water truck driver	1	Over 3 years	Min Form 6	Required	Semi-skilled	English with fluency
Fuel truck driver	1	Over 3 years	Min Form 6	Required	Semi-skilled	English with fluency
Grader operator	1	Over 5 years	Min Form 6	Required	Skilled	English with fluency
50ton crane opeator	1	Over 5 years	Min Form 6	Required	Skilled	English with fluency
Feller	7	Over 5 years	Min Form 6	Not Required	Skilled	English with fluency
Carpenter	41	Over 5 years	Min Form 6	Not Required	Skilled	English with fluency
Rebar worker	34	Over 5 years	Min Form 6	Not Required	Skilled	English with fluency
Concrete worker	24	Over 5 years	Min Form 6	Not Required	Skilled	English with fluency
Plumber	6	Over 5 years	Min Form 6	Not Required	Skilled	English with fluency
Stonemason	2	Over 3 years	Min Form 6	Not Required	Semi-skilled	English with fluency
Guardrail worker	3	Over 3 years	Min Form 6	Not Required	Semi-skilled	English with fluency
Landscaping worker	12	Over 3 years	Min Form 6	Not Required	Semi-skilled	English with fluency
Paver	3	Over 3 years	Min Form 6	Not Required	Semi-skilled	English with fluency
Blaster	10	Over 7 years	Min Form 6	Not Required	Skilled	English with fluency
Shotcrete worker	13	Over 5 years	Min Form 6	Not Required	Skilled	English with fluency
Scaffolder	15	Over 5 years	Min Form 6	Not Required	Skilled	English with fluency
Anchoring worker	11	Over 5 years	Min Form 6	Not Required	Skilled	English with fluency
Grouting worker	7	Over 5 years	Min Form 6	Not Required	Skilled	English with fluency
Structural steel worker	6	Over 5 years	Min Form 6	Not Required	Skilled	English with fluency
Mechanic	8	Over 5 years	Min Form 6	Not Required	Skilled	English with fluency
Electrician	10	Over 5 years	Min Form 6	Not Required	Skilled	English with fluency
Welder	11	Over 7 years	Min Form 6	Not Required	Skilled	English with fluency
Casual worker	120	Over 1 years	Min Form 6	Not Required	Unskilled	English with fluency
House keeper	17	Over 1 years	Min Form 6	Not Required	Unskilled	English with fluency
Flag man	8	Over 1 years	Min Form 6	Not Required	Unskilled	English with fluency
Surveyor	2	Over 1 years	Min Form 6	Not Required	Unskilled	English with fluency
Helper	3	Over 1 years	Min Form 6	Not Required	Unskilled	English with fluency
Kitchen staff	20	Over 1 years	Min Form 6	Not Required	Unskilled	English with fluency
Nursery staff	3	Over 1 years	Min Form 6	Not Required	Unskilled	English with fluency
Driver	23	Over 3 years	Min Form 6	Required	Unskilled	English with fluency
Total	548					

Table 1 Requirements for Skilled, Semi-skilled and Unskilled workers

Skill Category	Skill Level	Required work experience/training	Relevant qualifications (equivalent to)
Skilled	1	At least five years of relevant experience may substitute for the formal qualification. In some instances relevant experience and/or on-the-job-training may be required in addition to the formal qualification.	Bachelor degree or higher qualification
	2	At least three years of relevant experience may substitute for the formal qualifications listed. In some instances relevant experience and/or on-the-job-training may be required in addition to the formal qualification.	NZQF Diploma OR AQF Associate Degree, Advanced Diploma or Diploma.
	3	At least three years of relevant experience may substitute for the formal qualifications listed. In some instances relevant experience and/or on-the-job-training may be required in addition to the formal qualification.	NZQF Certificate Level 4 OR AQF Certificate IV OR AQF Certificate III including at least two years of on-the job training.
Semi-skilled	4	At least one year of relevant experience may substituted for the formal qualifications listed. In some instances relevant experience may be required in addition to the formal qualification.	NZQF Certificate Level 2 or 3 OR AQF Certificate II or III.
Unskilled	5	Short period of on-the-job training may be required in addition to or instead of the formal qualification. In some instances, no formal qualification or on-the-job training may be required.	NZQF Certificate Level 1 OR AQF Certificate I OR compulsory secondary education.

Table 2 Equivalent qualifications required for each skill level

Qualification	Purpose / Summary	Outcomes	Skills	Application
Australian Qualifications Framework (AQF)¹				
Certificate I	Graduates at this level will have knowledge and skills for initial work, community involvement and/or further learning.	Graduates at this level will have foundational knowledge for everyday life, further learning and preparation for initial work.	Graduates at this level will have foundational cognitive, technical and communication skills to: <ul style="list-style-type: none"> • undertake defined routine activities • identify and report simple issues and problems 	Graduates at this level will apply knowledge and skills to demonstrate autonomy in highly structured and stable contexts and within narrow parameters

Qualification	Purpose / Summary	Outcomes	Skills	Application
Certificate II	Graduates at this level will have knowledge and skills for work in a defined context and/or further learning.	Graduates at this level will have basic factual, technical and procedural knowledge of a defined area of work and learning.	Graduates at this level will have basic cognitive, technical and communication skills to apply appropriate methods, tools, materials and readily available information to: <ul style="list-style-type: none"> • undertake defined activities • provide solutions to a limited range of predictable problems 	Graduates at this level will apply knowledge and skills to demonstrate autonomy and limited judgement in structured and stable contexts and within narrow parameters.
Certificate III	Graduates at this level will have theoretical and practical knowledge and skills for work and/or further learning.	Graduates at this level will have factual, technical, procedural and some theoretical knowledge of a specific area of work and learning.	Graduates at this level will have a range of cognitive, technical and communication skills to select and apply a specialised range of methods, tools, materials and information to: <ul style="list-style-type: none"> • complete routine activities • provide and transmit solutions to predictable and sometimes unpredictable problems 	Graduates at this level will apply knowledge and skills to demonstrate autonomy and judgement and to take limited responsibility in known and stable contexts within established parameters.
Certificate IV	Graduates at this level will have theoretical and practical knowledge and skills for specialised and/or skilled work and/or further learning.	Graduates at this level will have broad factual, technical and some theoretical knowledge	Graduates at this level will have a broad range of cognitive, technical and communication skills to select and apply a range of methods, tools,	Graduates at this level will apply knowledge and skills to demonstrate autonomy, judgement and limited responsibility in known or changing contexts and within

Qualification	Purpose / Summary	Outcomes	Skills	Application
		of a specific area or a broad field of work and learning.	materials and information to: <ul style="list-style-type: none"> complete routine and non-routine activities provide and transmit solutions to a variety of predictable and sometimes unpredictable problems 	established parameters.
Associate Degree, Advanced Diploma or Diploma (Level 5/6)	Graduates at this level will have specialised knowledge and skills for skilled/paraprofessional work and/or further learning	Graduates at this level will have technical and theoretical knowledge in a specific area or a broad field of work and learning.	Graduates at this level will have a broad range of cognitive, technical and communication skills to select and apply methods and technologies to: <ul style="list-style-type: none"> analyse information to complete a range of activities provide and transmit solutions to sometimes complex problems transmit information and skills to others 	<p>Graduates at this level will apply knowledge and skills to demonstrate autonomy, judgement and defined responsibility in known or changing contexts and within broad but established parameters.</p> <p>Graduates at Level 6 would additionally provide specialist advice and functions.</p>
New Zealand Qualifications Framework²				
Certificate Level 1	Qualifies individuals with basic knowledge and skills for work, further learning and/or community involvement	N/A	<p>A graduate of a level 1 certificate is able to:</p> <ul style="list-style-type: none"> demonstrate basic general and/or foundation knowledge apply basic skills required to carry out simple tasks apply basic solutions to simple problems apply literacy and numeracy skills for participation in everyday life work in a highly structured context 	

Qualification	Purpose / Summary	Outcomes	Skills	Application
			<ul style="list-style-type: none"> demonstrate some responsibility for own learning interact with others. 	
Certificate Level 2	Qualifies individuals with introductory knowledge and skills for a field(s)/areas of work or study.	N/A	<p>A graduate of a level 2 certificate is able to:</p> <ul style="list-style-type: none"> demonstrate basic factual and/or operational knowledge of a field of work or study apply known solutions to familiar problems apply standard processes relevant to the field of work or study apply literacy and numeracy skills relevant to the role in the field of work or study work under general supervision demonstrate some responsibility for own learning and performance collaborate with others. 	
Certificate Level 3	Qualifies individuals with knowledge and skills for a specific role(s) within fields/areas of work and/or preparation for further study	N/A	<p>A graduate of a level 3 certificate is able to:</p> <ul style="list-style-type: none"> demonstrate some operational and theoretical knowledge in a field of work or study select from and apply a range of known solutions to familiar problems apply a range of standard processes relevant to the field of work or study apply a range of communication skills relevant to the role in the field of work or study apply literacy and numeracy skills relevant to the role in the field of work or study work under limited supervision demonstrate major responsibility for own learning and performance adapt own behaviour when interacting with others <p>contribute to group performance.</p>	
Certificate Level 4	Qualifies individuals to work or study in broad or specialised field(s)/ areas	N/A	<p>A graduate of a level 4 certificate is able to:</p> <ul style="list-style-type: none"> demonstrate broad operational and theoretical knowledge in a field of work or study select and apply solutions to familiar and sometimes unfamiliar problems 	

Qualification	Purpose / Summary	Outcomes	Skills	Application
			<ul style="list-style-type: none"> • select and apply a range of standard and non-standard processes relevant to the field of • work or study • apply a range of communication skills relevant to the field of work or study • demonstrate the self-management of learning and performance under broad guidance • demonstrate some responsibility for performance of others. 	
Certificate Level 5 / Diploma	Qualifies individuals with theoretical and/or technical knowledge and skills within a specific field of work or study.	N/A	<p>A graduate of a level 5 diploma is able to:</p> <ul style="list-style-type: none"> • demonstrate broad operational or technical and theoretical knowledge within a specific • field of work or study • select and apply a range of solutions to familiar and sometimes unfamiliar problems • select and apply a range of standard and non-standard processes relevant to the field • of work or study • demonstrate complete self-management of learning and performance within • defined contexts • demonstrate some responsibility for the management of learning and performance • of others. 	

Notes:

¹ From the Australian Qualifications Framework, Second Edition January 2013, available at <https://www.aqf.edu.au/aqf-levels>

² From the New Zealand Qualifications Framework, May 2016, available at <https://www.nzqa.govt.nz/assets/Studying-in-NZ/New-Zealand-Qualification-Framework/requirements-nzqf.pdf>

ANNEX P-4-II HEC HUMAN RESOURCES POLICY AND PROCEDURES

Annex P-4-II – HEC Human Resources Policy and Procedure

1. HUMAN RESOURCES MANAGEMENT STRUCTURE

- (a) Recruitment Selection & Induction;
- (b) Performance Management;
- (c) Employees Development;
- (d) Compensations & Benefits;
- (e) Employees Duty of Care; and
- (f) Separation.

2. RECRUITMENT, SELECTION AND INDUCTION

2.1 Key Principles of Recruitment

- (a) Non-Discrimination

It is essential that the recruitment and merit selection policy and procedure is consistent with the principles of equal employment opportunity notwithstanding any consent of the Implementation Agreement;

- (b) Selection Based on Merit

It is essential that Selection based on merit is where the best possible match is made between qualifications, knowledge, skills, abilities and relevant experience of the candidates and the selection criteria in the position description;

- (c) Confidentiality

It is essential that the confidentiality is disclosure of information only to those directly involved in the recruitment and merit selection process. In particular, merit selection manager group must maintain confidentiality about the outcomes of the selection process until the group's recommendations have been endorsed by the delegated officer and where relevant, an offer of employment has been accepted.

2.2 Process Management

- (a) the implementation of the procedure;
- (b) ensuring that all employees have access to this Policy;
- (c) ensuring that managers understand their own roles and responsibilities;
- (d) ensuring the recruitment and merit selection activities are consistently implemented in accordance with this Policy and procedure; and
- (e) ensuring that the panel keeps confidentiality of the outcomes of the selection process.

2.3 Job Description

In respect of this Policy, the job descriptions shall be secured as follow:

- (a) stating clearly the requirements of the job;
- (b) providing the basis for selection of the best candidate for the job;
- (c) ensuring the candidates have accurate expectations and minimize level of disappointment; and
- (d) describing the duties, overall purpose of the job, key task and reporting relationships, list of the skills, abilities, experiences, knowledge, qualifications and attributes.

The job descriptions can be revised from time to time and the employee will be informed regarding the amendments.

2.4 Recruitment Procedures

(a) Pre-Recruitment Process

For vacancies arising during the year, the Employee Requisition will be completed and signed by the manager and submitted to other manager before recruitment process commences.

(b) Vacancy Announcement

A Vacancy announcement of the Company shall be made on relevant web-site(s) or newspapers or the announcement process shall be carried out by the agency hired by the Company (if applicable), in order to attract duly qualified candidates. The Manager of the Company manages the vacancy announcement process and ensures compliance of the announced vacancy with terms, conditions and procedures of this Policy on the basis of specific request of the manager.

(c) Served Information

A Vacancy announcement shall envisage including (i) overview of the vacant position, (ii) essential knowledge, skills, abilities, experiences and qualifications, (iii) contact information for applications and CVs, (iv) announcement closing date, (v) other relevant information upon the Company's decision criteria, (vi) note that only shortlisted candidates shall be contacted.

(d) Short Listing

Short listing is a systematic process whereby candidates are judged and scored on the basis of the information presented in their applications/CVs as evidence that they meet the essential job criteria as set out in the job description. And selecting candidates (5 to 10 persons, unless the case when the number of candidates is not enough) will be placed on the short list after the assessment by manager.

(e) Interview Panel

CEO will appoint 5 persons as the interview panel including CTO and CFO. And the panel will prepare the questions and answers to candidates' questions.

(f) Interviewing.

The manager shall provide the interview panel with interview documents including applications, CVs, job descriptions and personal specifications. The panel should evaluate the candidates' performance independently.

(g) Approval of Candidate Appointment

The manager should report the result of the assessment by the panel to CEO and CEO will approve the prosperous candidates considering the assessment by the panel.

(h) Job Offer

The manager informs the prosperous candidates and requests the documents including ID, Driving License (if applicable), Criminal Records, and Medical Certificate.

(i) Acceptance

In case if the prosperous candidates accept the job offer, the manager informs the CFO to prepare the employment agreement including Job Title & Descriptions, Date of Employment, Working Place and Hours, Salary and other Allowances, Probation Period, Leave, Disciplinary Procedures, Confidentiality, Termination Procedures and General Conditions of Employment.

2.5 Probation Period

(a) the employees and their manager will meet to review performance and development. And this meeting will be conducted as part of the performance planning and review process;

(b) this period shall be at least 3 months but not exceed totally 6 months;

(c) the final review will be conducted at least 1 week before the completion of this period.

2.6 Induction of New Employees

(a) a simple welcome and good induction to the Company go a long way towards and individual being integrated into the Company and understanding their role, and establishing the first point of interaction with other newcomers to the Company;

(b) designing a simply yet comprehensive induction plan for all new employees to the program/filed office. This will help them understand how things work and make it easier to adopt to the operation and culture.

(c) a induction briefing should consist of the Company Briefing, Program Briefing, Role Briefing, Technical Briefing and Financial Briefing.

3. PERFORMANCE MANAGEMENT

3.1 Statement

Performance Management is a systematic process of planning, monitoring, developing, rating and rewarding employees of the Company. This Performance Management of the Company will be focused on planning, development and reviewing.

This Performance Management intends to achieve a culture that will drive the Company to success. In this regards, the Company wish to drive both 'Performance-Based Culture (PBC)', and a 'Values-Driven Culture (VDC)'. In the former, the PBC will emphasize on setting performance-based targets and

rewarding performance. In the later, the VDC will give higher weightage to value-based behaviors, which must be clearly defined and communicated to all employees.

3.2 Communication

Communication plays a key role in implementing the performance management. All employees must be clear on the process and timelines. The Company believes that the success of the process depends on how fair and transparent the process is. The Company encourages the following forms of communication including consultations, presentations or emailing memos.

However, the Company recognizes that none of above options may suitable during cases of emergency. In such an instance, a simple system that meets the immediate needs must be implemented.

3.3 Procedure

The Performance Management is a continuous process, not a series of one-off isolated activities. However, there are four mandatory elements within the framework which all managers and their staff must undertake and which help us to move through an annual cycle of planning, developing, and reviewing.

(a) Planning

This often takes the form of individual or team objective setting, regularly updating job descriptions, or other similar activity, to establish clarity on what is expected over the forthcoming work period and to provide a clear line of sight between the organisation's goals through the departmental, programme, team aims and the work of each individual. This is a joint activity between the manager and employee/team.

(b) Development

This typically involves identification of what support and development each employee needs in order to create a work plan and ultimately deliver the overall goal of the company. It includes learning and training needs, access to resources, and other specific support the manager can commit to provide to enable success (e.g. coaching and/or mentoring), etc.

Consistent with the above, the company also encourages Development conversations with primary focus on, firstly, identification of development support that is needed for individual staff to perform their respective tasks efficiently and effectively, and secondly, to identify the kind of support and development that will assist individual employees for their next career move.

(c) Reviewing

As part of the ongoing activities, the manager is expected to conduct formal reviews or appraisal meetings at least once in any one year. The manager may wish to conduct such review more than once a year depending on the need.

3.4 On-going Performance Management Support

(a) Objective

The objective of the on-going performance management support is to nurture a culture of high performance. An ongoing performance management support provides an opportunity to discuss work in progress in more depth, offer feedback and check how each employee feel more widely.

(b) Implementation

The Company encourages on-going management support in the forms of regular 1:1/supervisions/bi-lateral conversations arranged at intervals which best suit the needs and preferred working style of individual employees.

(c) Training

Training in areas such as effective appraisal conversation, giving and receiving feedbacks, dealing with poor performance conversations, or difficult conversations (due to inappropriate behaviour or performance), are essential to carry out the above policy objectives.

3.5 Performance Appraisal

The Company will determine, based on specific considerations, whether to have one form for each annual cycle of appraisal, mid-year appraisal and year-end appraisals. The appraisals will be implemented as follows:

(a) Planning

Planning will occur at the beginning of the performance cycle (employment period) when the Company's employee and manager meet to discuss the employee's work plan, performance expectations, development plans and performance tracking methods. It is the managers' responsibility to develop the work plan and effectively communicate it to the employee

(b) Managing

Managing consists of the day-to-day tracking of employees' progress toward achieving performance expectations outlined in the work plan, and an Interim Review midway through the performance cycle. It includes providing on-going feedback to employees through coaching and reinforcing discussions throughout the performance cycle. Such discussions should be held regularly throughout the performance cycle as well as in response to changes in performance. Managing includes conducting the Interim Review, which should be completed midway through the performance cycle.

(c) Appraising

Appraising is the evaluation of Company's employees' work over the entire performance cycle as it compares to the expectations documented on the work plan. Appraising occurs at the end of the performance cycle. The performance appraisal procedures shall be held by the appraisal panel, which consists at least with 5 persons including CEO, CTO and CFO / The members of the appraisal panel may appoint or change in each case with the decision of CEO, taking into consideration that it is mandatory to be the relevant manager of the employee as the member of the panel. And each of the panel are obliged to fill in the Performance Appraisal Form in Schedule 1.

(d) Decision

On the basis of the summarized results of all the Performance Appraisal Forms and the decision of CEO, one of the following decisions can be made with regards to the employee:

- (i) Termination of the employment agreement;
- (ii) Extension of the employment agreement up to 1 year (including the probation period)
(if it is not otherwise regulated by the Employment Act or Labor Act of Solomon Islands);
- (iii) Downwards or upwards adjustment of salary; and
- (iv) Payment of bonus

4. TERMINATION AND RESIGNATION PROCEDURES

4.1 Statement

The Company can terminate an employment agreement because of different reasons on the basis of Labour Act and Employment Act of Solomon Islands. The following may serve as grounds for termination of employment agreement.

- (a) economic circumstances, technological, or organizational changes making it necessary to reduce workforce;
- (b) expiry of the employment agreement;
- (c) completion of the work provided by the employment agreement;
- (d) voluntary written statement for resigning from a position/work by the employee; and
- (e) written agreement between the parties

4.2 Warning

- (a) Informal Action

The Company will take an informal action by verbal or written communication to the concerned employee. The manager to whom the employee is reporting, he/she should inform the concerned employee about the consequences/actions company can take if the problem persists.

- (b) Interview

If the matter has not been resolved by informal action or is sufficiently serious, the manager will interview the employee, who may then be given a first written warning specifying the problem, setting standards for improvement within a specified timescale and the consequence of not meeting the standards of improvement. In serious cases, a first and final warning may be given.

- (c) Final Written Warning

If after first warning poor performance, fraud, violation of company's internal rules and regulation and /or misconduct persist, the matter will be referred to the CEO, who will interview the employee and may issue a final written warning, again specifying the problem, a timescale improvement and the consequences of not improving.

(d) Termination

If these attempts fail to improve standards, then the CEO may dismiss the employee with applicable notice period.

(e) Instant Dismissal

If employee did serious offences to the Company, then the CEO may dismiss instantly the employee without any above warning. The serious offence will be below:

(i) theft or fraud

(ii) unreliable attendance for no apparent reasons

(iii) failure to follow instructions that is lawful and within scope of Employee's work position.

(iv) failure to follow the Confidentiality

4.3 Procedure

The employee must inform his/her manager if he/she intends to resign and submit at least 3 months prior written notice to the CEO of the Company.

(a) Notice

The employee must inform his/her manager if he/she intends to resign and submit at least 3 months prior written notice to the CEO of the Company.

(b) Clearance

After a resignation is decided whether on the basis of Company's or employee's decision the employee will be asked to produce a 'Clearance Certificate' signed by the Administrative manager – stating that employee have no outstanding bills, company assets etc.

(c) Return & Handover

The employee will return & handover all the items related to Company to manager.

Upon submission of 'Clearance Certificate' & all items related to company, Administrative manager will make all necessary checks related to leave at their end & forward the 'Clearance Certificate' to Account for employee final settlement.

(d) Final Settlement

The final settlement shall be paid within 7 working days from the date of termination (except otherwise stated in the Labor Code of Solomon Islands) or expiry of employment agreement, but only in the case if the employee has returned the property/equipment owned by the company.

The company pays compensation to the employee in the case of termination of the employment agreement only in the case if it is demanded by the labor legislation of Solomon Islands.

ANNEX P-4-III GENDER ACTION PLAN

Gender Action Plan
Tina River Hydropower Development
Project

January 31th, 2017

List of Abbreviations

CBSP	Community Benefit Sharing Pilot
CDF	Community Development Fund
CLCs	Community Liaison Committees
EAP	East Asia Pacific
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
GAP	Gender Action Plan
JSDF	Japan Social Development Fund
LALRP	Land Acquisition and Livelihoods Restoration Plan
M&E	Monitoring and Evaluation
MECDM	Ministry of Environment, Climate Change, Disaster Management and Meteorology
MMERE	Ministry of Mines, Energy and Rural Electrification
MWYCFA	Ministry of Women, Youths, Children and Family Affairs
SP	Solomon Power
SWOT	Strengths, Weaknesses, Opportunities and Threats

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Introduction

The Tina River Hydropower Development Project (TRHDP) is a 15 megawatts hydropower scheme on the island of Guadalcanal, Solomon Islands, 30 km south of the capital Honiara. The TRHDP is managed by a dedicated Project Office under the supervision of the Ministry of Mines, Energy and Rural Electrification (MMERE), and will supply power to the Honiara grid – providing more reliable and plentiful power than the current overburdened supply from diesel and reducing the retail price of electricity for consumers. The hydropower infrastructure will be constructed, operated and owned by an independent power producer and will sell electricity to Solomon Power (SP), the national utility. The TRHDP is complemented by an additional grant-supported operation funded by the Japanese Social Development Fund (JSDF – the “JSDF Project”), with the objective of establishing the institutional arrangements and capacity for affected communities to effectively manage benefit sharing revenues from the TRHDP as well as improving their basic services through financing investments in access to clean water and electricity.

This Gender Action Plan (GAP) has been put together to guide the mainstreaming of gender into the TRHDP with a particular focus on ensuring that women are not negatively impacted by the project and promoting equal opportunities for women and men to participate in project benefits, supported by the World Bank’s East Asia Pacific (EAP) Gender and Energy Facility. While the Tina River Project will have national impact through the provision of more reliable and affordable electricity, this GAP is principally concerned with the impact of the project on the lives of communities within its immediate footprint area. This focus of the GAP mirrors the localized approach adopted by the Project towards impact mitigation and benefit sharing.

Areas of focus within the project for gender assessment and analysis included:

1. Land Acquisition and Livelihoods Restoration Plan (LALRP)
2. Environmental and Social Management Plan (ESMP) (which itself was based on the ESIA, and will also inform the ESMP of the Project Company)
3. Community Benefit Sharing Pilot project, supported by the Japanese Social Development Fund (JSDF)
4. Community consultation, participation and decision making
5. Organizational capacity within the project team

Given the baseline of gender inequality in its footprint area, the Tina River Hydro Project has an opportunity to include design and monitoring measures that will, at a

minimum, not exacerbate existing challenges faced by women, while at the same time aim to promote their participation and wellbeing. This opportunity is strengthened by i) recent national level policy commitments on gender equality, and the support of donors for the same; ii) the willingness and openness of the Project Office, as the main entity responsible for implementation, to promote gender equality; and iii) dedicated resources for supporting gender mainstreaming in the project through the World Bank's EAP Gender and Energy Facility and within the proposed JSDF Project.

Research Process and Findings

This GAP was prepared based primarily on interviews with project-affected women and men, with project office staff, and with government and other key stakeholders conducted during fieldwork, as well as on an initial review of project documents. Fieldwork was carried out in the Solomon Islands between November 14th and 26th 2015. Data was gathered from a combination of Honiara-based key informant interviews and field visits to villages in the project area. The goals of this in-country research were:

- i) To participate in and observe the Project Office (PO) staff and consultants as they carry out meetings and consultations, with a view to understanding the extent to which gender issues are relevant to, and mainstreamed in, project work;
- ii) To conduct focus groups with groups of women in a selection of villages throughout the project area to understand their priorities, challenges and participation in the project to date;
- iii) To verify understanding about the project history and plans as gleaned from document review, and source additional data on gender from the PO;
- iv) To consult with the PO team on the project's key gender issues, and the extent to which these can be/are being actively incorporated in daily work and future strategy;
- v) To consult with the key stakeholders, who will be responsible for implementing the gender action plan, on potential priorities and challenges;
- vi) To gather further data from relevant government representatives about gender in the national policy and legislative context.

Focus groups and interviews with men and women were conducted in the following communities during fieldwork:

1. **Horohotu 1:** A village of 62 households located in the downstream area of the Bahomea district, on the west banks of the Ngalimbui River. It is a settler

community (i.e. made up of families who are not indigenous to the project area and who typically have no inherited land rights there).

2. **Managikiki:** This village is upstream of Horohotu in the core project area and is inhabited by 38 households, all of whom are indigenous to the Bahomea region or territory.
3. **Grass Hill:** This village is downstream from Managikiki and close to the current access road from Honiara. It has 7 households.

Fieldwork findings represent combined observations and analysis from interviews, focus groups and community visits; these are organized under the following thematic areas, which will form the basis for recommendations made in the GAP:

- 1) Gendered Division of Labor
- 2) Access to and control over land and productive resources
- 3) Needs, Priorities, Challenges and Perspectives
- 4) Participation and decision making
- 5) Access to project benefits
- 6) Organizational capacity for gender mainstreaming
 - Capacity for gender mainstreaming in responsible institutions
 - Gender balance in project staffing and implementation
 - Collection and analysis of gender disaggregated data
 - Existing measures aimed at promoting gender equality

Gendered Division of Labor

- The project has done a very good job of collecting a representative data sample from the project area on gendered division of labor, as part of the SIEA process. This data sample establishes a useful baseline from which to measure changes to men's and women's activities and time use as the project progresses (see pre-mission note on Gender in the Project and Country Context).
- Women describe themselves as farmers, with the responsibility of working on the land. Some of the produce grown is consumed in the home, but most is sold at the market in Honiara. Women also have responsibility for managing the costs and income associated with sale of produce, and arranging transport to and from the market.
- Consequently, women commonly earn a significant proportion of household income. One government interviewee noted that women are often beaten up because they hide money from their husbands. This interviewee emphasized the importance of including men in any livelihood extension or small business development scheme that is aimed at helping women to augment their incomes.
- With the advent of the project, women perceive both opportunities and potential threats to the value they gain from the sale or consumption of crops. To the extent that productive land, trees and crops are lost, displaced

or compromised by the project, there is a concern about the difficulty of establishing access. However, with the improved road and inflow of people the project will bring, women recognized that there could also be opportunities for small roadside stands and potentially more frequent transportation to and from the Honiara markets.

- Additionally, women are responsible for running the household – this extends to management of household income for settling debts and purchasing consumables and equipment for the household, as well as looking after children, performing household chores and ensuring their families are clothed and nourished.
- Both in the focus group and in the interviews with female tribal leaders, women appeared initially at a loss when asked to describe the work that men did in their households. There was some laughter when one woman said ‘nothing, really’, but at the same time there was tacit agreement about the truth of this statement. A few women mentioned hunting or fishing as an occasional activity carried out by men; men were also credited with clearing land and construction-related activities. During interviews and discussion, men themselves echoed these answers, stating a strong preference for cash-based work, which was sporadic, unreliable and often difficult to find. Both sexes acknowledged that, to a far greater extent than women, men tended to occupy their time with decision-making and leadership matters in the community.
- Interviews with the Project Office staff reiterated fieldwork findings, and also highlighted the practice of what is termed ‘allowance farming’, whereby village participants (mainly male) attend government or donor meetings about developments happening in their area, motivated primarily by the prospect of being well compensated for their time with per diem and allowances. Although the project has ended this practice, staff stressed that significant effort was required to try to change expectations around it.
- Many villages lack an easily accessible source of running water. Women therefore have the responsibility for fetching and carrying water from the nearest river or stream for household use, which is physically wearing, time-consuming and presents water safety issues when the river is flooding.
- The tribal women leaders noted that the degree to which men helped their wives and female relatives by sharing the workload varied on a household-to-household basis. The practice was generally acknowledged to be quite rare, but more common in households where women were educated and comfortable with asserting themselves. When asked about why the division of labor was practiced by gender in the way they described, most women cited ‘culture’ and ‘tradition’. However, when questioned about how they saw and would like to see the roles of women evolving and changing for their daughters and granddaughters, several women expressed a strong hope for increased opportunities for girls and for greater parity between men and women.

- Women noted that infrastructure improvements brought about by the project (for example improved access roads, rural electrification and clean water access) had the potential to reduce the burden of labor they faced on a daily basis. Of these three improvements, clean water access seemed to elicit the most interest from women. The project has taken this priority on board, and clean water access is the focus of one of the three working groups currently being established to plan responsible spending of the community benefit share. To date, the majority of interest in working group participation has been from women.

Access to and control over land and productive resources

- As cited above, women are the primary users of productive land in the project area. However, perhaps given the proximity to Honiara, none of the villages visited during fieldwork appeared to be wholly - or even majority - reliant on self-grown produce. The shift away from a subsistence economy is already well advanced, with the SIEA documenting that rice, canned fish and other store-bought products form staples of the household diet.
- The project's impact on land access issues is also tempered by the fact that land acquisition will not lead to any relocation; only a relatively small number of food gardens and trees will require re-establishment and the relevant owners have been identified. In recognition of the importance of productive land access to women, the project has already recommended that senior females in households where food gardens are lost will be compensated with a cash grant once they have planted a new garden out-with the acquired land. The Project LALRP details the proposed mechanism for establishing ownership, identifying new land, and administering cash grants; ensuring gender disaggregated monitoring of changes in land access and use will be key to evaluating the success and inclusiveness of this mechanism as the project progresses.
- Land (and access to it) was nonetheless given significant emphasis by both women and men during interviews and focus groups. As mentioned in the pre-mission note on Gender in the Project and Country Context, while land descent is matrilineal in the project area, societal norms remain patriarchal. Moreover, in practice most families follow a 'virilocal' pattern of residence whereby following marriage, women move to live with their husband's family and work on their land. With the advent of the project, many women therefore find themselves in a situation where they have no recognized/formal right to make decisions about the land on which they depend for daily farming. In interviews however, many women expressed relative confidence that despite their lack of recognized land claim, they could still contribute views and participate in decision making. Of much greater concern to women was the issue of potential misappropriation of land rentals and royalty payments (elaborated below).

- The Project Office team observed that land, and the central importance attached to its control, is a key context in which gender inequalities are played out. Relative to legal regimes elsewhere in the world, the recognition given to customary tenure in Solomon Islands and other Pacific Island nations confers not only greater potential opportunities for traditional landowners to share in the upside of investment projects – but also a greater likelihood of contestation and complexity in determining land ownership at inception.
- One of the most important determinations that the Project made was to define eligibility for the benefit-sharing arrangements. It was decided that the benefit sharing area should include all villages in the Malango and Bahomea cultural areas, both within Malango Ward, including some communities along the Tina River that will be subject to impact mitigation/livelihood restoration measures of the TRHDP by the Project Company. A total of 88 villages are in the area, distributed among 3 main clusters: 28 villages in the Tenaru Area; 24 villages in the Tangaresu River Area; and 36 villages in the Tina River Valley. These villages are located above the Guadalcanal Plains and within the three adjacent catchments of the Tina River, Tangareso Stream and Tenaru River.
- In the benefit-share area, according to project staff, the landowner narrative is *“fraught with elite capture, intransigent middle aged men, royalties and rent-seeking, the exclusion of women (and the majority of other men), and corruption”*. One interviewee noted: *“in most parts of the world, large infrastructure projects acquiring land have to deal with NIMBY – Not In My Back Yard. In Solomon Islands, it’s PIMBY – Please In My Back Yard. At the beginning of the project, a certain group of non-representative, dominant men were pushing for their tribal lands to be acquired because they saw opportunities for their own financial gain....”*.
- In response, the Project Office has adopted a considered strategy to reframe the language of the project’s land acquisition away from privatized assets (‘landownership and royalties’) and focus instead on the language of the community benefit share. As a result, both project staff and women leaders reported in interviews that the previous group of rent-seeking men who tended to dominate negotiation on behalf of the tribes - and who refused to accommodate female participation - have now given way to a different group of representatives and leaders (including women) who are largely perceived to be more inclusive and more representative in land transactions.
- During interviews, tribal women leaders expressed a strong preference for foregrounding the inheritance of landowning rights in the project through the traditional system of matriarchal descent. The project has taken this on board (see below under ‘Access to Project Benefits’).

Needs, Priorities, Challenges and Perspectives

- Training for women, especially young women, was a high priority in the focus group setting. Women were very focused on training that could be leveraged to earn an income – either in terms of job readiness training for work during the dam construction, or in terms of skills training (sewing, food processing, gardening etc) that they could harness to start a small enterprise. Women generally expressed a feeling of helplessness that they lacked both the skills and the education to support themselves and their families outside of traditional village work, and felt ill prepared for change in the community. Women stated that they would like to be prioritized for any available jobs, even temporary and part-time work. It was clear that the project will have to continue carefully framing the number and nature of potential opportunities that may be available, in order to avoid raising unrealistic expectations.
- Women also considered training, work and gainful leisure opportunities for youth as priorities, a view that was equally shared by men. Looking to the future and safeguarding the fabric of communities, protecting cultural heritage in the face of modernization and improved access into the area were also important issues flagged by women during focus groups.
- Securing a safe and accessible source of potable water for household use was an area of significant concern, particularly for women, and was linked both to fears about potential water contamination and to an interest in reducing the time demands and physical strain of fetching river water on a daily basis.
- Women expressed fears about potential dam collapse and flooding. In part this appeared to arise from confusion between the engineering design and functions of a hydroelectric dam on the one hand, and the tailings dam for the Gold Ridge Project on the other. In recent months the latter has been declared structurally unsound and in danger of collapse due to heavy rainfall and disrepair; should this happen, the consequence would be widespread environmental devastation. It will therefore be important to ensure that all villagers – and especially women, who may not be as vocal or as likely to be educated and literate – understand more about the operational aspects of hydro dams, and specifically the parameters of safety associated with the Tina River structure.
- Both tribal women leaders and village women in the focus group expressed a high level of concern about potential repetition of the negative social impacts they had witnessed with the advent of the Gold Ridge Mine. These included alcoholism, anti-social behavior among youth, family divisions, corruption and violence. Several men also voiced this same concern, though it was noticeably more prominent in discussions with women.
- Other issues identified by women included the need for better access to primary healthcare - especially for expectant mothers. Interestingly the data on maternal mortality rate (MMR) shows that while nationally, the average MMR is only 1% for both home and clinic births, the highest provincial rate is in Guadalcanal, at 6% of home births and 3% of clinic births. However, the data for Honiara is 1% for home births and 0% for clinic births, presumably reflecting the fact that the Guadalcanal figures are skewed by areas of the

island (for example, further inland from the project area and on the Weather Coast) that are much harder to reach. While the Honiara figures would be closer to those in the project area. There are currently no functioning primary healthcare facilities in the project area and most families access the tertiary medical facilities in Honiara – access which will be improved by the upgrading of the road under the project.

- Additionally, schooling is an urgent need. Currently children from many villages must walk long distances (more than 8km) to and from school, and the schools themselves lack qualified teachers and are poorly equipped. Tribal women leaders spoke of the need to help parents to understand the benefits of education as a long-term investment which will in turn better equip tribal youth to participate in the changes brought about by development. One woman stated: *“Most of the people who are not educated don’t participate properly, this is a worry because so much development is happening now. We need already to be thinking about the future and preparing our children and grandchildren (for it).”*
- Women also spoke enthusiastically about their desire to build a women’s development center in the village to house training, business activities, reading classes, and a childcare crèche. This was linked to small business aspirations: for example, with the provision of electricity, women identified the possibility of sewing uniforms as a potential source of income.

Participation and decision-making

- The project has tried to avoid large meetings, which attract rent-seeking behavior and make it more difficult for youth and women to participate, given the cultural taboo around contradicting more powerful relatives and neighbors. Instead, the project has taken to organizing regular small meetings in each community, a strategy that appears to be working relatively well.
- In the three villages visited during the mission, meetings were attended by approximately equal numbers of men and women. However, in each place, youth participation by both sexes seemed low. This may have been because young people were either at school or working away from their villages, although several older women expressed concern that young people seemed less interested in the project despite the fact that it will impact their future.
- In the settler village (Horohutu 1), 16 women and 12 men were in attendance at the meeting. Two women took front row positions alongside the two male chiefs, and participated very vocally in the discussions. Although the rest of the village women sat in a group slightly apart from the main meeting space, they nevertheless contributed to discussion by raising questions and concerns; these were generally listened to respectfully and often further emphasized by men. When asked about gender and leadership roles, all participants agreed that while women and men could (and did) work together cooperatively, there was a strong feeling that education was a vital criterion for becoming a credible representative of the village and its

interests. The apparent tolerance for inclusion in this village may partly be a function of the fact that an Australian aid worker, married to a local woman, has lived there for several decades and together with his wife and daughter may have helped to change norms through encouraging and modeling equality of opportunity for women and girls. Project staff also noted that settler communities tend to be less hidebound by tradition and more open and enterprising, possibly reflecting the self-selection bias of the original families who migrated to start afresh there.

- In one of the three communities visited (Managikiki), despite the fact that there were more women in attendance than men, none of them participated actively in discussion; discussion was dominated instead by an English-speaking male former Gold Ridge employee who lived in the village dominated. When invited to join a female-only focus group, women stated that in the joint setting with men, they often felt unable to convey their points because of the expectations of custom. The majority of women strongly supported the notion of women-only consultations, and also expressed a desire to ensure that women would be involved in negotiations. This measure was seen as a means of ensuring transparency against corruption and assuaging the fear that their interests would not otherwise be safeguarded.
- The project's experience so far with measures aimed at the inclusion of women in formal decision making structures has met with mixed success in terms of community cooperation and acceptance. For example, during the signing of the process agreement, the stipulation that two of the five signatories from each tribe should be women was met with resistance from several tribal leaders who had already allocated all five positions to men. After negotiations, a compromise was reached by having a total of seven signatories (including an additional two women). This incident highlights some of the difficulties the project is faced with in trying to balance inclusiveness with respect for local custom and traditional village authority.
- At the same time, there are also a few very active and strong male leaders in the project areas who are supportive of women and their involvement in project decision-making. One male village leader who was interviewed stated that his tribe has a committee that was set up because of the project. The committee has 7 members in total including two spaces reserved for women (a principle that the tribe embraced voluntarily). The committee is already active, interfacing as an interlocutor between the community and the project. It is hoping to set up a long-term Development Plan for the community and to this end is seeking assistance with training and facilitation from the project. It may be possible for this tribe to serve as a model of good practice for other communities.

Access to Project Compensation and Benefits

- Both women and men expressed trepidation about potential squandering and elite capture of benefit flows, a perspective that appeared closely linked

to the experience of Gold Ridge. One woman said: *“Men get all the benefits but women are the landowners – men are made trustees of the land, women appoint them, then they take the money and spend it.”*

- Women in the focus group saw their own involvement as crucial to ensuring accountability, but expressed concern that without an external mechanism for their inclusion, it would be too difficult for them to assert a role. They therefore looked to the project to put this in place.
- Women leaders expressed a strong opinion that communities should work together in groups rather than individually to manage and spend the funds from the project. They emphasized the importance of making investments with a long-term perspective, for example funding scholarships for children and establishing women’s development centers for assisting women and young girls with training and small business support.
- The project office has taken these preferences on board, with an assertive stance on design measures for compensation payments that try to avoid the pitfalls of elite capture. In terms of land compensation eligibility is restricted to members of the 5 core tribes whose land was acquired by Government. 100% of people belonging to the 5 core tribes have been identified. Upon the establishment of Tribal Cooperatives for each of the 5 core land tribes, the project is working with a local bank to set up individual bank accounts for every man, woman and child in the Tribal Cooperatives, and to offer basic financial training on their use¹. There will also be a customized financial product for children: a savings account from which the only withdrawals permitted will be checks for school fees until the child reaches aged 18. This measure may also help to encourage better school attendance.
- The same Tribal Cooperative accounts that are set up for the receipt of land acquisition compensation and livelihood restoration will also be used to receive the 1.5% royalty that was agreed as part of the Process Agreement (which provided landowner consent for Government land acquisition) as well as income from the land lease paid through the Tina Core Land Company (the joint Government-Landowner company that will own and manage the Core Land), both of which will only be received during the PPA period. Each of these cooperatives was constituted as follows: a register of tribal members was made with full community participation, based on wontok membership rather than residence. Everyone on this registrar became a shareholder of the co-operative society when it was established. New applications to join the co-operative society (for example, new babies born and other people who want to be recognized as tribe members) can be made to a “Matrilineal Membership Committee”. This committee will be made up of women and the committee will recommend who should be accepted as a member. The final decision on whether to accept any new member will be made by all the shareholders together at the annual general meeting by a vote. Membership is for life, so those who move away from the project area will still be eligible.

¹ This will also include children born after the project commences.

- The cooperative structure adopted by the project for governance has a number of benefits in terms of gender equality and inclusion: for example, shareholding in cooperative societies will be designed to mirror the general principle of matrilineality. Only the children of the women in the tribe will inherit the right to be in the cooperative. The project is further proposing that the membership committee – charged with collecting and discussing ideas that individuals put forward for activities to be financed from the benefit sharing revenue - will be all female, with a portion of funds set aside to pay for a professional administrator to take care of compliance. Although, as stated above, the actual decision-making of which new members to admit and what activities to approve for funding will be made at cooperative AGMs and will therefore include men to ensure gender equity - this type of structure could potentially positively influence the perception and practice of women's roles as leaders and decision makers. Conversely, it could create tensions and resistance in the community, particularly among male leaders; in order to avoid misperceptions, the project will have to conduct careful messaging and consultation as the structure is explained to the shareholders in order to gain their buy-in.
- The project office is also putting considerable thought into ensuring that inclusive structures are established for the spending of funds, proposing a Charter that lays out pre-agreed eligible uses of funds, with a small amount of discretionary space in the annual budget. The project has already begun conversations in communities about establishing working groups to identify spending priorities – preliminarily, these are water, conservation and education – an exercise in which women have been heavily active.
- The project's emphasis on encouraging long-term investments in development appears to be a view held by many in the community. One male chief interviewed spoke enthusiastically about his hope of setting up a community business and offering financial literacy training to tribal members, and conversely his wish to avoid cash handouts.
- In addition to the Tribal Cooperatives which will transfer funds to individual members, SIG is planning to establish a Benefit Sharing Fund, essentially a community development fund, which would receive a regular stream of funds from revenue generated from the Power Purchase Agreement and last as long as the PPA is in effect. These funds would not be transferred to individual accounts, but rather managed in a pooled fund for use in investments with broad community benefit such as water supply and sanitation, education, roads, etc. The governance arrangements for the Fund has yet to be established, but the PO aims to establish an even balance of men and women as board members/directors of the Fund.

Organizational capacity for gender mainstreaming

- As the primary entity responsible for project planning and implementation, it is important the Project Office has both the will and capacity to introduce and

monitor gender-mainstreaming measures. In terms of modeling gender balance to communities, during the mission only one female national community outreach worker appeared to be part of the team (and as a contractor, rather than office-based staff), with one other female (international) consultant in a key role as legal advisor.

- Given consistent feedback from women on their preference for regular women-only consultations, the project should train and hire at least one permanent female outreach worker. As it appeared that the majority of the project office team had no significant prior experience of working on gender issues, appointing and training a gender focal point in the project office is required in order to coordinate, monitor and report on the progress of the GAP. Ideally this person could also work in partnership with an equivalent counterpart in the MMERE, the Ministry charged with supervising the project. From conversations with the MMERE representative, there appeared to a growing awareness and support for gender mainstreaming in other aspects of the Ministry's energy portfolio.
- Routine gathering and analysis of sex-disaggregated data is an area where the project needs to improve, particularly going forward in the run-up to implementation, and is a requirement of World Bank funded projects. Although project documentation includes some useful gender analysis (e.g. the ESIA and the Livelihoods Restoration Plan), the project should start tracking and disaggregating meeting attendance and participation by gender, which would enable them to identify patterns and ensure that community needs/concerns are met in an inclusive way.
- From a social protection perspective, the Project has developed comprehensive mechanisms in line with international best practice. For example, the Project Company's ESMP includes anti-sexual and gender based harassment as well as socially and culturally acceptable behavior in villages, drugs and alcohol use, and protocols around interacting with local women. The Project Company is required to provide training to workers to familiarize them with the conduct code. The ESMP also requires the Project Company and contractors to identify a quota for women and put in place strategies to ensure that this quota is fulfilled by female workers on equal pay to male workers.

Fieldwork also identified gender differences in the perception of potential adverse impacts and risks as a result of the Hydro Project. The most often repeated concerns overlapped with the findings of the ESIA assessment, which included female groups in interviews but which did not include household data or and was, for the most part, not sex-disaggregated in terms of the analysis of data. Disaggregating data analysis by gender for the GAP allowed for patterns to emerge and a few additional fears to be identified, as summarized below:

Concerns voiced by women	Concerns voiced by men
River contamination, affecting community water supply and health	River contamination, affecting community water supply and health
Mistrust/lack of understanding/ fear around how dams operate, and potential collapse as a threat	Disruption of fishing
Fear of social dislocation (alcoholism, drugs, anti-social behavior) from misuse of benefit streams	Risk to community security and integrity with the arrival of illegal squatters
Fear of elite capture of benefit streams	Fear of missing out on land compensation
Fear of lack of voice and exclusion from decision making processes	Concern that newcomers or 'others' in the community would take all the available jobs
Breaking down of cultural traditions as a result of land changes and newcomers	Concern to see that project benefits would be invested sustainably, to start community owned businesses
Fear of missing out on potential economic opportunities like jobs, training etc.	Fear of elite capture of benefit streams
Concern that community youth were not sufficiently interested in or involved with the project	Concern that decision making respects local customs and systems of authority

Organization of the GAP

The GAP recommendations are structured into strategic objective areas, each of which loosely corresponds to the categorization of fieldwork findings, as summarized below:

Category of Fieldwork Findings	Strategic Objective Area
Gendered Division of Labor	Reducing the burden of work on women and improving their livelihood opportunities through access to resources and services
Access to and control over land and productive resources	
Needs, Priorities, Challenges and Perspectives	Ensuring gender equality in opportunities for education, skill building, training and safe employment
Access to project benefits	
Participation, decision making and community safety	Promoting the voice, participation and empowerment of women, and reducing opportunities for elite capture of funds

	and risks to women and girls
Organizational capacity for gender mainstreaming Collection and analysis of gender disaggregated data	Increasing organizational capacity for gender mainstreaming

Following an analysis of Strengths, Weaknesses, Opportunities and Threats to mainstreaming gender in the project, the GAP recommendations are presented in an Action Plan with an accompanying results framework.

Rationale

The Solomon Islands Government has recently enacted a number of national level commitments on gender equality; the Tina River Hydro Project is an important opportunity for gender mainstreaming in the energy sector, for the following reasons:

- The Project is high profile and a high priority for the government. It represents the most significant large-scale investment in infrastructure in the recent history of the country, and therefore will provide a model for investments that follow;
- The Project will also provide significant benefit streams, which (if managed equitably and well) offer the potential to create long term improvements for families in affected communities;
- The Project (and the JSDF intervention which will precede it) may present distinct impacts, challenges and potential benefits for men and women, who may have different needs and responses. These issues should be taken into account in the planning/pre-implementation stage that the project is currently in;
- Although the Project Office has already started to diagnose existing gender inequalities in affected communities (for example, through the Livelihoods Restoration Plan, and Environmental and Social Management Plan) and has begun to structure ways in which the project can help, there is as yet no overarching framework or institutional structure in place to support or monitor and report on these efforts;
- Gender inequalities in affected communities – as in the rest of the country – are pronounced and entrenched, particularly in the arena of participation and decision-making. This exclusion translates through to the economic realm where it contributes to the impoverishment of women as well as to inefficiencies and lost productivity, negatively impacting the whole society;
- Employing a gender perspective from design through to monitoring and evaluation offers insights that allow for better targeting and improved efficiency of energy sector programs.

Strategic Objectives

As summarized above, this Plan is organized around the following strategic objective areas:

1. Reducing the burden of work on women and improving their livelihood opportunities through access to resources and services
2. Ensuring gender equality in opportunities for education, skill building, training and employment
3. Promoting the voice, participation and empowerment of women, and reducing opportunities for elite capture of funds
4. Increasing organizational capacity for gender mainstreaming

SWOT Analysis

As part of the GAP process, a SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) has been performed using information from the Fieldwork Findings & Analysis report.

The SWOT analysis serves to identify those internal factors (Strengths and Weaknesses) and external factors (Opportunities and Threats) that are most relevant to implementing the gender mainstreaming process, links them to the relevant interventions, and gives an indication as to whether the objectives of each are attainable.

Strengths

SWOT Factor	Relevant Intervention	Outlook
Project Office established and highly functioning as lead entity for coordinating project implementation, with willingness and commitment to mainstream gender	Basic gender sensitization training for the Project Office –specifically for community liaison officers / assistants, and for a gender focal point from the existing staff (whose appointment is recommended in this GAP)	A dedicated expertise on gender is created within the Project Office, and a specific focal person is made responsible for coordinating and tracking gender mainstreaming efforts
The Project Office has	Build on the existing	The project has a sensible,

already implemented / planned several initiatives that aim to create equal opportunities for women and ensure their inclusion in the project	measures to incorporate gender in the project, and combine with complementary mainstreaming measures that are both practical and align with a strategic plan (laid out in this GAP)	actionable and coherent strategy for gender mainstreaming that has the support of the Project Office, and that fully avails of the opportunities to advance gender equality during implementation
Solomon Islands Government has high level policy commitments on gender equality; government line ministries and stakeholders are supportive of gender mainstreaming agenda	Semi- annual progress reporting on the GAP implementation is included as a separate section in Project Office reports	Government has a sense of ownership and involvement in the GAP; gender mainstreaming measures are implemented in partnership with MWYCFA; MMERE leadership are engaged in monitoring and become champions of gender mainstreaming within, and potentially beyond, the project

Weaknesses

SWOT Factor	Relevant Intervention	Outlook
Lack of clarity as to the long term institutional arrangements for gender mainstreaming in the project – and in particular the role of the Project Company which currently has no plans for gender mainstreaming	Begin involving the Project Company in gender mainstreaming awareness via inviting their participation in the Tina River Sub-Committee with responsibility for overseeing the GAP, to which the Project Office will report on an annual basis	Key long-term project stakeholders have an opportunity to gain knowledge and capacity on the importance of gender mainstreaming in the project, ensuring ongoing support for this agenda
Currently, the project does not routinely offer women separate single-sex consultations as part of community visits	Routinely begin offering single sex consultations to project affected women and recruit additional female community liaison officers / assistants to help with this	Improved ability of community women to feel included and comfortable with making their opinions on the project heard

Women are already a more vulnerable group in the community, and as such more prone to adverse impacts	Mandate the inclusion of women as equal decision makers in several key community bodies / structures that the project is putting in place; ensure gender disaggregated monitoring of project impacts	No women experience a deterioration of living conditions or opportunities as a result of the project
Currently, limited disaggregation of data by sex in project reporting	Disaggregate data by sex where possible and analyze quarterly/annually to assess progress against GAP objectives	Just-in-time adjustments can be made to project implementation based on feedback from gender analysis

Opportunities

SWOT Factor	Relevant Intervention	Outlook
The project will create meaningful benefit streams that offer the potential to improve the lives of families (including women) in affected communities	The utilization of benefit sharing cash flows can be designed to prioritize interventions that create broad, inclusive benefits for families and women – for example, clean water access, health and education	Benefit sharing funds are spent in a transparent way that reflects priorities of the whole community, particularly women and children
The project is creating new structures, systems and institutions for decision-making at community level and has an opportunity to make these inclusive of women	Mandate the inclusion of women as equal decision makers in several key community bodies / structures that the project is putting in place	Women's voices and concerns are represented and they are given some control over decisions that affect their lives; new institutions help to create a new model for gender equality in community decision making
Lessons from implementing the GAP have the potential to be transferred to other sectors and future projects in the country	Reporting and M&E built into the GAP	Successful approaches to gender mainstreaming are successfully extended to other projects and sectors. Unsuccessful approaches are analyzed and used as learning to guide future interventions

Threats

SWOT Factor	Relevant Intervention	Outlook
Measures to include women in project decision-making have previously met with resistance among some of the community men	Training offered to community men and women on gender equality using locally appropriate content and examples	Cultural norms and behavior shift towards accepting gender equality
Project planning and processes are still evolving, posing a challenge to ensuring mainstreaming is completely comprehensive at this stage; some aspects of the GAP may need to be tweaked at a later stage	Put in place an institutional structure (the Tina River Sub-Committee and Gender Focal Point in the Project Office) with the mandate to adjust and tweak the GAP in real time based on ongoing analysis of performance.	Gender mainstreaming efforts are adjusted as required in real time to ensure continued appropriateness and effectiveness, and ability to reach all audiences whether literate or not, or with disabilities.
Previous experience with project cash-flows (from the Gold Ridge Project) has been highly negative as a result of elite capture of funds by a small group of men. Communities noted a marked increase in social dislocation, alcoholism, anti-social behavior, family abandonment and violence. This has caused particular duress for women given their roles as caregivers, and their relative lack of voice in community decisions.	Establish individual accounts for every single tribal member to avoid elite capture. Also, establish a Benefit Sharing Fund to be used for small investment projects that have broad community benefit and ensure that the governance arrangement for the Fund is inclusive of women.	All individual tribal members benefit equally from compensation, royalty and land lease income and all community members experience a high level of satisfaction with benefit sharing arrangements

Ownership

The Project Office as the main implementing entity will be responsible for ensuring that the GAP recommendations are mainstreamed into daily operations and into the

relevant structures as they are set up at community level. This will include hiring required expertise and engaging Development Partners such as the World Bank, to design and implement the recommended gender trainings, and to advise on gender in monitoring and evaluation, as detailed in the Action Plan below. The MMERE, as Government owner of the project and Ministry overseeing the Project Office, will have overall ownership of the GAP.

Other key stakeholders – for example, the Ministry of Environment, Climate Change, Disaster Management and Meteorology; the Ministry of Women, Youths, Children and Family Affairs; Solomon Power; the World Bank; and the Project Company as well as any other key donor / partner to the project – will have the opportunity to play a key executive role in GAP implementation through participating in the Tina River GAP Steering Committee.,-which will have the official mandate for monitoring overall Tina River Hydro project implementation, including the GAP. The set-up of the Steering Committee will be managed by the PS of the MMERE and supported by the Project Office; the MMERE will decide on and invite initial members, with a view to adding additional members (such as the Project Company) as the project progresses.

The World Bank will play a key role in implementing the GAP through supporting the Solomon Islands Government to prepare and implement the project, providing technical guidance and through advising on select gender mainstreaming activities in support of the Tina River Hydropower Project and the design and implementation of the community benefit sharing mechanism with support from the JSDF (as marked below on the Action Plan).

Resource Requirements

Most of the measures in the GAP are covered by the TRHDP project preparation funds or under the JSDF Project. The following items will be included in the Technical Assistance component (Component 4) of the TRHDP project to be financed with IDA and Australian grant resources:

- i) **Community Liaison Officer (female):** Local, full-time consultant to conduct regular community consultations, and to be the primary Gender Focal Point in the PO. This consultant will conduct trainings and workshops together with a specialized gender specialist, and collect data to measure the progress of the GAP.
- ii) **Training:** Short term consultancy services for a local gender consultant, and event costs, associated with running a one-day training program for the Project Gender Focal Point, members of the Tina River Steering Committee, and other key stakeholders in Honiara. The goal of this

training program would be to familiarize all attendees about the gender context and dynamics in the project area, to ensure they understand the contents and purpose of the GAP, and to support them in developing the knowledge and confidence to play an active role in GAP implementation and oversight.

- iii) **Workshops:** Local consultant (individual facilitator) plus event costs to conduct community level workshops in the project area, offering gender sensitization trainings for men and women in affected communities.
- iv) **Data collection & analysis:** Consulting firm to conduct a household survey and focus groups in the project area, ensuring that data collected is sex disaggregated, to provide a baseline for social impact monitoring and reporting for the project. While this exercise will provide a baseline relevant to the GAP, it will also be broadly useful in tracking the socio-economic impact of the project over time. (As the baseline will need to be followed up once the project is operational, the budget estimates reflect the costs of these two surveys.)

The survey will provide a baseline for indicators suggested in the table below, and would cover income and expenditure; transit time to tertiary healthcare services in Honiara; distance to the nearest clean water supply; and current household energy sources and consumption levels. Separate female/male focus groups carried out following the planning phase will be used to investigate qualitatively issues such as: Do women and men feel informed about the road and the hydro dam, and understand their impacts? To what extent do women and men feel empowered to participate in decision making at household and community level? Do women and men feel that they have the opportunity and skills to make spending decisions over the money in their bank account? Do women and men feel that their priorities are reflected in the spending decisions for project revenues?

PAD Indicators

The following key results indicators from the table below are suggested for inclusion in the project PAD:

- % change in project-affected community household income before and after hydropower facility commissioning (sex disaggregated)
- % of quarterly meetings of the GAP Steering Committee taking place in a year
- % of women who are satisfied with the way in which their individual Tribal Cooperative account funds, and those of their children, are spent

Action Plan and Results Framework²

Objectives	GAP Measures	Outputs	Outcomes	Baseline	Indicator	Timeframe ³
1. Reducing the burden of work on women and improving their livelihood opportunities TRHDP	1.1 Where food gardens are lost as a result of the project, provide compensation in the way of a cash grant once a new garden has been replanted outside of the acquired land. Cash grants to be given to whomever is the primary person who works the land, regardless of gender <i>(Action also specified in LARLP.)</i>	Eligible male and female householders receive cash compensation. (The Project has already determined eligible householders based on the work of the livelihoods consultant who carried out a thorough survey of crop and garden inventory as well as an ownership register and notation of the primary person working the land. There findings were verified at community level via consultation meetings with women and men.)	Women are empowered to invest in continued food security and land based livelihoods	Number of displaced gardens	% of displaced gardens re-established with cash grant awarded to eligible householder (and % of those who are women)	Prior to and post construction of the access road
JSDF	1.2 Provide clean water access in project communities in	Clean water is provided at more accessible sites for project affected	Community goodwill and trust of the project	Number of households in the project area with reliable,	Number of households in the project area with reliable, consistent access to safe, clean	Prior to and post construction of clean water access

² The source of funds for each activity are identified in the far left column: e.g. World Bank, JSDF or TRHDP

³ Specific dates to be added once contract is signed with a Project Company, or when otherwise agreed with relevant stakeholders.

	<p>advance of the Tina Hydro project commencing and afterward</p> <p><i>(Action included as part of JSDF benefit sharing activities)</i></p>	communities, reducing reliance on river water ahead of the project starting and afterward, as well as reducing the distance for women to travel to access water	increases ahead of implementation as a result of tangible benefits	<p>consistent access to safe, clean water</p> <p>% of households with clean water access within 100 meters</p>	<p>water</p> <p>% of households with clean water access within 100 meters</p>	
JSDF	<p>1.3 Provide access to grid-connected or other appropriate electricity generation technologies in advance of the Tina Hydro project commencing and afterward</p> <p><i>(Action included as part of JSDF benefit sharing activities)</i></p>	Affordable grid-connected electricity is provided to households within project affected sites	Quality of life improves for households	<p>% of households in the project area that have access to electricity</p> <p>% of female-headed households with access.</p>	<p>% of households in the project area that have access to electricity</p> <p>% of female-headed households with access.</p>	Prior to and post electrification program
TRHDP	1.4 Construct access road for the project, which will reduce the time taken to access tertiary health care in Honiara.	Reduction of time required for people in the project area to access tertiary healthcare	Healthcare is more readily accessible	Average transit time (minutes) from villages in the project area to Honiara	Average transit time (minutes) from project area villages to Honiara	Prior to and post road construction

JSDF	<p>1.5 Allocate funding from the JSDF to improve water and sanitation facilities at the local clinic.</p> <p><i>(WASH activities included under JSDF project activities)</i></p>	Women and men in project villages have access to primary healthcare with adequate water and sanitation facilities	Healthcare facilities are more hygienic and able to treat more patients	Number of patients seen by local clinic (% of which female)	Number of patients seen by local clinic (% of which female)	Prior to and post construction of sanitation facilities at the clinic
<p>2 Ensuring gender equality in opportunities for education, skill building, training and safe employment</p> <p>TRHDP</p>	<p>2.1 Offer financial management and budgeting training to i) tribal cooperative members ii) workers employed by the project, as well their spouses, and to women householders in the project area.</p> <p>Provide support to potential business ventures, including those set up by women, via a dedicated business support advisor for core land tribes</p>	Women and men gain new skills in budgeting and financial management	Financial management skills improve for women and men	<p>Number of participants who are able to successfully carry out the range of skills taught by the program (% of which females)</p> <p>(assessed by training providers)</p> <p>Average income before the project (sex disaggregated)</p>	<p>Number of participants who are able to successfully carry out the range of skills taught by the program (% of which females)</p> <p>(assessed by training providers)</p> <p>Average income before the project (sex disaggregated)</p>	<p>Prior to and post FM training</p> <p>Prior to FM training and following project construction</p>

	<i>(Specified in JSDF benefit sharing activities and ESMP)</i>					
TRHDP	<p>2.2 Establish a bank account for every woman, man and child belonging to a coop, into which royalties and compensation monies will be received</p> <p><i>(Specified in LALRP)</i></p>	Bank accounts established and functioning for all eligible beneficiaries	Women and men have the tools and skills to save and manage their own finances	<p>% of eligible men, women and children who possess an individual bank account having been provided with financial literacy, management and equitable financial decision-making training/ guidance</p> <p>% of women who are satisfied with the way in which their individual account funds and those of their children are spent</p>	<p>% of eligible men, women and children who possess an individual bank account having been provided with financial literacy, management and equitable financial decision-making training/ guidance</p> <p>% of women who are satisfied with the way in which their individual account funds and those of their children are spent</p>	<p>Prior to and post FM training and account setup</p> <p>Annual survey of female Tribal Cooperative members</p>
	2.3 Provide access	Women participate in	Women have	% project area	% project area	Throughout project

	<p>road and hydropower plant construction-related pre-employment and/or business opportunity training to women who are interested, in particular women from the project area</p> <p><i>JSDF skills development component and Project Company training</i></p>	pre-employment and/or business opportunity training to acquire construction-related jobs or establish other income-generating activities	improved knowledge and skills to acquire construction-related jobs or other income-generating opportunities such as food sales	households with women who participate in pre-employment or business opportunity training	households with women who participate in pre-employment or business opportunity training	implementation
<p>3 Promoting the voice, participation and empowerment of women, and reducing opportunities for elite capture of funds and risks to the safety of women and girls</p> <p>TRHDP</p>	<p>3.1 Instigate a parallel women's consultation program to visit communities at least once a month, headed up by a female community liaison officer. Use this as a space for women to gain confidence in articulating their views, with the goal of having them speak up more often in</p>	<p>Women have a regular, safe space to participate in the project and a dedicated forum for their voices to be heard and captured on record</p> <p>Women's participation in the project increases</p>	<p>Women experience increased sense of agency and confidence that the project is taking their concerns seriously</p>	<p>% of people who feel that their priorities are reflected in the spending decisions for project revenues</p> <p>(score of 7 or higher on a 10 point scale, with 0 completely disagree and 10 completely agree - sex disaggregated)</p>	<p>% of people who feel that their priorities are reflected in the spending decisions for project revenues</p> <p>(score of 7 or higher on a 10 point scale, with 0 completely disagree and 10 completely agree - sex disaggregated)</p>	Throughout the project life cycle

	community wide meetings					
	Specify in ESMP					
TRHDP	3.2 Ensure all community members, including and especially women, have access to information and training sessions on hydro dam safety, construction issues and road and water safety awareness	All community members, including women, are equipped with accurate information on the main risks and changes that may result in their lives with project implementation	Community-wide trust in the project increases Road safety features including sidewalks through settlements, crossings and speed limits are in place	Number of road safety features on the Tina access road % of women and men who agree that they feel fully informed about the road and the hydro dam, and understand their impacts (score of 7 or higher on a 10 point scale, with 0 completely disagree and 10 completely agree)	Number of road safety features on the Tina access road % of women and men who agree that they feel fully informed about the road and the hydro dam, and understand their impacts (score of 7 or higher on a 10 point scale, with 0 completely disagree and 10 completely agree)	Prior to trainings and after trainings / following construction of the access road
TRHDP	3.3 Conduct gender sensitization trainings for men	Trainings are conducted and attended by	Women are able to participate as equal partners	N/A	Number of male and female participants in training events	During training

	and women in affected communities to encourage men to create space and opportunity for women to participate	community men and women, including male leadership	at the household level and in decision making in the community Men's acceptance of gender equality in the household and the community increases	% of women and men who agree that they feel able to participate in decision making at household and community level (score of 7 or higher on a 10 point scale, with 0 completely disagree and 10 completely agree)	% of women and men who agree that they feel able to participate in decision making at household and community level (score of 7 or higher on a 10 point scale, with 0 completely disagree and 10 completely agree)	Prior to training and following training
	3.4 Conduct training for both project communities (men, women and youth) and Project Company staff and contractors to protect women, in particular, from the potential negative effects of labor influx	Trainings are conducted and attended by community men and women and Project Company staff and contractors	Community members are more aware of the risks of hosting a large number of laborers, especially to women, and workers follow guidelines for appropriate behavior in line with compliance with WB Performance	% of households participating in training % of Project Company staff and contractors participating in training	% of households participating in training % of Project Company staff and contractors participating in training	Throughout construction period

			Standard 2 on Labor and Working Conditions			
TRHDP	<p>3.5 Include both women and men in delivering community education on the provision of electricity, including safety, productive uses of electricity in the home, and managing the household energy budgeting</p> <p><i>(Specified in JSDF benefit sharing activities)</i></p>	Women and men in the project area understand how to use electricity safely and productively in the home	Electricity is used safely and productively in the home	<p>N/A</p> <p>N/A</p>	<p>% of training attendees who are female</p> <p>% of trainers who are female</p>	Prior to construction
TRHDP	3.6 Ensure there is female representation at leadership level in all key community level institutions including the Tribal Cooperatives	Women participate equally alongside men in project decision making structures	<p>Male tolerance of and support for women in leadership roles increases</p> <p>Women experience increased</p>	<p>N/A</p> <p>N/A</p> <p>N/A</p>	% of female representation in the Tina Core Land Company, Tribal Cooperative Governing Committees, and Benefit Sharing Fund Governing Committee/Board	Prior to and during construction

	Governing Committees ⁴ ; the Community Liaison Committees (CLCs)		confidence and sense of agency as decision makers in their communities Spending of project benefit share funds reflects the priorities of men and women		% of female leadership in CLCs	
TRHDP	3.7 Form all-women matrilineal membership committees for the tribal cooperative groups, with membership rights ascertained and inherited through traditional matrilineal principles	All female coop membership committees established and running successfully	Coop structure empowers women to re-assert their traditional matrilineal leadership role in communities and within the Landowner Company Incidences of elite capture are avoided	N/A	No. of coops established with all female membership committee	Prior to construction
4 Increase Organizational Capacity for Gender	4.1 Appoint and train a gender focal point in the Project Office,	Gender focal point established and functioning	Regular reporting and analysis on gender issues	N/A	% of the project's social indicators that use sex-disaggregated data ⁵	Prior to construction

⁴ Provisionally, it is envisaged that the Governing Committee will be a body composed of 7 men and women, elected by the membership of each of the Tribal Cooperatives at their Annual General Meetings.

⁵ These indicators will be finalized with the drafting of the project PAD, which has not yet been written.

Mainstreaming TRHDP	responsible for liaising on gender issues between Project Office management, field staff, project monitoring unit, Tina sub-committee and other external stakeholders		Dedicated channel of communication for gender issues between project and Tina sub-committee, as well as other external stakeholders	N/A	% of project reports to the Bank that include gender analysis	Over the project lifetime
World Bank	4.2 Provide basic gender awareness and analysis training to the dedicated gender officer (field-based) as well as those who will run the PO, in addition to training for Project Company staff (which should include familiarization with the GAP and their role in supporting its implementation)	Key project office staff and Project Company staff are trained in gender awareness and analysis	Regular, high quality reporting on gender integrated into project monitoring systems Project Company understands and supports GAP Project representatives in the community are equipped to support gender mainstreaming efforts	N/A	% of the project's social indicators that use sex-disaggregated data % of project reports that include systematic gender analysis Number of project staff and stakeholders trained on gender analysis and monitoring/evaluation (sex disaggregated)	As soon as gender officer is recruited

TRHDP	<p>4.3 Include responsibility for monitoring the GAP in the mandate of the Project sub-Committee convened by the Ministry of Mines, Energy and Rural Electrification (MMERE). This committee will also include representatives from the Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM); Ministry of Women, Youths, Children and Family Affairs (MWYCFA); World Bank; Solomon Islands Electricity Authority (SIEA); Guadalcanal Provincial Administration; and Korea Water</p>	<p>Tina sub-committee appointed and trained in GAP, reporting to MMERE as overall project supervisor</p>	<p>Active, engaged steering committee ensures gender remains a priority throughout project implementation</p> <p>Strong government support for GAP</p>		<p>% of meetings of GAP steering committee taking place on a quarterly basis</p> <p>Evidence of Project Sub-committee including GAP implementation on agenda of meetings and actions taken to respond to any issues identified</p>	<p>Annually or bi-annually (TBD by MMERE)</p>

	(Project Company)					
World Bank	<p>4.4 Conduct a household income and expenditure survey in the project area</p> <p><i>(Include in LALRP and ESIA)</i></p>	Income of women and men in households tracked in project monitoring and reporting	Income of male and female household members in the project area is monitored and supported with appropriate interventions	Average income before the project (sex disaggregated)	<p>Average income once the project is operational (sex disaggregated)</p> <p>(other indicators dependent on M&E matrix for social impacts)</p>	Pre-construction and post commencement of project operations
TRHDP	4.5 Amend the template used by the project field staff for recording consultations, to include 2 additional columns: i) number of women present and ii) concerns / questions raised by women	The level of female participation as a proportion of overall participants remains consistent or increases over time	Data is analyzed to provide a means of measuring efforts to improve women's participation in the project	<p>N/A</p> <p>N/A</p>	<p>% and No. of women attending mixed sex consultations</p> <p>% and No. of women attending women-only consultations</p> <p>No. of grievances raised, % of which resolved (sex disaggregated)</p>	Over the life of the project

TERMS OF REFERENCE

Gender Action Plan (GAP) Steering Committee Tina River Hydropower Project – Solomon Islands

Summary

The Solomon Islands Government has enacted a number of important policy commitments to gender equality. In the energy sector, gender mainstreaming is a key priority for the Ministry of Mines, Energy and Rural Electrification (MMERE). A Gender Action Plan (GAP) has therefore been prepared in support of the Tina River Hydropower Project and the accompanying World Bank Japanese Social Development Foundation Benefit Sharing Program. The GAP aims to help ensure that women will have equitable access to project benefits and equitable voice in project-related activities. As part of ensuring accountability for this plan as well as full national ownership of its implementation, a GAP Steering Committee will be established by the MMERE.

Background / Context

The Tina River Hydropower Project is being implemented against a backdrop of existing gender inequalities and social exclusion. The challenges include poor representation of women at all levels of decision-making; higher reliance by women on land-based livelihoods (particularly the cultivation and sale of market produce); landowners' prior negative experience of the social disruption associated with the Gold Ridge Mine; the lower education and literacy rates of women; and the prevalence of certain ingrained cultural attitudes – particularly amongst some of the male elites in the project area - that normalize the subordination of women and create resistance towards gender equality efforts.

In addition, experience of hydropower projects in other parts of the world, and of large scale infrastructure projects (such as mining) in the Pacific Islands, suggest that the initial disadvantages and inequalities faced by women are often multiplied by the unintended adverse impacts of these investments, that expose women to disproportionate risk. For example, loss of productive land or changes in the availability of water can negatively impact the ability of women – as the main agricultural producers - to provide food security for their families. Similarly, if women are excluded from decision making around project benefit flows into communities, they are less likely to realize meaningful gains or opportunities.

Given these risks and the baseline of gender inequality in its footprint area, the Tina River Project has an opportunity to include design and monitoring measures that

will, at a minimum, not exacerbate existing challenges faced by women, while at the same time aiming to promote their participation and wellbeing. The GAP summarizes these measures.

Convening of the Committee

The Steering Committee will be formed and headed by a senior representative from the MMERE, with the support of the Project Office. Initial members will be invited to sit on the committee prior to project implementation beginning, with the possibility to later expand membership as new stakeholders become active on the ground (for example, the Project Company).

Membership of the committee will be at the discretion of the MMERE, but is envisaged to include mid-senior level representatives from the Ministry of Environment, Climate Change, Disaster Management and Meteorology; the Ministry of Women, Youths, Children and Family Affairs; Solomon Power; the World Bank; and the Project Company as well as any other key donor / partner to the project. Efforts will be made to ensure gender diversity within the committee's membership. The Gender Focal Point from the Project Office will also sit on the Steering Committee.

The World Bank will support training for the membership of the Committee. It is suggested that the committee be convened semi-annually, coinciding with the existing reporting schedule for the project, to review progress in implementing the GAP.

Scope of Work

The functions of the Steering Committee will include:

- Ensuring that all new members receive training and orientation (provided by the World Bank)
- Semi-annual review of GAP implementation reports, provided by the Project Monitoring Unit and supported by an external consultant
- Recommendations for corrective action to improve outcomes for women provided to the Project Office, if required, based on review of implementation reports
- Coordination with the Gender Focal Point in the Project Office on any additional issues
- High level coordination with project partners to ensure their buy-in and to raise additional resources or support as required for GAP implementation
- Dissemination and publicity on the results and insights gained from the Gender Action Plan implementation
- With the assistance of an external consultant hired by the World Bank, produce an annual status report summarizing the key insights and lessons from GAP implementation

ANNEX P-4-IV WORKERS HARRASSMENT POLICY

ANNEX P-4-IV – WORKERS HARASSMENT POLICY

The Policy Statement

Hyundai Engineering Company Limited (henceforth referred as “HEC”) is committed to providing a safe environment for all its employees free from discrimination on any ground and from harassment at work including sexual harassment. HEC will operate a zero tolerance policy for any form of sexual harassment in the workplace, treat all incidents and allegations seriously and promptly investigate all allegations of sexual harassment. Any person found to have sexually harassed another will face disciplinary action, up to and including dismissal from employment.

HEC will take a survivor-centered approach in investigating and responding to every allegation. the survivor’s rights, needs and wishes are prioritised in every decision related to the incident. Any survivor who has the courage to come forward, will always be treated with dignity and respect, and no action will be taken without their prior consent. All allegations of sexual harassment will be taken seriously and treated in confidence. No one will be victimised for making such an allegation.

This policy will apply also to all sub-contractors and their staff as well as THL.

Definition of sexual harassment

Sexual harassment is unwelcome conduct of a sexual nature which makes a person feel offended, humiliated and/or intimidated. It includes situations where a person is asked to engage in sexual activity as a condition of that person’s employment, as well as situations which create an environment which is hostile, intimidating or humiliating for the recipient.

Sexual harassment can involve one or more incidents and actions constituting harassment may be physical, verbal and non-verbal. Examples of conduct or behaviour which constitute sexual harassment include, but are not limited to:

Physical conduct

Unwelcome physical contact including patting, pinching, stroking, kissing, hugging,

- fondling, or inappropriate touching
- Physical violence, including sexual assault
- Physical contact, e.g. touching, pinching
- The use of job-related threats or rewards to solicit sexual favours

Verbal conduct

- Comments on a worker’s appearance, age, private life, etc.
- Sexual comments, stories and jokes
- Sexual advances
- Repeated and unwanted social invitations for dates or physical intimacy
- Insults based on the sex of the worker
- Condescending or paternalistic remarks
- Sending sexually explicit messages (by phone or by email)

Non-verbal conduct

- Display of sexually explicit or suggestive material
- Sexually-suggestive gestures

- Whistling
- Leering

Anyone can be a victim of sexual harassment, regardless of their sex and of the sex of the harasser. HEC recognises that sexual harassment may also occur between people of the same sex. What matters is that the sexual conduct is unwanted and unwelcome by the person against whom the conduct is directed.

HEC recognises that sexual harassment is a manifestation of power relationships and often occurs within unequal relationships in the workplace, for example between manager or supervisor and employee.

Anyone, including employees of HEC, clients, customers, casual workers, contractors or visitors who sexually harasses another will be reprimanded in accordance with this internal policy.

All sexual harassment is prohibited whether it takes place within HEC premises or outside, including at social events, business trips, training sessions or conferences sponsored by HEC.

Complaints procedures

Anyone who is subject to sexual harassment should, if possible, inform the alleged harasser that the conduct is unwanted and unwelcome. At the same time, the incidence should be reported and recorded through a complaint procedures as detailed below.

The victim/survivor of sexual harassment should immediately report to a designated person such as Project doctor/Gender Focal Point. When a designated person receives a complaint of sexual harassment, he/she will:

- immediately record the dates, times and facts of the incident(s)
- ascertain with the victim/survivor that all information will be kept confidential and to understand their views as to what outcome they want
- ensure that the victim/survivor understands the Project GRM's procedures for dealing with the complaint
- discuss and agree the next steps: either informal or formal complaint, on the understanding that choosing to resolve the matter informally does not preclude the victim/survivor from pursuing a formal complaint if he/she is not satisfied with the outcome
- keep a confidential record of all discussions, including the victim/survivor personal details
- respect the choice of the victim/survivor
- ensure that the victim/survivor knows that they can lodge the complaint outside of the Project GRM and the Company through the relevant country/legal framework (including Police)

Particularly, regarding complaints associated with violence against women, the presence of effective and gender-responsive complaints procedures reassures complainants that proper action will be taken and encourages reporting. Investigations on grievance associated with violence against women need to be gender-responsive, taking into account gender norms, gender inequalities and the situations of vulnerability and risks faced by women with diverse identities at work. In this sense, a specialist third party can play a significant role in helping to design and support internal complaints procedures.

Throughout the complaints procedure, a victim/survivor is entitled to be helped by a counsellor/investigator within the Company. HEC will nominate a number of counsellors/investigators and provide them with special training to enable them to assist survivors of sexual harassment. Training for counsellor/investigator on gender-based violence related issues or hiring investigators with this expertise is required.

Informal complaints mechanism

If the victim/survivor wishes to deal with the matter informally, the designated person will:

- give an opportunity to the alleged harasser to respond to the complaint
- ensure that the alleged harasser understands the complaints mechanism
- facilitate discussion between both parties to achieve an informal resolution, which is acceptable to the complainant, or refer the matter to a designated mediator within the company to resolve the matter
- ensure that a confidential record is kept of what happens
- follow up after the outcome of the complaints mechanism to ensure that the behaviour has stopped
- ensure that the above is done speedily and within 7 days of the complaint being made.

Formal complaints mechanism

If the survivor wants to make a formal complaint or if the informal complaint mechanism has not led to a satisfactory outcome for the survivor, with an agreement/consent with the victim/survivor, a formal complaint mechanism might be used to resolve the matter. The responsible person carrying out the investigation will:

- interview the victim/survivor and the alleged harasser separately
- interview other relevant third parties separately
- decide on whether or not the incident(s) of sexual harassment took place
- produce a report detailing the investigations, findings and any recommendations
- in the case that the harassment took place, decide what the appropriate remedy for the victim/survivor is, in consultation with the survivor, which may include, but not limited to the following:
 - an apology,
 - a change to working arrangements,
 - a promotion if the victim/survivor was demoted as a result of the harassment,
 - additional training/monitoring for the harasser,
 - disciplinary action, including potential suspension or dismissal.
- follow up to ensure that the recommendations are implemented, that the behaviour has stopped and that the survivor is satisfied with the outcome
- in the case that it cannot determine that the harassment took place, recommendations can be made to ensure proper arrangement/functioning of the workplace and prevent such incident from occurring
- keep a record of all actions taken
- ensure that all records concerning the matter are kept confidential
- ensure that the process is done as quickly as possible and in any event within seven days of the complaint being made.

The Project doctor (a qualified and registered general practitioner) will be designated to receive complaints about harassment (including sexual harassment). The Project

doctor will have sufficient experience and knowledge of appropriate protocols for investigating claims of sexual or physical harassment and abuse, and work to resolve the allegation in a professional, compassionate and confidential manner, which protects and reassures the victim/survivor. The Project doctor will liaise with and seek additional support from local Gender-Based Violence service providers or specialist third party as required, and with the consent of the victim/survivor. At this stage, there are four third party specialists in the area, including:

- Royal Solomon Islands Police Force Seif Ples. This is a Crisis and Referral Centre offering first response services for victims-survivors of sexual and gender-based violence. Toll Free: 132, Phone: 677 24677. Victims can be moved into the Seif Ples for safety by the RSIPF.
- Anglican Church of Melanesia Christian Care Centre. Women and children are accommodated at the care centre for safety and pastoral care.
- Family Support Centre (Phone No. 26999); and
- Christian Care Centre (Phone No. 22801).

Female nurses will also be available as an alternative point of contact, at the medical facility within HEC's temporary site office.

The first point of contact for the doctor (or nurse) in assisting survivors will be Seif Ples Gender-Based Violence Crisis and Referral Center in Rove, Honiara. Seif Ples offers a comprehensive first response service for victim-survivors of sexual and gender-based violence in the Solomon Islands.

Other providers may be called upon as needed, including the Ministry of Women, Youth, Children and Family Affairs (which has staff who are specialised in the implementation of the Solomon Islands *Family Protection Act 2014*, and work closely with RSIPF). This Ministry can also facilitate access to SafeNet, which is a wider referral network of service providers to support survivors and provide counselling services to them and their families. Training Counsellors for individual trainings have been identified. They are listed in P1 CESMP. The SafeNet emergency contact tree is shown in Figure E1 below. The contact tree was designed for use during the COVID-19 pandemic, but contains helpful contact point for domestic/gender-based violence support in general.

Outside complaints mechanisms

A person who has been subject to sexual harassment can also make a complaint outside of the company. They can do so through the Grievance and Redress Mechanism (P6), and also through the Police and judicial authorities.

Sanctions and disciplinary measures

Anyone who has been found to have sexually harassed another person under the terms of this policy is liable to any of the following sanctions:

- verbal or written warning
- adverse performance evaluation
- reduction in wages
- transfer
- demotion
- suspension
- dismissal

The nature of the sanctions will depend on the gravity and extent of the harassment. Suitable deterrent sanctions will be applied to ensure that incidents of sexual harassment are not treated as trivial. Certain serious cases, including physical violence, will result in the immediate dismissal of the harasser.

Implementation of this policy

HEC will ensure that this policy is widely disseminated to all relevant persons. It will be included in the staff handbook. All new employees will be trained on the content of this policy as part of their induction into the company.

Every year, HEC will require all employees to attend a refresher training course on the content of this policy.

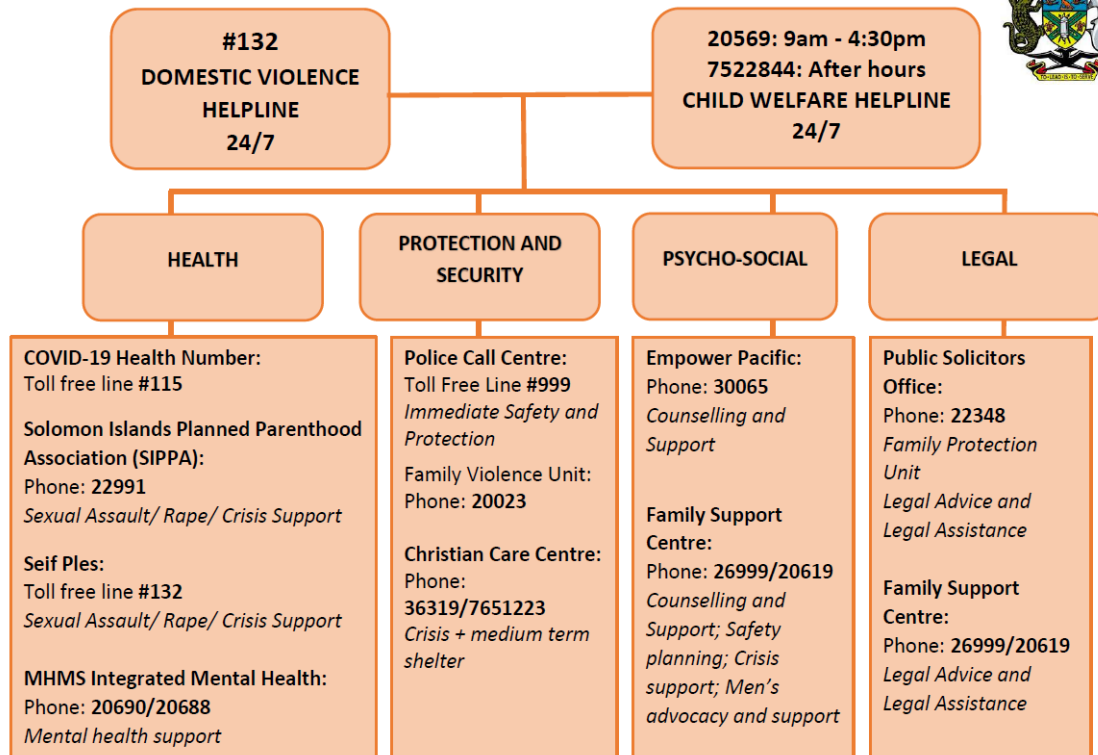
It is the responsibility of the Management Team (Project Manager, Construction Manager, HSE Manager and Administration Manager) to ensure that all their employees are aware of the policy.

Monitoring and evaluation

HEC recognises the importance of monitoring this sexual harassment policy and will ensure that it anonymously collects statistics and data as to how it is used and whether or not it is effective.

The Administration Manager and those responsible for dealing with sexual harassment cases will report on compliance with this policy, including the number of incidents, how they were dealt with, and any recommendations made. This will be done on a yearly basis. As a result of this report, the company will evaluate the effectiveness of this policy and make any changes needed.

National SAFENET COVID-19 Emergency Phone Tree



Supported by the Pacific Partnership to End Violence Against Women and Girls (Pacific Partnership), funded primarily by the European Union with targeted support from the Governments of Australia and New Zealand and UN Women.

Figure 1 SafeNet Emergency Contact Tree

ANNEX P-4-V EMPLOYMENT TERMINATOIN

EMPLOYMENT TERMINATION

Termination of employment may occur when a worker continually displays unsatisfactory conduct or misconduct. Examples of this include:

- not abiding by requirements set out in the Workers Code of Conduct (P9) and/or other Environmental and Social Management Plans (ESMPs);
- actions that may create a health and safety hazard to the Project site, other workers, local communities, or oneself;
- unacceptable behaviour as mentioned within the Workers Code of Conduct (P9);
- consistent lateness to work and/or consistent absences from work;
- poor output of work;
- failure to follow instructions, rules and/or procedures;
- failure to report incidents, including traffic incidents, to management, regardless of whether injury or damage occurs; and
- failure to report damage to Project property caused by oneself.

Where a serious misconduct has occurred, HEC may terminate employment without notice. Where the misconduct also involves illegal acts (under Solomon Islands law) the alleged crime shall be reported immediately to the Royal Solomon Islands Police Force (RSIPF) by the HEC Project Manager (and/or Security Manager, depending on the type of misconduct). Instances of serious misconduct include:

- theft of Project property;
- fraud;
- physical violence to other workers or local community;
- sexual harassment or sexual assault;
- deliberate damage to Project property and/or vehicles;
- consumption, being under the influence of, or possession of drugs (including beetle nut) and/or alcohol at work;
- illegal activities; and
- breach of the Workers Code of Conduct (P9) and/or ESMPs that results in a serious HSE hazard to Project site, other workers, local communities, or oneself.



The disciplinary procedure is provided below.

Disciplinary Procedure

Offence	1st Occasion	2nd Occasion	3rd Occasion
Unsatisfactory conduct or Misconduct	1st Written Formal Warning	2nd Written Formal Warning	Termination
Serious Misconduct	Termination	-	-

The steps leading up to termination shall be communicated to a worker in the form of a verbal warning, written warning, and suspension, before termination. Reasons for termination must be substantiated.



ANNEX P-4-VI CAMP IMPACT ASSESSMENT

	WORKERS ACCOMMODATION CAMP IMPACT ASSESSMENT		
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Workers Accommodation Camp Environmental and Social Impact Assessment



Person Responsible	Camp Manager
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REV.	DATE (dd/mm/yyyy)	DESCRIPTION	PREPARED	CHECKED	APPROVED
0	19/08/2021	1 st Submission	HEC and INOGEN	THL and OE	
1	26/09/2021	2 nd Submission (Addressed OE's 1 st Comments)	HEC and INOGEN	THL and OE	
2	05/11/2021	3 rd Submission (Addressed OE's 2 nd Comments)	HEC and INOGEN	THL and OE	
3	03/12/2021	4 th Submission (Addressed OE's 3 rd Comments and Lender's 1 st comments)	HEC and INOGEN	THL and OE	
4	28/12/2021	5 th Submission (Comprehensive restructuring to address all rounds of OE's and lenders comments)	HEC and INOGEN	THL and OE	

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Revision Log

Rev.	Date (dd/mm/yyyy)	Revised Detail			
		Item	Page	Article	Description
1	26/09/2021				Reflected OE's 1 st comments
2	05/11/2021				Reflected OE's 2 nd comments
3	03/12/2021				Reflected OE & Lender's comments
4	28/12/2021				Comprehensive restructuring to address all rounds of OE's and lenders comments



	WORKERS ACCOMMODATION CAMP IMPACT ASSESSMENT		
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ACRONYMS

Name	Description
ADB	Asian Development Bank
ADWG	Australian Drinking Water Guidelines
ANZECC	Australian and New Zealand Environment and Conservation Council
AQNMP	Air Quality and Noise Management Plan
BOOT	Build, Own, Operate and Transfer
EDCF	Economic Development Cooperation Fund
EDCS	Economic Development Cooperation Fund
EIA	Environmental Impact Assessment
EPC	Engineering, Procurement and Construction
E&S	Environmental and Social
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESS	Environmental and Social Safeguard
ESS#	Environmental and Social Standards no.#
FAMMP	Fish, Algae and Macro-Invertebrate Monitoring Plan
FFMP	Flora and Fauna Monitoring Plan
GIIP	Good International Industrial Practices
HEC	Hyundai Engineering Co. Ltd.
HSE	Health, Safety and Environmental
IA	Implementation Agreement
IBDR	International Bank for Reconstruction and Development
PS	Performance Standard
KW	Korea Water Resources Corporation
LTA	Lenders Technical Advisor
masl	Meters above sea level
MECDM	Ministry of Environment, Climate Change, Disaster, Management and Meteorology
MMERE	Ministry of Mines, Energy and Rural Electrification
OE	Owner's Engineer
OP	Operational Policies
PPA	Power Purchase Agreement
PPE	Personal Protective Equipment
SIEA	Solomon Islands Electricity Authority
SIG	Solomon Islands Government
SPS	Safeguard Policy Statement
SSMP	Suspended Sediment Monitoring Plan
THL	Tina Hydropower Limited
TRHDP	Tina Hydropower Development Project
TSS	Total Suspended Solids
WB	World Bank
WBG	World Bank Group
WHO	World Health Organization
WQMP	Water Quality Monitoring Plan



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1 INTRODUCTION AND OVERVIEW

1.1 INTRODUCTION AND BACKGROUND

The Tina River Hydropower Development Project (TRHDP or “Project”) is a hydropower project located on central Guadalcanal in the Solomon Islands, managed by a dedicated government Project Office (PO) sitting within the national Ministry of Mines, Energy and Rural Electrification (MMERE). Tina Hydropower Limited (THL) was established by Korea Water Resources Corporation (KW) and Hyundai Engineering Company (HEC). THL will Build, Own, Operate and Transfer (BOOT) the Project under an Implementation Agreement (IA) and a Power Purchase Agreement (PPA) with the Solomon Islands Government (SIG). The BOOT concession is expected to last for a 30-year period, following commissioning. Hyundai Engineering Co., (HEC) Ltd is a leading company in global construction and engineering covering project life cycle from feasibility study, basic and detailed design, procuring, commissioning, operations and maintenance. HEC is now subcontracted to develop the Tina River Hydro-power Development Project (TRHDP) for the Solomon Islands Government (SIG) under an implementation agreement (IA) and a Power Purchase Agreement (PPA).

HEC is responsible for accommodating its direct workforce during the construction phase, in the shape of a 214-person capacity workers accommodation camp (WAC). The approved project ESIA, prepared in July 2019, provided that accommodation for non-local workers was not to be located within the Core site, primarily to avoid the presence of non-local workers in proximity to local communities. It was envisaged that these workers would be housed in existing accommodation and housing within the Ranadi, Lungga and Henderson areas of Honiara. As a result of further detailed project planning, the need to develop dedicated WAC was identified. The reason to establish such a WAC site was based on weighing the costs of environmental and social impacts against inconveniences and costs of living in a scattered fashion in Honiara (refer to **Section 3.3** for further details). Accordingly, the exhaustive investigation on the alternatives was implemented and the current site known as Grass Hill within Malango Ward (see **Figure 1-1**) was identified. Since this site had been historically modified and contained plantations and food gardens, It was anticipated that the impact on the existing biota by the establishment is insignificant. The WAC has been constructed by HEC from March to June in 2020 with the approval of the landowner and in accordance with a Development Consent issued by MECDM on 30th of March, 2020, but prior to obtaining consent from the Project lenders through the official management of change process. Given the requirement to ensure that impacts associated with the construction and operation of this WAC have been properly identified and assessed, as per the management of change process, this WAC Impact Assessment was prepared in 2021. It has been

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prepared based on an initial document developed by the Honiara based Green Clean Environment Team (CGET) and subject to substantial review and comments from both HEC and their consultant INOGEN, and is intended to reflect Project shareholder expectations, the requirements of the World Bank Group (WBG), the Asian Development Bank (ADB) and the safeguards system of the Solomon Islands.

1.2

WAC OVERVIEW

As noted above, HEC is seeking to occupy the already constructed Workers Accommodation Camp (WAC) that is situated on a site known as Grass Hill within Malango Ward. In the 2019 ESIA for the TRHDP, it was clearly provided that non-local construction workers would reside in Honiara in existing accommodation stock and be transported to and from the site each day. This was due to the initial consideration that a WAC within the project's Core Area would be a potential additional source of direct impacts to terrestrial habitats and impacts to the local communities through the introduction of non-local workers to reside in the WAC.

In 2020, HEC leased a Perpetual Estate (PE), titled land owned by Denson Denni and David Bakani located at Grass Hill for the workers' accommodation camp (WAC). The due diligence checks conducted and true copy of the land register obtained from the Ministry of Land confirmed that the lessor are the rightful owner of the said land leased to HEC. Further, the information obtained from land consultation revealed that the land leased is free from any kind of past disputes.

The copy of the revised Land Lease Agreement (Annex 1) dated 01 July 2021 is available, which is confirmed by HEC to cover all facilities, including warehouse, fuel storage, etc. In addition, in accordance with the Appendix D – Memorandum of Understanding of the Land Lease Agreement dated 01 July 2021, the lease is for a period from 01 July 2021 until 31 March 2025, with the terms for possible extension until completion of HEC construction scope for Tina River Hydropower Project.





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Figure 1-1 WAC Location

At the initial stage, before the beginning of construction, in first quarter of 2020, HEC had organised several meetings with the stakeholders (e.g., ECD, MECDM and the Guadalcanal Provincial Government Authorities) associated with this project to share the plan regarding WAC facilities and understand the requirements of Solomon Islands for starting the construction works on this Perpetual Estate. Through official

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letters, HEC got confirmations on the obligation for establishing the WAC from Guadalcanal Province and MECDM (Annex 2). At that time, a number of stakeholders were convinced that it could be covered under project Development Consent and the Development Permit already availed by HEC from the ECD, MECDM and the Guadalcanal Provincial Government, respectively. Below are some of the engagements with SIG and their purposes:



- Meeting with the Director ECD to discuss about the requirements for development of WAC.
- Meeting with Project Office and THL to discuss about the requirements and plan for execution.
- Meeting with Guadalcanal Provincial Government Authorities to seek development Consent and other requirements.
- Meeting with MHMS, GP and HCC regarding drainage and septic tank joint inspection.

The Green Clean Team as part of the supplementary study for this ESIA has conducted a wider consultation with affected communities, undertook household survey and focus group survey, and obtained people's perception about the WAC's establishment and operation, the results of which are presented in Section 5. It was found that people within the project affected area generally accept the WAC development and anticipate a strict application of community protocols such as anti-discrimination and cultural awareness and prohibited behaviours, most of which has been brought out in the P9, Worker's Code of Conduct to ensure the potential adverse environment and social impacts as a result of the WAC establishment or operation at the site are mitigated to acceptable levels. The WAC is intended to be entirely self-contained, with its own utilities provided on site, including sewage treatment, water for washing and cleaning purposes (via deep-well), drinking water (via a supplier), electricity (via diesel generators), and telecommunications.

1.3 **PURPOSE OF REPORT**

As noted above, the development of a dedicated WAC within the Core Area was not envisaged within the 2019 ESIA and therefore impacts associated with this were neither identified nor assessed. A WAC has been largely constructed, however based on directives from the Owners Engineer (OE), Project Office (PO) and the Project's Lenders, a stand-alone impact assessment was to be conducted in relation to the WAC, prior to it being occupied. The purpose of this report is therefore to:

- Act as the key reference for project stakeholders, Lenders, the OE and PO in understanding the proposed WAC, its layout, capacity, impacts and proposed management, mitigation, and monitoring measures

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- Present the various alternatives that were considered in relation to accommodating the international workforce, prior to the establishment of the WAC
- Identify and assess all adverse, positive, and cumulative environmental and social (E&S) impacts within the WACs area of influence (Aoi) in a structured manner
- Promote improved and holistic environmental and social (E&S) performance through the effective use of natural resources, social networks, and management systems, in particular ensuring consistency across the highly integrated E&S management plans and systems covering the overall Project
- Ensure to adequately manage all the impacts of the construction and operation of WAC in compliance with in-country and applicable international environmental and social safeguards (e.g., WBG ESS, the ADB Safeguard Policy; and joint IFC/EBRD Workers' Accommodation Process and Standards, 2009²)
- Demonstrate how stakeholder engagement processes have been undertaken in accordance with SIG and Lender requirements, to ensure that the local community have been kept informed of all aspects of the WAC development, and to integrate feedback received to create more effective management, mitigation, and monitoring measures.

The integrated nature of the management plans and systems is an important feature of the TRHDP. In this regard the impact assessment presented in this document provides cross references to other assessments (where relevant) and provides a roadmap for where the recommended management, mitigation and monitoring measures are best incorporated.



1.4

STRUCTURE OF ESIA



The remainder of this documents has been structured as follows:

- **Chapter Two:** Project Description
- **Chapter Three:** Analysis of Alternatives
- **Chapter Four:** Legal and Regulatory Framework
- **Chapter Five:** Stakeholder Engagement
- **Chapter Six:** Baseline Conditions
- **Chapter Seven:** Impact Assessment

² https://www.ebrd.com/downloads/about/sustainability/Workers_accomodation.pdf

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- **Chapter Eight:** Implementation and Management
- **Chapter Nine:** Conclusions
- **Chapter Ten:** Annexes

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2

PROJECT DESCRIPTION



2.1 WAC SETTING

The WAC Project Impact Area (PIA) is defined as the geographical area affected by the establishment and operational activities of the WAC. The WAC PIA includes the Project Direct Impact Area (DIA), Upstream Area, Downstream Area and Infrastructure Area (**Figure 2-1**). It is noted that Infrastructure Area is the geographical area within which people and communities are likely to be affected by the Infrastructure Corridor (modifications to, and use of, the access roads and transmission line corridor). It extends beyond the DIA to include villages or communities that may be impacted by noise, dust, traffic or electricity safety concerns. The Infrastructure Corridor encompasses a 50 metre corridor from Mangakiki Village to the Black Post Turnoff to accommodate the access road and dual 66kV transmission lines, and the transmission line route from Black Post Road to the existing Lunnga Power Station.



Figure 2-1 WAC Area of Influence

The WAC site was constructed at Grass Hill, East Guadalcanal around 3 Kilometres inland from Black Post junction and around 11 km along the existing road from the Honiara International Airport with coordinates located -9.469611S and 160.103949E.



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Since the WAC is an important component of the Tina River Hydro Development Project (TRHDP), it is important to understand its location in respect to the Direct Impact Area (DIA) of the main project. The DIA consists of the Core Area which is 397 Ha site acquired by SIG in 2014 encompassing all land required for the construction and operation of the hydro-dam, reservoir, power-station, and the portion of the access road from Mangakiki Village to the dam and powerhouse site (also known as Road Lot 2 and Lot 3). The Tina Core Land Company (TCLC), a joint venture between customary landowners and government, will hold rights to the Core Area, including the access road from the power station to the dam site (Lot 2 and 3). This Core Area also incorporates the Infrastructure Corridor, a 5 km corridor from Mangakiki Village to the Black Post Turnoff to accommodate the access road (part of Lot 1) and dual 66kV transmission lines, and the transmission line route from Black Post Road to the existing Lungga Power Station. For TRHDP, long-term land lease agreement was made between TCLC(Lessor) and THL(Lessee) in accordance with the Land and Titles Act of the Solomon Islands.

Of particular note in the Project setting was the Garivera Night Club which was opened in 2020 and situated immediately adjoining the WAC. The property on which the Night Club was located is also owned by Mr Deni and Mr Bakani, the lessor for the WAC land. The reason given by the owner for the establishment of this night club was to take advantage of the closure of all night clubs in Honiara arising from Covid-19 restrictions imposed by SIG (Order under Emergency Powers (COVID-19) Regulations 2020). It was an opportunity to take advantage of a short-term market gap, rather than a long-term view of providing an entertainment facility for the residents of the WAC. As noted by Lenders, the PO and OE, having such an entertainment facility adjoining the WAC is a concerning source of community health and safety and influx driven impacts which HEC are seeking to avoid. The night-club was closed in January 2021 as the result of negotiations between HEC and the landowner. During the negotiations, HEC shared the concerns of the stakeholders and the landowner's opinion and future business plans were discussed. The owner has shared his business plan, which is to convert the nightclub into a park including restaurant or meeting venue (for hire) and transportation service. Accordingly, HEC has supported the Landowner by Hiring the venue for community consultations and made a transportation agreement for WAC security guards with the landowner. HEC will remain vigilant in working with the landowner to ensure that it remains closed.

2.2 LAND STATUS

The site is registered under Perpetual Estate (PE) with the parcel number 192-029-29, owned by Mr Denson Deni and David Bakani. The initial Land Lease Agreement (LA)

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was signed between HEC and both Denson Deni and David Bakani on the 2nd October 2019 for a duration of 56 months (02/10/2019 to 5/06/2024) on terms specified in the agreement. Re-negotiation on terms of contract were carried out and amendment of the Land Lease Agreement was completed on June 2021. At the lapse of the Lease Agreement (Annex 1), the cleared land, fences, and temporary buildings will be transferred to the landowners as per the requirements of the landowner who wants to own and operate the buildings. However, according to the project safeguards requirements, all the temporary buildings need to be dismantled and removed and the site must be fully reinstated or rehabilitated in order to prevent later issues with the derelict building such as attracting squatters. Nonetheless, this is not expected as the land is a PE which means the construction contractor has to return the site to the ultimate owner of the PE. Thus, the lease agreement is the prevailing legal instrument over the parcel of land and clearly defines the agreement between HEC and the land owner. This is compatible with Section 112 (1) of the Lands and Titles Act (CAP 133) Revised Edition 1996 which empower the owner to occupy, use and enjoy the PE in perpetuity.

2.3 PRIMARY COMPONENTS

It is entirely the responsibility of HEC to construct and maintain the temporary WAC, its associated facilities, and services necessary during the access road and hydropower facility construction period, and to reinstate the site at the end of that period. The anticipated construction period is 54 months from the “Notice To Proceed” date given by the Employer Tina Hydro Limited (THL) which was on 12 December 2019. However, due to the delay to start this project by the incompleteness of contractual obligations, it is anticipated that the project is completed by June 2025. The WAC site will accommodate both living, recreational use as well as storage and maintenance facilities (described in Section 2.6). The WAC will be operated in accordance with all relevant ESMPs for the TRHDP.

Staff quarter buildings include individual and shared rooms with self-contained facilities and dormitories, separate ablution facilities, recreational areas, canteens, laundry and washing areas, as well as the Community Liaison Office. Work facilities include warehouse, generator room, fuel and oil storage room, water pump room, storage areas, waste collection area as well as guard posts.





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Figure 2-2 500m radius of WAC premises



Figure 2-3 aerial photo of WAC

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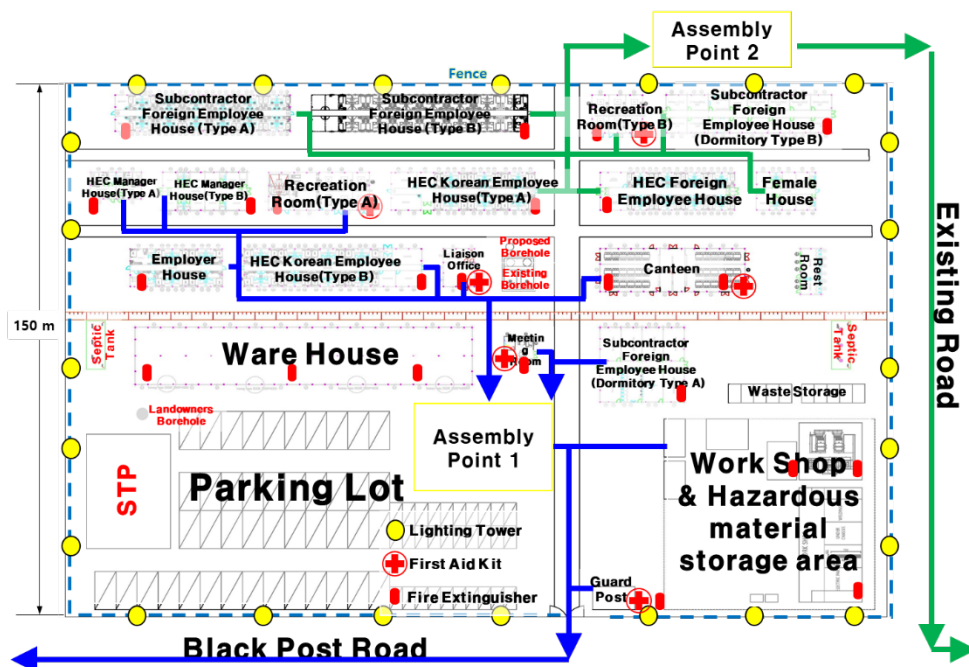




Figure 2-4 WAC Layout

HEC will provide a free wireless internet connection for all personnel accommodated at the WAC for work and personal use. Construction materials and equipment will be stored in warehouses located adjacent to the residential accommodation facilities, within the WAC boundary. Details of type and volume of all substances to be stored on site (particularly bulk fuel/lubricant storage), and type of containment is provided in Chapter 7 of this ESIA.

All the building are designed to confirm to the requirements as per IFC “Guidance on Worker’s accommodation”. The Buildings have double walling/cladding/insulation which are designed to dampen noise. The WAC site layout was developed to minimize disturbance and allow for appropriately dedicated housing for managerial and female employees including long term residents and temporary users (being approved contractors, consultants and institutional stakeholders who may be provided with accommodation at the discretion of HEC during the execution of their work).



To increase safety and security, 24 Security lighting towers and surveillance measures (e.g. Close-Circuit Television cameras/infra-red cameras in communal areas/along paths) were installed and the walkways and paths were designated. Further, for welfare of the employees, recreation areas were established and canteen and mess are located for ease of reach. These are done to minimize adverse effect of the described environment while being conducive for staff accommodation. A summary

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of the facilities available in the Workers accommodation camp is outlined in **Table 2-1** below. The details are attached to this report (Annex 3).

Table 2-1 WAC site Facilities

Camp infrastructure	Description of facilities provided	Maximum Occupancy
Workers' accommodation buildings		
Accommodation	135 Rooms in 11 Buildings – listed in detail below.	Total maximum occupancy is 214 (including HEC, subcontractors)
Employer House (for THL / OE as required) (220 m ²)	9x standard-size single occupancy rooms (approx. 15m ² each), each with ensuite toilet/shower and small living space. 1x larger single occupancy room with ensuite toilet/shower 1x storage room	10
HEC Manager House (Type A) (84 m ²)	2x self contained 'houses' (in one building) each with: Separate bedroom (1 occupant) and living area (including sofa, TV) Ensuite toilet/shower	2
HEC Manager House (Type B) (200 m ²)	6x single occupancy rooms (approx. 20m ² each), each with ensuite shower/toilet 1x shared lounge area (~15m ²) 1x shared laundry 1x storage room	6
HEC Korean Employee House (1) (422 m ²)	16 x single occupancy rooms (16.8 m ² each), each with ensuite toilet/shower, and small living space (TV, bookshelf, desk) 1x shared lounge area 1x shared laundry 1x storage room	16
HEC Korean Employee House (2) (240 m ²)	12 x single occupancy rooms (16.8 m ² each), each with ensuite toilet/shower, and small living space (TV, bookshelf, desk) 1x shared lounge area 1x shared laundry 1x storage room	12
HEC Foreign Employee House (320 m ²)	16 x Single occupancy rooms (each 12.8 m ²) with ensuite toilet/shower and hand basin 1x shared lounge (25.6 m ²) 1x shared laundry	16

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Female House (141 m ²)	6 x 2-bed rooms (each 19.8 m ²) with ensuite toilet/shower and hand basin	12
Subcontractor Foreign Employee House (Type A) (512 m ²)	28 single occupancy rooms (approx. 12 m ² each), each with ensuite toilet/shower. 1x barber shop 1x shared lounge (~12.8 m ²) 1x shared laundry	28
Subcontractor Foreign Employee House (Type B) (461 m ²)	24 single occupancy rooms (approx. 12 m ² each), each with ensuite toilet/shower. 1x shared lounge 1x shared laundry	24
Subcontractor Foreign Employee House (Dormitory Type A) (393 m ²)	12 x 4-bed Dormitory rooms (male only; maximum occupancy of 4 per room) 1 x common lounge area 1 shared laundry 1 x shared bathroom with 4x toilets and 3 x urinals 1x shared shower room (10 showers)	48
Subcontractor Foreign Employee House (Dormitory Type B) (180 m ²)	5 x 8-bed dormitory rooms (each 44 m ² ; male only; maximum occupancy 8 per room) 1x shared shower room with 16 showers 1x shared bathroom with 9 toilets and 6 urinals)	40
Auxiliary facilities / services		
Facility	Description	
Canteen (393 m ²)	Shared dining hall with capacity for 214 to be seated at once. 2 Dining Areas 1 Cooking Area 1 Cold Room 3 Storage Room Cold Container Yard	
Restroom (For common use)	Next to canteen 1. One male toilet with 8 toilets in cubicle, 6 urinals, 2 wash basins 2. One female toilet with 4 toilets in cubicle and 2 wash basins	
Recreation Room (Type A) (240 m ²)	1x large recreation room with 3x table tennis tables, 1x billiards table 1x smaller recreation room with 1x table tennis table 1x fitness centre (gym) with treadmills, stationary cycles, bench and weights rack. 1x screen golf room with LCD projector/screen driving range.	

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Recreation Room (Type B) (120 m ²)	6x Table tennis Sofa for sitting
Liaison Office (75 m ²)	Office space with desk, table and chairs, and 1 separate toilet with bathroom
Water Source and storage	1 groundwater borehole, 3 water Storage tanks (5000L X 3=15000L) (Non-potable use for occupants and potable and/or non-potable use for community). Water quality will be analysed according to M2, Water Quality Monitoring Plan.
Waste management, trash and garbage	Bins and receptacles will be at strategic locations for ease of use. Waste shall be disposed by Faith Holding Company / recycled by some recyclers and reused after separation 1. Battery: Collected by recycler, Solpower SI 2. Aluminium Cans, Brass and Copper: Collected by recycler, BJS Agencies Limited
Waste water including Sewage	2x Septic tanks(72m ³ each) and 1xSewage Treatment Plant (MBR System)
Food Supplies	Food will be catered; served fresh in canteen by certified subcontractors
Power	4 x Diesel-powered generators (each 350KW, 438 KVa rating) with load controllers.
Transport/Road/Vehicles	Vehicles and dump trucks will be parked inside the premises. Vehicles shall be serviced in work shop.
Communication	B mobile and Our Telekom Services are available (mobile reception is available at camp)
Warehouse and Hazardous Storage Unit (1,200 m ²)	1 warehouse divided into six areas/departments (general, HSE, Mechanical, Electrical, Civil, Architecture). For storage of materials and equipment for construction and installation of the hydropower facilities.
Fuel Storage (in 73 m ² shed)	Dedicated shed with portable above ground storage tank (Diesel) with 30,000 L capacity to supply construction equipment, vehicles and generators.

2.4 WAC CONSTRUCTION

The building is placed on a concrete foundation with the steel frame of the building anchored. The steel frame is built with Truss type construction. The frame is covered with prefabricated sandwich panels for outdoor walls, indoor partitions and ceilings. The flooring for living room is done with water resistant Vinyl flooring, the bathrooms, toilets and laundries are laid with slip proof, easily clean ceramic tiles. As

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confirmed by HEC, all the buildings follow the same arrangement except they vary in sizes.

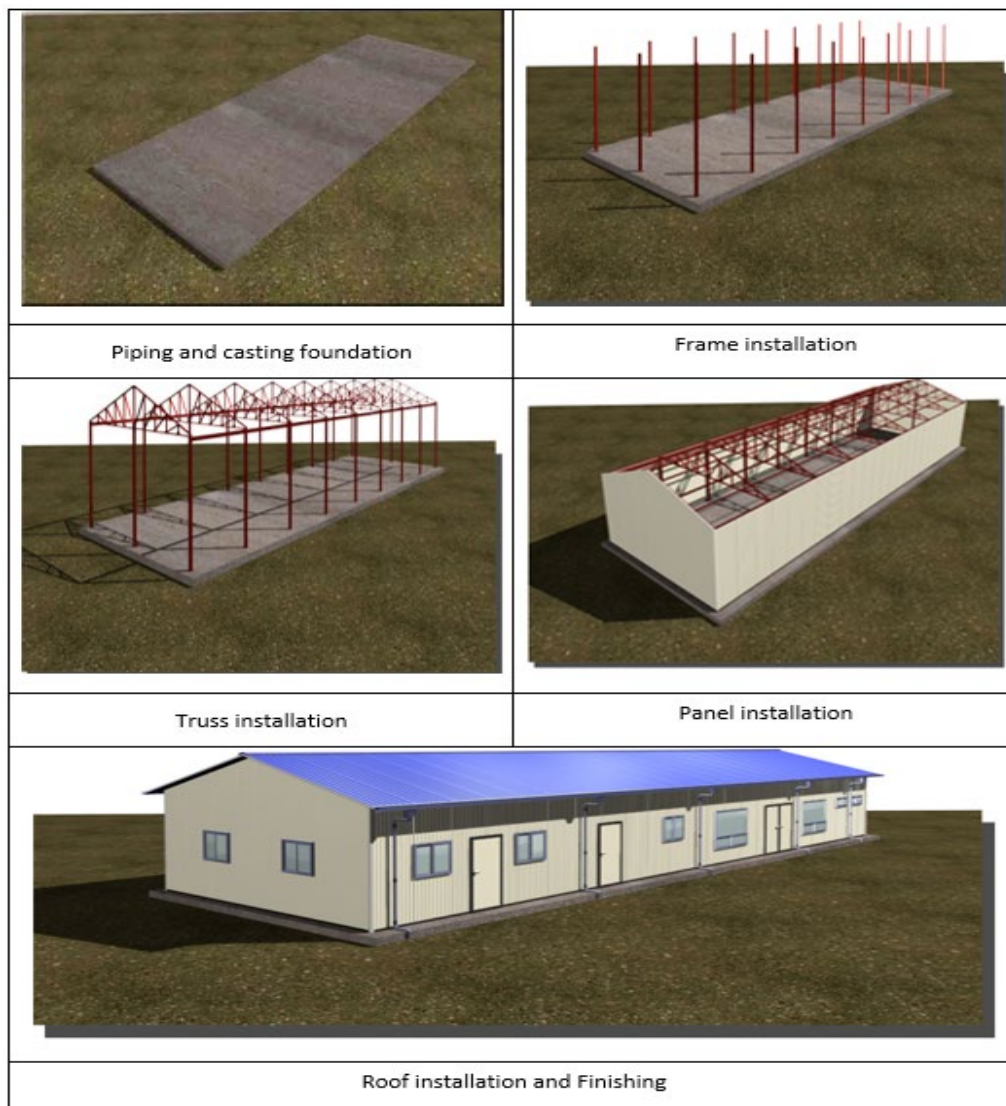




Figure 2-5 Procedure of typical WAC building installation.

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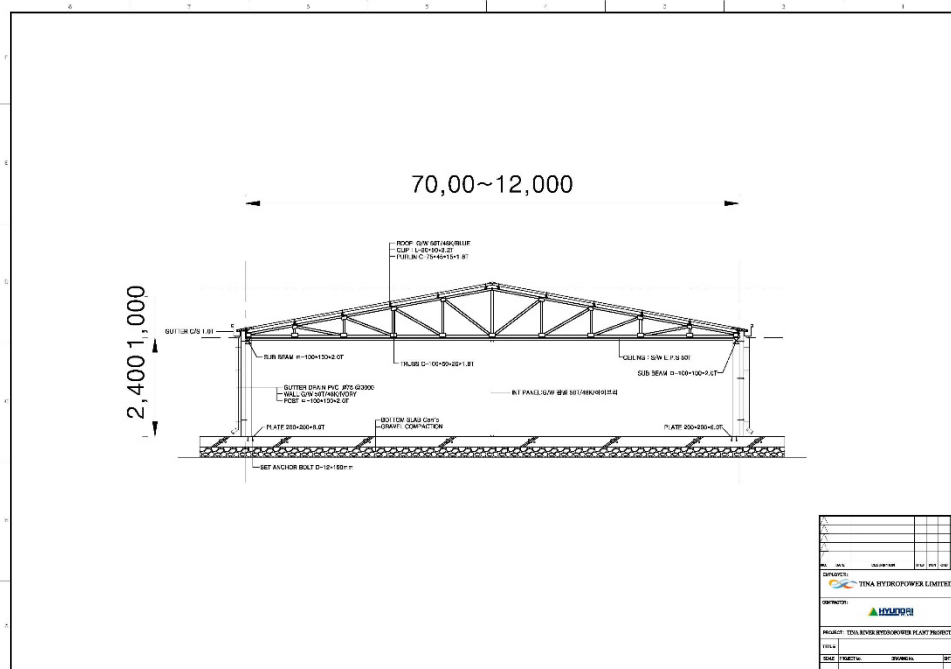


Figure 2-6 Warehouse design

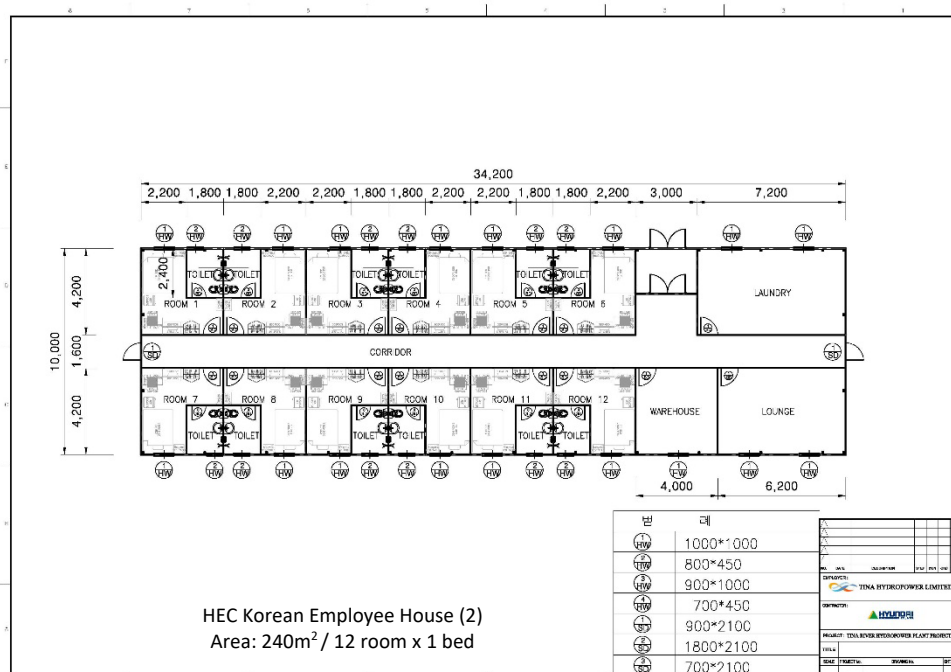




Figure 2-7 HEC Korean Employee House design

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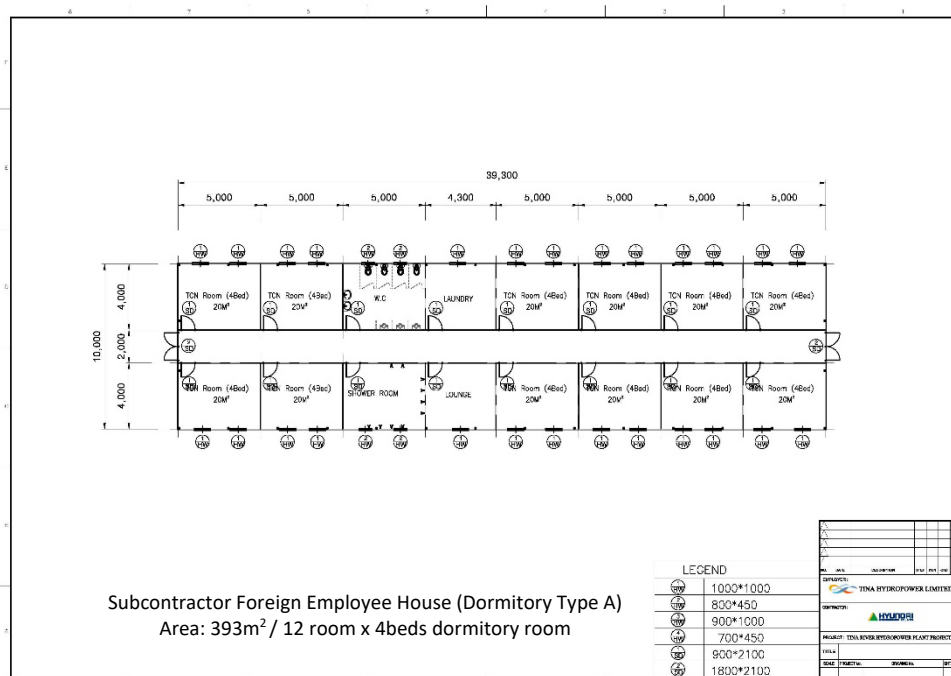




Figure 2-8 Subcontractor Foreign Employee House

Each living rooms of the building and rooms of common use like recreation, canteen is fitted with Flush type sliding window for natural ventilation and lighting. To keep mosquitos out, these windows have bug screens and mosquito bed nets are provided for each living room. Additionally, Split type air conditioners are installed in each room with hot and cold climate control.

2.5 WAC OPERATIONS

Currently (as of September 2021), all the expat staff are still living in separately rented houses located within East Honiara until such time when the Lenders will approve occupation of the WAC. The WAC is already fully constructed (excepting the groundwater supply and STP), and its operations will start after the approval from the lenders and will continue till the completion of project. All the expat staff will move in to occupy the accommodation after the approval, with the overall occupancy of the WAC not peaking until approximately 18 months after approved for use.

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The management of WAC will be under the HEC Camp Manager's responsibility according to the Influx Management Plan (IMP) Section 2.3 and 4.1.1 and Human Resources and Labour Management Plan (HRLMP) section 2.16A which will be to ensure no adverse impacts on local communities as result of siting of the WAC. The WAC site will be secured by fence with two gates at the North and Southsides. The main north front entrance will be controlled by a Security Subcontractor selected, trained, managed and employed by HEC in accordance with the requirements of the Security Management Plan (SMP). The back gate will be usually physically locked and reserved for only as an emergency exit. In the emergency, it will be unlocked by security manager... The location of the WAC site is far away from the busy Honiara traffic and public access with the nearest known community to be almost 1.2 kilometres away.



There will be heightened traffic streams slightly at the junction of Access Road Lot 1 and existing feeder road when the WAC is occupied. According to the results of traffic survey, traffic peak hours were observed from 07:00 - 08:00 in the morning and from 15:00 – 18:00 in the evening. It was also observed that the busiest destination is towards Blackpost (average of 11 vehicles per hour), followed by Marava with an average of 8 vehicles per hour and an average 6 Vehicles per hour for Mataruka and campsite. In the morning, there will rarely be interference since HEC will go to the site earlier than peak time(05:00-06:00am). Further, the traffic volume can be managed by using limited number of light vehicle and van type shuttle bus. However, in the evening, the attentive management shall be implemented to minimize the impact. Accordingly, HEC will arrange 1 signal man at the junction and the entrance of WAC respectively. Given the short distance between the junction and the entrance, 2 signal man can manage the traffic effectively.

Management of traffic in and out of site, designated parking; signage and safety mirrors at entrance, enforced speed limit, as well as having a control of visitors to the WAC will be enforced by trained security guards. The WAC will be managed according to the IFC Workers' Accommodation, Processes and Standards (2007), as illustrated by the assessment provided in Annex 4- Assessment of compliance to IFC/EBRD Guidance on Worker's accommodation (IFC vs HEC).

2.6 WAC INFRASTRUCTURE AND SERVICES

2.6.1 Existing Bores

There are two existing bores on site:

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- Existing camp bore
- Existing landowner bore

There is a BH at the HEC WAC which was installed by Clean Water for Life (subcontractor) in 2020. The BH is 30 m deep, PVC cased to total depth with water level 4.35 m below the surface. This BH is being used for temporary community water supply at a rate of 10 m³/day to be used only until the deep BH is installed, after which, it will be reserved for back up supply and water level monitoring.

The existing landowner's borehole is located within 30m from the established septic tank. Currently, since HEC is not using the camp, landowner is still using his borehole. However, it shall be closed according to the Good International Industry Practice and it will be replaced with HEC's planned borehole. This has already been agreed with the landowner through the discussions.



Except for the landowner's borehole, the closest borehole is located 800m to the east from WAC premises. HEC has already conducted water quality testing at this borehole and will monitor after developing the new borehole at the WAC. If the any negative impact is identified, the allocated water shall be provided to the owner. However, given the distance from the proposed borehole in WAC site, the impact shall be insignificant.

2.6.2 Proposed New Water Supply

The water supply demand of the WAC will be sourced from a new production borehole (BH). The proposed BH for the WAC site sits on the Guadalcanal alluvial flood plain, which forms a relatively shallow and widespread permeable aquifer. The BH will have a provisional depth of approximately 70m from ground level and can supply water for a maximum water demand of 100 m³/day, for the following purposes:

- 80m³/d: mainly for sanitation and washing of approximately 240 employees/workers at the WAC site during the construction phase (i.e., 43.2 m³/d for employees) and the remainder for any contingency.
- 10m³/d: for the adjacent landowner (i.e., owner of the now closed night club who has agreed to discontinue using his BH in return for supply of water from the WAC).
- 10m³/d: for community water supply

Such groundwater demand at the WAC site is considered relatively low (i.e., approximately 2.5 litres per second). As the main purpose of the groundwater use is for employees' daily consumption, the extracted groundwater will be treated to meet the WHO Drinking Water Standard or the equivalent before use.



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New boreholes will be sited to account for localized contaminant sources e.g. the proposed Camp sewage treatment plant, septic tanks, offal pits, waste dumps, hazardous waste store, fuel store etc. Regarding the groundwater baseline quality, groundwater sample was collected and analyzed twice from the WAC existing BH after installation of borehole and during the existing community water sources survey conducted in August, 2020. Total Dissolved Solids (TDS) was measured at 160 mg/L, which is well within the 500 mg/L WHO drinking water standard and is similar to previous TDS measurements in WRD BHs drilled in the area between 1965-1999. The microbiological content in the WAC BH also met WHO standards. Some of the contamination risks to groundwater quality from surrounding activities have been considered. It has been suggested that the groundwater may be contaminated with heavy metals and cyanide which are usually associated with gold mining and lower pH groundwater. However, there is no gold mining in the Tina River catchment and no possibility of contamination by these analytes. Also, a suggestion of pesticides contamination from palm oil plantations which are prevalent in the Lowlands. Again, there are none within the vicinity of the Office or BP120 and a preliminary Source – Pathway – Receptor analysis suggests it is highly unlikely there will be pesticide contamination in the deeper aquifers at the WAC, but contamination of the shallow aquifers is possible. Additional groundwater testing is to be conducted to confirm that water meets WHO drinking water standards.

As separate groundwater impact assessment has been conducted by HEC in collaboration with INOGEN Alliance. In general, it is considered that the BH is more than capable of meeting the WAC water demand. Historical records indicate there will be minimal drawdown at greater than 100 m radial distance from the deep aquifer with the closest private community borehole (BH) 110 m distant in the intermediate aquifer. There are no BHs in the deep aquifer in this area. Most of existing groundwater use is either far away (i.e., 27 km to the north of the WAC) or privately owned shallow bores (about 15 and 35 m deep with water level 2.5 to 4 metres below ground level) and are located within 2 km of the WAC site with the closest being 800 m distant. Communities access water for everyday needs from a combination of sources (drilled bores, shallow hand dug wells, rainwater catchment and others such as springs and streams). At higher elevations springs are also used for drinking water and communities adjacent to the Tina River use the river and springs for washing and ablutions.

Existing data which has been reviewed in detail supports the development of a second BH to 60 m depth at the WAC with the following consideration:

- groundwater is already a common source of safe water on the alluvial plain.

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- there are no real limitations for its development at the WAC.
- the aquifer is permeable.
- sustainable yields can be achieved.
- water quality is high standard.

The bore is provisionally planned to be used for 5 years for operation of the ancillary construction facilities after which they will become redundant. All bores shall be decommissioned, capped and no above ground infrastructure shall remain at the conclusion of the project. In addition, all the above suggest that most of the impacts from the groundwater use from the BH at the WAC site would be minor, temporary and/or reversible and readily manageable with management and monitoring measures.



2.6.3 Wastewater Treatment System

~~An existing septic tank system was installed at the camp in 2020. This system is sized for...~~

A Sewage Treatment Plants (STP) will be installed within the WAC site and remain operational during the 5 years of construction period. The STP with a relatively small design capacity of 60 m³/day, which allows for treatment of wastewater from the WAC (i.e., total water demand for the WAC is expected to be 43.2 m³/d for a total of 240 employees/workers) as well as wastewater transferred from the site Office (i.e., approximately 14.8 m³/d). Primary settling is accomplished by using the underground septic tanks having 80 hours' backup capacity in case of non-operation of Sewage Treatment Plant.

The original septic system with temporary storage and off-site treatment (i.e., relied on suitable wastewater treatment facilities being available in Honiara) was mentioned in the ESIA of 2019. Accordingly, two septic tanks (72 m³ capacity each) have been installed at the WAC premises and signed off by the local health officers. Subsequently, a license covering wastewater treatment and disposal at the WAC was issued by MECDM on 6th July 2020. However, the Honiara wastewater treatment plant will not be constructed until 2047 and without this option is not acceptable to the Project given the associated environmental and social impacts. Therefore, such option has been replaced by a more environmentally and socially acceptable STP design (High Level Option) using the Membrane Bioreactor Process (MBR) including UV disinfection. This is a significant advance on Sewage Treatment practices currently used in the Solomon Islands. MBR is recognised by UNIDO as one of the best available technologies for on-site wastewater treatment with more than 866 facilities constructed globally in the last 10 years.

The STP is designed to meet the following requirements:



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- The system requires continuous operation, 24 hours/day and 365 days/year.
- Equivalent people totalling 240 at WAC and 180 at Office.
- Average Flow rate of 2.5 m³/hr and 60 m³/day.

Treated sewage effluent generated from the STPs will be stored in Sewage Effluent Tanks with 60 m³ capacity prior to reuse. It is proposed to use treated effluent for dust suppression during dry season and discharge to the drain along Black Post Road during wet season. Dedicated water tankers with 10 m³ capacity will be used for dust suppression. This reduces groundwater demand by up to 60 m³/day during the peak time. As a backup, depending on the borehole sustainable yield at office premises, the treated effluent could be carted from the Camp as a water source to the Crusher Plant. As a result of community consultations, it is recognized that the surrounding communities agreed on using treated waste water for dust suppression and discharging to drainage. They set forth their existing water sources have been contaminated due to open defecation and considering the water quality of treated waste water, it is acceptable to discharge to drainage.

The siting of the STP acknowledges the need for distancing from sensitive receptors and employee receptors on site to mitigate noise and odours. HEC will provide acoustic insulation or cover of the machine engines to avoid disturbance to sensitive receptors within and adjacent to the WAC premises. Project noise limits, compliant with IFC EHIS guidelines, will be measured and enforced. The STP will be downwind of WAC occupants and other sensitive receptors, based on known prevailing winds in the area. An activated carbon filter will be included within the treatment systems for final polishing prior to discharge to air; design consideration to include a contained system to capture foul air and treat before release. It is also noted that the boreholes, existing and proposed, will be positioned at distance (at least 75 m away) from both STP and septic tanks. This is equivalent to the international best practice which is a separation of at least 30 m. The potential impacts from the STP and septic tanks to the groundwater BHs will be further minimised by the depth of the borehole (at least 50 m bgl) and the clay layer around the septic tanks and STP.

HEC did obtain a license to discharge waste water issued by MECDM on 6th July 2020, which allows for the treatment and discharge of wastewater on site. This licence is based on the Low Level treatment Option nominated in the ESIA (i.e. all sanitary wastewater to be transported off-site for treatment). This licence continues to be

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valid but must be amended to incorporate the MBR technology, treated effluent and sludge disposal nominated under the High Level Option.

The main potential impacts are associated with the generation and disposal of treated wastewater and sewage sludge. The STP manufacturer's performance standard for wastewater effluent quality meets the IFC/WBG EHS Guidelines for Wastewater and Ambient Water published in 2007 allowing it to be recycled and reused where appropriate. The sewage effluent quality to be directed to the Sewage Effluent Tank for distribution as dust suppression (dry season), Crusher Plant and/or disposal to offsite drainage during wet season is summarised on **Table 2-2**. These are performance standards incorporated into the STP requisition package (SITI-MR-CV-001 of 1st July 2021) and are compatible with the IFC EHS Guidelines for Wastewater and Ambient Water Quality issued on 30th April 2007.



Table 2-2 Quality of Treated Sewage Effluent

Parameter	Unit	Design	IFC Guideline
pH	-	7	6-9
BOD ₅	mg/L	5	30
COD	mg/L	20	125
Suspended Solids	mg/L	3	50
Total Nitrogen	mg/L	10	10
Total Phosphorus	mg/L	2	2
Total Coliform	MPN/100 ml	400	400

At the WAC it is proposed to use the treated effluent for dust suppression during the dry season and Crusher Plant or offsite disposal to drainage system thereby reducing groundwater demand by up to 60 m³/day. A maximum of about 7.5 m³/month of sewage sludge (with the envisaged solid concentration of the sludge of approximately 9000 mg/L) will be generated during the six months of peak construction and is to be disposed at the Ranadi Waste Disposal Facility, which services Honiara City and is the only approved facility in the Solomon Islands. Disposal of sludge to the Ranadi landfill is also, by implication, covered under the current license issued by MECDM on 6th July 2020 but will need to be specifically addressed in the Amendment. It is HEC opinion that the management of this landfill does not conform with International Best Practice and will research other options for the sludge disposal and reuse.

2.6.4 Fuel Storage

One above-ground fuel Storage tank of 30kL was cautiously planned in the Workers' camp as it was anticipated that the new access road (from Marava until the project)

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cannot be used until the access road is paved. It will be difficult to transport the fuel during the rainy season. The fuel tank at this intermediate location of the project will be quite helpful during these difficult times. Further, considering the requirement of diesel for the operation of Generators at worker's camp during the peak times, one-week reserve fuel was decided to be stored in the tank to avoid power disruption due to supply restrictions.

The design of the tank involves an outer secondary tank being built around an inner primary tank.



In the rare event of a failure, any leakage from the primary tank will thus seep into the interstitial space between the two tanks. The tank complies with all the safety requirements as it includes leakage protection, overfill warning alarm, emergency vents embedded to the double-walled, self banded tank. The tank shall be installed on a concrete impermeable foundation and shall be protected by housing for adverse weather conditions. The Fuel storage area shall have all the safety signs installed, first aid boxes, fire detection alarms and suitable firefighting devices kept within the area.

The liability of the installation, commissioning, maintenance, supply and refilling of the fuel tank lies with South Pacific Oil, supplier and shall always be conducted under the supervision of the Workshop Manager. Dispensing of fuel shall be carried out by skilled workers of the Workshop. Spill kits shall be always used during the dispensing of fuel into generators.

2.6.5 Electricity and Power supply

The Workers camp is located near Grass Hill Area that has not been covered by the Grid supply of Solomon Power, the only service provider in Solomon Islands. Therefore, power supply requirement of the camp was chosen to be provided from Diesel Generators. The power supply was planned to be provided from 4 units of 200kVA each with three units in operation and one unit in spare to satisfy redundancy and avoid a blackout. Due to varying load conditions, during the day with exceptionally low demand and peak demand in the evening when workers will be back from their work, generators with load controllers were installed for efficient utilization of energy. In order to reduce the load requirements and energy-saving, LED luminaries have been used throughout the camp, energy-efficient appliances (air conditioners, refrigerators, televisions) have been used.

HEC has completed the installation of the generators and power supply network through its supplier and subcontractor respectively. A license to operate the generators, Independent Power Generation has been already granted by the Solomon Island Electricity Authority.

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The siting of the Generators was chosen away from accommodations to prevent impacts of noise. These generators are enclosed in acoustic canopy (Full Quality Assurance according to Directive 2000/14/EC). Further, noise monitoring will be carried out once a week and measurement for identifying the actual noise was carried out.

During the operations of the worker's camp, regular and breakdown maintenance of Generators and power supply arrangements will be attended by the dedicated Maintenance team. The technicians shall be present at the camp 24X7 to attend to any complaints from the camp residents.

2.6.6 Workshop

A workshop is located within the camp premises, away from the accommodations for timely service and repair of heavy and light project vehicles. The Workshop area has four service bays for inspection and repair purposes. One container type office has been installed that serves as an office for the Workshop staff. Two other containers are used for the storage of tools and spare parts.



The Workshop Manager (Maintenance Manager) is responsible for the day to day operations of the Workshop, including providing routine service of heavy equipment, attending breakdown maintenance of vehicles and equipment, refilling of Diesel storage tank. A team of skilled workers like tyre repairer, engine mechanic, electrician, body mechanic, fitter execute the repair works. The workshop shall operate within the working hours only to avoid annoyance to camp residents due to noise from engine acceleration. The workers engaged in the Workshop are fully trained with spill prevention and other training like fire prevention and safe execution of their task.

2.6.7 Internet services

While unrestricted access to mobile and internet services provided by the two leading telecom operators B mobile and Our Telekom is available in the Workers camp area, the company planned for a dedicated internet link from Our Telekom to avoid network congestion and inadequate service during peak times.

With the dedicated hi-speed internet access, the workers enjoy unlimited access to the internet during their presence at the camp. The Wi-Fi passwords will be changed regularly to avoid being tapped and misused by any outsiders.



Antennae with telecommunication equipment like routers, switches, access points in each building have been installed in the camp premises and tested by the service

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provider. The liability of the installation and maintenance of the internet services and associated equipment lie with Our Telekom.

2.6.8 Waste Collection

The camp will generate waste during its operation. All the buildings and rooms are provided with dust bins where the workers shall drop in their solid wastes. For accommodation units, these bins will be collected by the housekeepers and segregated and stored at the waste collection area at the camp site. In a similar fashion, kitchen waste shall also be stored in separate containers at the waste collection point adjacent to the canteen. It will be collected on a daily basis by the Subcontractor, Faith Holdings Limited. The hazardous and non-Hazardous waste from the workshop and the warehouse shall be collected by skilled workers and stored at the designated storage area of the camp before being collected by the sub-contractor for disposal.

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3

ANALYSIS OF ALTERNATIVES

3.1 INTRODUCTION



The assessment of a range of Project geospatial, temporal, technological and environmental and social alternatives is critical to the early stages of development planning influencing key components such as site selection, design and operation. As outlined within the World Bank Environmental Assessment Sourcebook Update 17 – Analysis of Alternatives in Environmental Assessment, the absence of such considerations can lead to a process whereby the ESIA simply becomes an exercise in assessing a fixed Project that has been designed purely on a technical or economic basis. In the regard, the ultimate option to develop a WAC for the construction phase to house the expatriate workforce was based on ongoing evaluation of options and needs since the ESIA was finalised in 2019. This chapter presents the various iterations and alternatives explored in the development of the option presented within this ESIA, looking at how decisions pertaining to environmental, social, and health considerations were balanced with the need to ensure that WAC development contributed positively to the economic and technical feasibility of the overall project.

3.2 ORIGINAL PROPOSAL

The approved 2019 ESIA envisaged that construction workers would reside in Honiara, Lungga or Henderson in existing accommodations, and be transported to and from the project site each day. This was, in part, due to potential disruption to local customs and way of life, and concerns for the health, safety and wellbeing of local communities.

This original proposal suggested in ESIA 2019 was rejected because it was not economical, lacked in amenities for Workers, difficult to manage and less secure. Especially, due to lack of facility which can accommodate max. 214 foreign expat, when we follow the suggestion, the employees should be scattered. In that case, the anticipated environmental and social impact is more significant.

The advantages of WAC over other alternatives are described in the subsections below.

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3.3 *WORKER ACCOMMODATION STRATEGY*

The economics of establishing such a WAC site was based on weighing the costs of environmental and social impacts against inconveniences and costs of living in a scattered fashion in Honiara.



Following approval of the 2019 ESIA, HEC conducted extensive internal evaluations based around the costs of environmental and social impacts associated with development of a WAC, based against the costs and social difficulties and loss of cohesiveness associated with living in a scattered fashion across Honiara. The accommodation was built to accommodate 214 international workers for the construction phase of the main Tina Hydro Project. The workers' accommodation was built in accordance with the Workers' accommodation: processes and standards, a guidance note by IFC and the EBRD.

The ESIA 2019 stated that no WAC would be built within the project influence area but rather, accommodation would be rented in Panatina, Lungga and Henderson area.

The data collected are qualitative, therefore, a qualitative approach was undertaken for this cost and benefit analysis for the WAC. The approach taken in doing this cost and benefit analysis is based on weighing the costs of environmental and social impacts against inconveniences and costs of living in a scattered fashion in Honiara. It then provides a comparative analysis of current situation of accommodations in east Honiara including Lungga and Henderson areas with the current situation of the WAC as it is at the current stage.

In the original report for the WAC (2020), ex-RAMSI barracks at Henderson was projected as an alternative to the current WAC, but was excluded since it was chosen by SIG to be used as a quarantine center although it has been working under a private firm as Guadalcanal Beach Resort (GBR). Further, there was a night club inside the Guadalcanal Beach Resort adjoining to these ex-RAMSI barracks, which creates concerns associated with community health, safety and influx.



As part of this updated assessment, GCET has completed a wider review of potential alternatives and it was determined that the approach taken by HEC is advantageous for effective management of the project. In 2020, existing houses located at Henderson and lungga were investigated and the details are provided in **Table 3-1** and **Figure 3-1**. Further, An Apartment and a prominent Hotel namely; Sanalae Apartment at Panatina ridge and Holiday Resort Hotel at Henderson, have been researched and their rates are provided below in **Table 3-2** and **Table 3-3**. Moreover, the general conditions of those accommodations including other executive

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accommodations in Panatina, Lungga and Henderson are provided in **Table 3-4**. A comparison is then made with the current condition of the already established WAC at Grass Hill (refer **Table 3-5**).

Table 3-1 Existing houses details

Name	Location	Details	Rate	Survey Date
Henderson Court	Henderson	Upstairs, 3 bed room house Cash Power: Tenant Water Source: Borehole Security: Included House Keeping: Excluded	\$11,000/month	10.11.2020
Henderson Court	Henderson	Downstairs, 3 bed room house Cash Power: Tenant Water Source: Borehole Security: Included House Keeping: Excluded	\$9,000/month	10.11.2020
Mrs Helen	Henderson	Single room Cash Power: Tenant Water Source: Borehole Security: Included House Keeping: included	\$8,000/month	10.11.2020
Mrs. Mary Leogn	GBR Henderson	6 bed room house Cash Power: Tenant Water Source: Borehole Security: Included House Keeping: included	\$25,000/month	10.11.2020
Mr. Mamu Paza	Lungga	Single room Cash Power: Tenant Water Source: Borehole Security: Included House Keeping: included	\$5,000/month	10.11.2020
Mr. Humphrey Tura	Henderson	3 bed room house Cash Power: Tenant Water Source: Borehole Security: Included House Keeping: included	\$13,000/month	11.11.2020

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Name	Location	Details	Rate	Survey Date
Mr. Billy Tituilu	GBR Henderson	3 bed room house Cash Power: Tenant Water Source: Borehole Security: Included House Keeping: included	\$15,000/month	11.11.2020
Mr.James/ House Keeper	GBR Henderson	3 bed room house Cash Power: Tenant Water Source: SIWA Security: Included House Keeping: included	\$18,000/month	11.11.2020

	
Mrs. Hellen house	Mrs.Mary Leong house
	
Mamu Paza	Mr. Billy Tituilu house



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Figure 3-1 Existing Houses

Table 3-2 Sanalae apartment, Panatina ridge, east Honiara.



Name	Location	Details	Rate	Beds
Sanalae Apartment	Panatina Ridge	Standard	\$656/night	Double bed room
		Delux Studio	Range from \$18,000 - \$30,000/month	King-size bed room
		Studio apartment		

Table 3-3 Holiday resort, Henderson, east Honiara.

Name	Location	Details	Rate	Beds
Holiday Resort	Lungga cross road	Economy	\$495.00/night	Single bed
		Standard	\$595.00/night	Double bed room
		King size	\$910.00/night	King-size bed room
		Superior	\$695.00/night	Triple bed room

Table 3-4 Conditions of accommodations in east Honiara (Panatina, Lungga and Henderson)

#	Parameter	Accommodation at Panatina, Lungga and Henderson
1	Room occupancy	Single room for each employee
2	Toilet	Average of one toilet for three employees staying in a building.
3	Television	Not available
4	Refrigerator	Shared by three employees
5	Outdoor activities	Not available



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6	Gym	Not available within premises
7	Internet	Public internet service, allowance provided limited data
8	Transportation to work place	Light vehicle parking available (primarily off-street)
9	Housekeeping staff	Employed by HEC but difficult to manage, due to decentralised location.
10	House maintenance	Addressed after complaint is raised with the house owner. This is particularly concerning given the generally low standard of housing and attention to maintenance
11	Electricity bill	High cost/ pre-paid
12	Water bill	High cost/pre-paid
13	Interaction with society and neighbours	Yes
14	Security	No/Limited

Table 3-5 Current condition of the WAC

#	Parameter	WAC
1	Room occupancy	Single room for each engineers and managers, shared dormitory type for technician.
2	Toilet	Attached toilets en suite rooms shared toilets for dormitory type rooms
3	Television	Yes available
4	Refrigerator	One for ensuite rooms and shared refrigerator for dormitory style accommodation
5	Outdoor activities	Yes available
6	Gym	Yes available
7	Internet	Dedicated internet, free Wi-Fi with unlimited usage
8	Transportation to workplace	Shuttle bus services
9	Housekeeping staff	Effective to manage at a centralised location through a HEC Camp Manager
10	House maintenance	Preventive maintenance and immediate service can be provided.
11	Electricity bill	Provided through diesel Genset, cost effective
12	Water bill	Free
13	Interference with society and neighbours	No, all employee will stay together
14	Security	Yes

In case of the establishment of WAC, the following advantages can be seen compared to other alternatives stated in the ESIA:

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- Better living standards for Workers.
- Provisions for Outdoor activities, games and recreation.
- Less burden on community infrastructure and public resources.
- Less pressure on the existing housing stock across Honiara which can have inflationary pressures on accessibility for local people trying to secure accommodation
- Less congestion of traffic in Honiara and less time spent by workers for travelling to workplace.
- Access to unlimited internet.
- Job opportunities for locals in housekeeping, catering, security.
- Better opportunities for locals to provide goods and services.

It can be noted that the high rental pricing plus the scattered nature of houses would mean company arranged catering, recreational activities; house-keeping and security for all the expat staff would be complicated and costly. Although the WAC has been built, occupancy is still on hold until such time an audit is undertaken and this ESIA will be approved. Meanwhile, expatriate staff are living in rented houses within the East Honiara area posing difficulties and staff management risks and the possibility of inflating Honiara rental pricing again. The difficulties experienced in living in rented houses, for example, include:

- sharing one accommodation by three to four members;
- lack of recreation facilities;
- difficulties in management of security, maintenance, housekeeping and distribution of necessities;
- high cost of living;
- power outages;
- Time spent on commuting between work and accommodation; and
- increased number of light vehicles required to transport staff to each accommodation.

It was considered that the demand created by such a large project renting houses for its staff would once again contribute to the inflation of house rental costs in Honiara. This was experienced during RAMSI times where an executive three-bedroom house that usually cost SBD\$2,500/month went as high as \$25,000/month.

Presence of workers in scattered accommodations in Honiara would mean in increase in traffic volume as workers will use individual light vehicles to travel to and from work every day. Which means it will exacerbate traffic congestion to the already congested Kukum Highway road. Even though shuttle bus can be provided, the

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workers will have to spend considerable time to travel from their residence to workplace through the busy traffic of Honiara city. The accommodation that has been evaluated also does not include appropriate recreation facilities, outdoor spaces and consistent level of services that are required in accordance with Project safeguards requirements.

Given the above factors, HEC management decided to look for a suitable location and have already built their WAC.

3.4 LOCATION

Final selection for the location of the WAC site was done after exhausting several avenues of search for land and existing houses in Honiara and outskirts. Coupled with the land tenure system, the wishes of the Bahomea/Malango people, HEC could not find a suitable site outside of the Benefit Sharing Community of the wider impact area.



Solomon Islands land tenure system means that all customary land is owned by tribe, clan, or family with only a small percentage under registration with title. Therefore, most land in Guadalcanal Province is still held under customary tenure, where every member of a landholding entity, is vested with the rights to use and access it. A lease on a Customary land is quite difficult process, since there is no title holder and it has to go through acquisition process.

Land ownership is matrilineal and Non-owners usually have limited rights, such as right of use, easement, or right of way. So when it comes to finding land to lease for development, the said piece must be a registered land.

Registered lands in the Solomon Islands are either Perpetual Estate, or Fixed Term Estate. The Lands and Titles Act regulates the registered lands regime in the Solomon Islands.

With the above setting, and with Guadalcanal Province Palm Oil Limited (GPPOL) using most of the available registered land for Oil Palm plantations, HEC did not have a lot of land they can negotiate to lease. Two pieces of land, at Foxwood were looked at but one had no clear PE or FTE title and the other one was owned by the controversial Levers Solomon Ltd, but the price tag was in millions per hectare so was considered too expensive.

In October 2019, two senior members of the Euluna tribe of the core group within the Malango Ward namely; Denson Denni and David Bakani were identified by the

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support of Project Office to possess a piece of land under Perpetual Estate Ownership with parcel number 192-029-29. The PE is registered with the Commissioner of lands. The land was seen as the most logical area being half way along the Black Post to Core Area road (Lot 1).

HEC approached the owners with an offer for it to be developed as their WAC site for accommodation purpose. A Lease Agreement was signed to that effect between HEC and the PE Holders. This is a legal agreement for temporary use of the PE.

3.5 DESIGN

All design alternatives are considered and then filtered based on a range of factors such as:

- Contractual obligations
- Workability
- Minimization of disturbance
- Minimization of interference with surrounding communities
- Traffic
- Convenience of workforce

1. Contractual obligations

In the first instance, contractual obligations shall be reviewed thoroughly to avoid any breach of contract. Accordingly, HEC reviewed EPC Contract signed on 30th September, 2019 and considered the below provisions of Employer's Requirement;



2A.16 Construction Camp

2A.16.1 General Requirements

Construction methods, materials and designs, shall consider the climatic extremes of the site, including:

- Heat (and relative cold in winter)
- Humidity
- Dampness
- Periods of high rainfall

2A.16.1.1 Electrical Requirements

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The Contractor shall provide all arrangements for temporary power supply for all sites and connections for permanent power supply to all Permanent Works identified herein. Electrical work shall be furnished and installed in accordance with the applicable provisions of the Employer's Requirements.

2A.16.1.2 Potable Water Supply

The Contractor shall provide all arrangements for the supply of potable water as well as disposal and treatment of used water for all construction facilities identified herein.

The Contractor shall provide a central water treatment plant for the camp and office compound(s). The central water treatment plant shall be in accordance with the applicable provisions of the Employer's Requirements. The capacity of the water treatment plant shall be suitable for the expected population. The water supply to the water treatment plant shall be pumped from the Project waters or from an underground well or river source. The water treatment plant and water supply system shall include all controls, equipment, and accessories for a complete system. The quality of the water discharged from the water treatment plant shall equal or exceed the most stringent water quality standards in Solomon Islands.

The water supply system has been complete with storage tanks, pumps and control mechanism. A new borehole shall be added up to this system. These topics have been covered in Section 2.6.1 and 2.6.2 of this report.



2A.16.1.3 Sewage Treatment and Solid Waste

The Contractor shall provide a central sewage treatment plant and solid waste facility for the camp and office compound(s). The central sewage treatment plant and solid waste facility shall be of a capacity suitable for the expected population, and provide treatment to a level in excess of that requirement by the environmental and social requirements outlined in Schedule 7.

2A.16.1.4 Fire Protection

Fire detection devices shall be installed within each building.

The current design includes fire detection and alarm system installed in the individual rooms and common spaces. And ABC type fire extinguishers are also

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kept in adequate quantities at all common places, corridors, canteen and dining areas.

2A.16.2.2 Accommodation Units

The Contractor shall size and design accommodation and amenity facilities to suit the workforce required for the Project. It is envisaged that several 'levels' of facility will be constructed for the general workforce, supervisory and management staff.

Construction and operation of the accommodation for the general workforce shall reflect current construction camp standards in use on other international projects.

2. Workability & Minimization of disturbance

Workability such as the combination of heavy equipment, soil characteristic, transportation distance, existing facilities and working hours shall be considered for design. Considering soil condition and surface smoothness of the WAC site, earth work could be minimized and number of heavy equipment could be reduced. Further, the existing drainage was also one of the factor that reduces the disturbance.



Earthwork Design

As the Earthwork Design can predict the size of all earthwork design factors such as the balance of the cut and fill volume and the occurrence of the pole slope according to the designer's empirical judgment in the linear design, technical preparation measures were made in advance, and rational construction plans were established based on the plan. Such as soil condition, determination of cutting and filling slope.

Since WAC is sited in Guadalcanal alluvial plain area and consists of sandy clay and silty sand as observed during geotechnical investigation (below figures), the earth work was completed effectively with minimal heavy equipment thereby reducing the time and resources.

Table 3-6 Heavy equipment used during construction

Items	Capacity	Use	Quantity	Remarks
Excavator	1.0 m3	Loading / Excavation	1	

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Dump Truck	15 ton	Transportation	3	
Roller	10 ton	Compaction	1	
Cargo Crane	10 ton	Materials transportation	1	
Hydro Crane	50 ton	Facilities installation	1	
Fork lift	5 ton	Loading/unloading	1	
Trailer	40 ton	Facilities transportation	1	

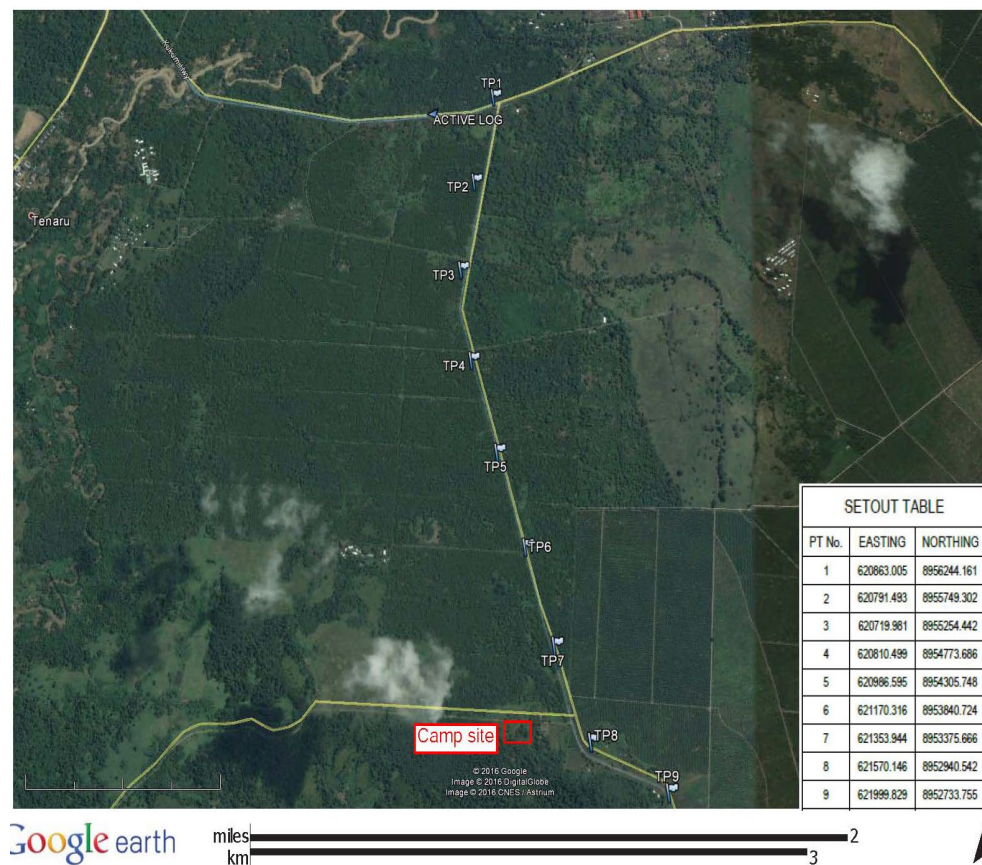




Figure 3-2 Location of Test Pit

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






		Cardno Construction Sciences Pty Ltd 101 High Street North Rockhampton QLD 4701 Telephone: 49280044 Fax: 49281286		TEST PIT NUMBER TP8 PAGE 1 OF 1				
CLIENT Ministry of Infrastructure Development (MID) of Solomon Islands PROJECT NAME Access Road to the Tina Hydropower Facility								
PROJECT NUMBER 2128E.P.353 PROJECT LOCATION Central Guadalcanal								
DATE STARTED 13/7/16 COMPLETED 13/7/16		R.L. SURFACE _____ DATUM _____						
EXCAVATION CONTRACTOR STY Conquest Ltd		SLOPE --- BEARING ---						
EQUIPMENT Backhoe		TEST PIT LOCATION Refer to Site Plan in Appendix B						
TEST PIT SIZE 0.5x2.0m		LOGGED BY P.Kilaverave		CHECKED BY C.Warnest				
NOTES GPS Co-ordinates: As per plan								
Method	Water	R.L. (m)	Depth (m)	Graphic Log	Classification Symbol	Material Description	Samples Tests Remarks	Additional Observations Dynamic Cone Penetrometer Soundings DCP
BH			0.5		CI	SANDY CLAY (TOPSOIL) medium plasticity, fine to coarse sand, moist, brown/grey, firm to stiff, with rootlets.		DCP
								5
								2
								2
								2
								2
								2
								2
								2
								2
			1.0		CH	SANDY CLAY (ALLUVIUM) high plasticity, fine to coarse sand, moist, brown mottled grey, stiff.		3
								4
								5
			1.5		CI	Test Pit Terminated at 1.5m		
			2.0		CI			
			2.5		CI			

Figure 3-4 Test Pit logs (TP8)

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Drainage Design

The drainage system is divided into road drainage, side opening, surface drainage, and underground drainage. Considering the existing drainage conditions, the drainage plan was established by hydraulic calculation. In designing the drainage system, it was planned to consider the local situation, especially the topography, weather, and geology, and to facilitate maintenance such as cleaning and inspection after use. The location, extension, and waterway direction of the facility can be changed during construction, so this can be applied with the approval of the Employer.

The installation of Earth drain at the perimeter of the premises has the effect of protecting the surrounding facilities by not allowing the water to stagnate and will connect with the existing drainage which will be upgraded during Lot 1 construction.

Table 3-7 Drainage System Design Procedure

Select Drainage Structure		Catchment Area		Design Flow Rate		Determination of Drainage Structure
<ul style="list-style-type: none"> ▪Position ▪Form ▪average recurrence intervals(ARI)for flood 	→	<ul style="list-style-type: none"> ▪Watershed Area/ Distance ▪Run-off coefficient, Elevation ▪Flood Mark 	→	<ul style="list-style-type: none"> ▪ Rational Formula: $A \leq 25\text{km}^2$ 	→	<ul style="list-style-type: none"> ▪$Q=A \cdot V$ ▪A: Cross Section (80%) ▪V: Velocity (Manning Formula)

Rainfall intensity was calculated, taking into consideration the climate characteristics near the site.

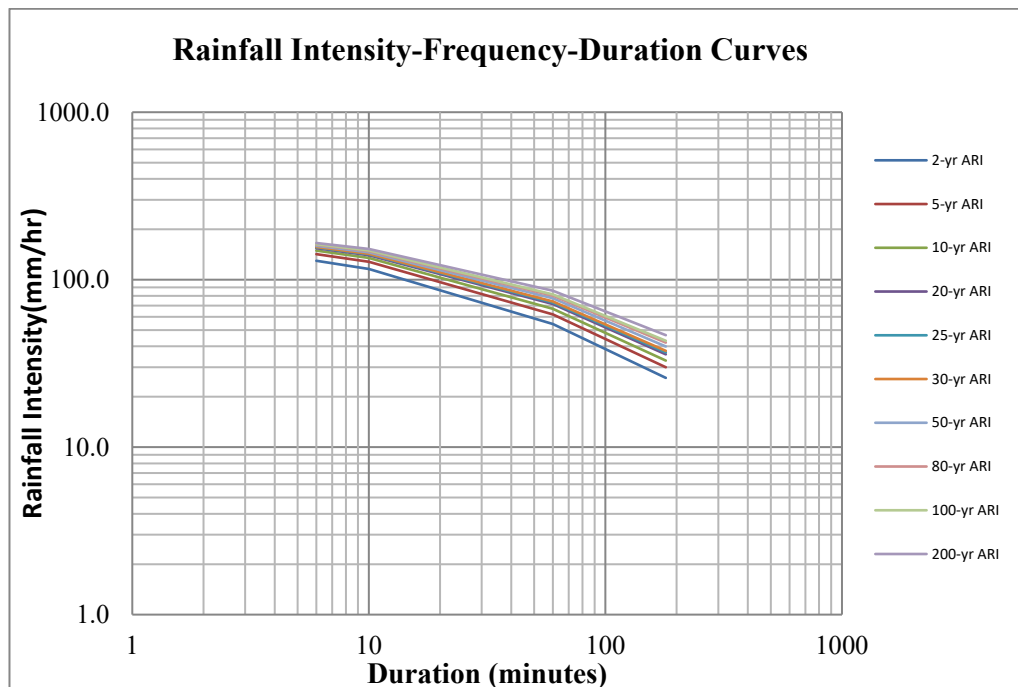




Figure 3-5 Rainfall Intensity-Frequency-Duration Curves

Table 3-8 Rainfall Intensity-Frequency-Duration

<div> Rainfall Intensity (mm/hr) Duration (mins) </div>	2-yr ARI	5-yr ARI	10-yr ARI	20-yr ARI	25-yr ARI	30-yr ARI	50-yr ARI	80-yr ARI	100-yr ARI	200-yr ARI
6	129.7	142.1	149.2	154.2	155.8	156.8	159.3	161.9	162.9	165.6
10	115.9	127.9	134.9	140.1	141.8	142.9	145.7	148.4	149.5	152.6
60	54.3	62.0	66.9	71.5	73.0	74.2	77.4	80.3	81.7	85.9
180	25.9	30.0	32.9	35.8	36.8	37.6	39.9	42.1	43.2	46.6
360	14.5	16.9	18.7	20.7	21.4	22.0	23.8	25.7	26.7	30.7
540	10.5	12.7	14.7	17.0	17.8	18.4	20.6	22.8	23.9	28.1
720	8.2	10.4	12.3	14.6	15.4	16.2	18.4	20.7	21.9	26.3
900	6.8	8.9	10.7	13.0	13.8	14.5	16.8	19.1	20.4	24.8
1080	5.8	7.8	9.6	11.8	12.6	13.3	15.5	17.9	19.2	23.6
1440	4.6	6.3	8.0	10.0	10.8	11.5	13.7	16.0	17.3	21.7

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1) Flow rate in Earth drain							
① Earth Drain $Q= A \times V = A \times (1/n) \times R^{\frac{2}{3}} \times I^{\frac{1}{2}}$ (n=0.020)							
TYPE	Depth of Flow (0.8H)	Width(D) (m)	Area of the flow (m ²)	Wetted perimeter (m)	Hydraulic Radius (m)	$R^{\frac{2}{3}}$	Q m ³ /sec
TYPE-1(H=0.9M)	0.72	3.36	1.6416	3.796	0.4325	0.5719	46.9416 × I ^{1/2}
① Utype- ditch $Q= A \times V = A \times (1/n) \times R^{\frac{2}{3}} \times I^{\frac{1}{2}}$							
						Stonem pitching	0.025
						Concrete	0.012
TYPE	Depth of Flow (0.8H)	Width(D) (m)	Area of the flow (m ²)	Wetted perimeter (m)	Hydraulic Radius (m)	$R^{\frac{2}{3}}$	Q m ³ /sec
TYPE-4(H=0.40M)Stone	0.32	0.72	0.1792	1.116	0.1606	0.2955	2.1181 × I ^{1/2}
TYPE-6(H=0.60M) Conc	0.48	0.600	0.2880	1.560	0.1846	0.3242	7.7808 × I ^{1/2}
2) The Rational Method formula for flow estimation Q (m ³ /sec)							
① Plain farming area				② Paved surface			
$Qd_1 = 0.278 \times C_1 \times I_1 \times A_1$				$Qd_2 = 0.278 \times C_2 \times I_2 \times A_2$			
where, C ₁ , C ₂ :		Run-off Coefficient		C ₁ : 0.5		C ₂ : 0.9	
I ₁ , I ₂ :		Rainfall intensity(mm/hr)		I ₁ (5yr) : 142.1		I ₂ (5yr) : 142.1	
A ₁ , A ₂ :		Catchment Area(km ²)					
③ Peak Catchment Discharge				Qd = Qd ₁ + Qd ₂			
3) Determination of Cross section							
Compare Flow rate with the Peak Catchment Discharge according to Runoff Coefficient and Catchment Area							
✱ Q > Qd (OK)							



Figure 3-6 Calculation of Earth Drain

Building Design

The design of the WAC accommodates living space, kitchen, mess and recreational space which is conducive for use by people and one that promotes a healthy living.

Moreover, the current design of Workers camp suits the climatic conditions prevailing in Solomon Island like high temperature, humidity, rainfall. The buildings are suitable for easy installation and follows the requirements stated in IFC/EBRD: Processes and standards for Workers Accommodation. More information about the design characteristics are covered in Section 2.4 of this report.

Accordingly, while Climate Change Adaptation is advised to be further evaluated onto the operational phase of the WAC, the actual need for Climate Change Adaptation is important because the area has shown signs of natural disturbances

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as can be noted from grassland areas which could be a result of climate change and/or natural fire.

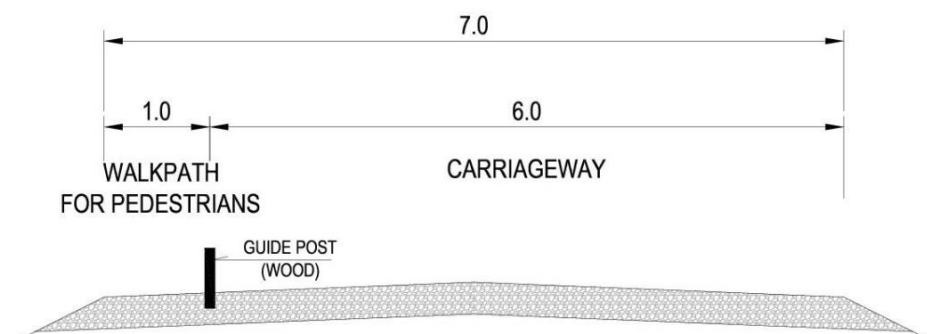
The WAC and associate facilities are designed to withstand potential impacts of climate change such as natural fire, cyclones, and high intensity rain fall. The access road will be properly maintained with proper drainage to withstand impacts of rainfall and surface run-off.



The WAC will operate as an all-weather structure. During operation, maintenance particularly clearing of drainage and brushing grasses and vines surrounding the fences of the WAC is recommended to be undertaken through labour based rather than to depend on machinery. In this case, unskilled labours from the direct impact area can be utilized the labor based scheme. Major maintenance may be required with use of machines

3. Minimization of interference with surrounding communities & Traffic

There are not existing houses within a 500m radius from the WAC premises except for landowner's house. It obviously beneficial to the project because the interference with residents will be minimum. No grievance was lodged by surrounding villages during the construction period. In addition, the fence was established along the perimeter to secure the safety and minimize the impact on the surrounding communities.

However, in case of the impact on the feeder road, HEC will ensure to implement the traffic management plan such as allocating signal mans during peak hours and movement of oversized transport, using security guards to control blockades and restrict parking on the roads and adjusting commuting time to minimize the impact.



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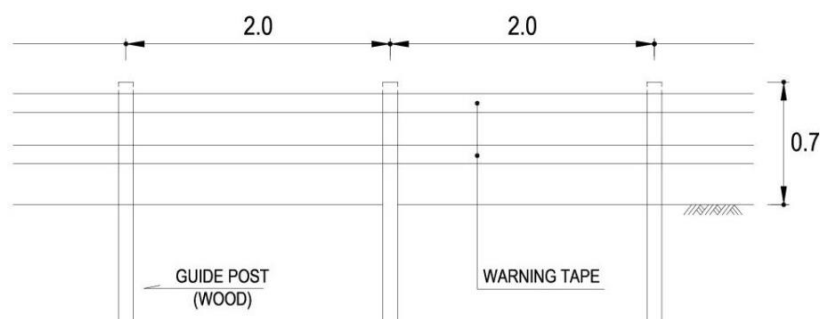


Figure 3-7 Pedestrian walkway under construction

4. Convenience of workforce



WAC is strategically located at a place equidistant from Honiara and the Project facilities (Dam and Powerhouse), making it convenient for the workforce. Moreover, being sufficiently close to the Project facilities and construction sites, employees do not have to spend undue time travelling from their accommodation to the worksite.

Further, HEC shall provide all the facilities essential for living and, by extension, amenities. This will improve employee's life satisfaction and affect work efficiency. HEC shall provide recreation area and all catering for the occupants and as a minimum, meals are to be provided at breakfast, lunch and an evening meal. Further, HEC shall be responsible for all housekeeping, including but not limited to:



- Housekeeping of accommodation should be completed daily.
- Ablution Laundry and common areas will require daily attention.
- laundry facilities, to undertake employee's own washing drying of personal items. This should be machines within a secure area to avoid theft of clothing etc.

3.6 CLIMATE CHANGE CONSIDERATIONS

The WAC is prone to surface flooding due to presence of streams nearby and swampy environment of the area which is usually water-logged during heavy rainfall. The site is around 5 kilometers from the sea and at 15m elevation therefore tsunami risk is low. Cyclone risk throughout the Solomon Islands is high, therefore the design accounts for this in the construction of the building. The buildings can withstand heavy winds and the drainage system already constructed within and outside of the camp shall be effective to avoid pooling of water inside the premises.

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The relatively short-term nature of the construction camp (5 years) makes it unlikely that it will be subjected to any changed impacts due to climate change. With the 57 months that the WAC is operational, increases in rainfall intensities, cyclone periodicity, flooding average return intervals and periods of prolonged dry are anticipated to be minor in comparison to longer term climate change projections.

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4

LEGAL AND REGULATORY FRAMEWORK

4.1 KEY ENVIRONMENTAL LEGISLATION AND REGULATIONS IN THE SOLOMON ISLANDS

The Solomon Islands has a range of laws and regulations applicable to the WAC. Key permitting regulations related to the WAC are contained within the Environmental Act (1998). The Environmental Act (1998) provides for protection and conservation of the environment and governs the overall environmental policy of the Solomon Island. HEC was required to obtain Development Consent through the Public Environmental Report (PER) mechanism in order to establish the WAC. A PER has been conducted and Development Consent granted in 2020 (see Annex 5).



Another key gateway component of SIG regulatory requirements aspect is the Land and Titles Act (1988). This manages and defines all lands and sets out procedures for land acquisition through either lease or purchase. It recognises three main categories of land, being (i) customary land, (ii) fixed-term leases, and (iii) perpetual estates. The location of the WAC is on land registered as a perpetual estate, meaning that the owners of the perpetual estate hold the right to occupy, use and enjoy in perpetuity the land and its produce. The significance of a perpetual estate is that there is no customary rights to the land and accordingly, there has not been any historical grievances. HEC has entered into a lease agreement with the rights holder for the perpetual estate and therefore, has met obligations stated in the Land and Titles Act (1988) for construction and operation of WAC.

4.2 LENDERS REQUIREMENTS

As with the rest of the TRHDP, the WAC is subject to the Project safeguards requirements. This includes the requirements of the World Bank Group and Asian Development Bank as described in the 2019 ESIA, and the requirements set out in the project EPC Contract.

Of particular relevance to the WAC is the IFC/EBRD (2009) Guidance Note “Workers Accommodation: Processes and Standards” which addresses the processes and standards that should be applied to the provision of WAC. Applying appropriate standards to the construction of worker housing falls within the performance requirements related to labour and working conditions.



The Guidance note by IFC and EBRD was developed in order to avoid safety hazards and to protect workers from diseases and/or illness resulting from humidity, bad/stagnant water (or lack of water), cold, spread of fungus, proliferation of insects

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or rodents, as well as to maintain a good level of morale. The location of the facilities is important to prevent exposure to wind, fire, flood and other natural hazards. It is also important that workers' accommodation is unaffected by the environmental or operational impacts of the worksite (for example noise, emissions or dust) but is sufficiently close that workers do not have to spend undue amounts of time travelling from their accommodation to the worksite.

The WAC has already been constructed following the requirements stipulated in IFC/EBRD processes and standards for Workers Accommodation and shall comply with it, and the E and S safeguard requirements of the project during the operations period. The WAC should always be kept in good repair, clean and free from rubbish and other refuse.

This ESIA has been prepared to demonstrate how it has been designed and will be operated in accordance with international best practice as defined within the Guidance note. Chapter 2.4 explains the construction specifications and arrangements while Chapter 2.5 and 2.6 of this report provide operational aspects.

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5 **STAKEHOLDER ENGAGEMENT**



5.1 **INTRODUCTION**

A key component of developing an ESIA is undertaking stakeholder engagement to ensure that the informed and early participation of stakeholders can be utilised to influence Project design and the ESIA development. Dedicated stakeholder engagement was undertaken during the development of this ESIA in accordance with the requirements of the World Bank Operating Manual (OP 4.01), ADB SPS requirements (particularly SPS1) and the Environmental and Social Consideration Guidelines of the Bank. This engagement included interviews with key government stakeholders, focus-group discussions, and direct community engagement. This section details the methodology and outcomes of this engagement.

5.2 **CONSULTATION APPROACH**

Community consultation was undertaken on 13 May 2021 and was split into two parts. This included the following:

- Community Consultation:** A town hall style meeting was conducted between 10am and 12pm at Garivera. Representatives from all communities within the PIA(Summarized in Section 2.1 of this report) were invited and provided with transportation to the venue. Most of the communities belong to the wider PIA while some communities situated close to the camp, that may experience direct impacts were also involved. These communities are Chichinge, Bethany, Mataruka, Namoraoni, Vera'ande, Keresapo and Blackpost, with 25 community members (14 males and 11 being female) being invited and all of them turned up for the consultation program. The participants represent Mens' Group, Womens' Group, Youth Group, Community Leaders and Church Leaders from the participating communities. The consultants took the lead during the public consultation. HEC was given the time to provide an overview of the WAC establishment that included topics about the purpose of camp, construction phase, the facilities, management, rules and the consultants provide talks and the potential impacts (both positives and negatives) of the WAC establishment. The comparison of alternatives was made against the type of housing arrangement projected in the ESIA. The community members were familiar with such kind of aspect as they such kind of accommodations for workers has been adopted in the nearby Gold Ridge Mining and GPPOL. Then, the community members were given time to ask questions and making comments.

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- **Focus Group Discussions:** In the afternoon, between 1.30pm and 3.00pm and involved the participants of the town hall consultation. The participants were divided into groups of men's, women's and youth. Men's group consist of 10 participants, women's group 6 and youth group 9. Members of the consulting team provide questions on how each group perceive the establishment of the WAC at Grass Hill. They were provided with leading questions on their perception regarding risks, impacts and how the communities can involve in identifying, managing, mitigating and monitoring the potential impacts
- **Government Stakeholders:** Consultation in the form of key informant interviews (KII's) was also undertaken with responsible individuals from various government ministries, the Guadalcanal Provincial Government, and the TRHDP Project Office within SIG.

The summary of the questions, minutes and attendance lists can be found within **Annex 10**. The below figures provide photographic documentation of many of these meetings.



Figure 5-1 Town Hall Consultation in Garivera





Figure 5-2 Youth Representatives FGD



Figure 5-3 Women Representatives FGD



Figure 5-4 Multiple FGD's in process

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5.3 FEEDBACK

5.3.1 Community Consultation



The below table provides a summary of the key questions and responses during the town hall type consultation and FGD's in Garivera. A list of participants are provided in Annex 10.

Table 5-1 Summary of Feedback



Project: WAC Impact Assessment Task Perform: Focus Group consultation Contractor: HEC S/Contractor: GCET Venue: Garivera Date: 11 th May, 2021, 10 am to 3 pm					
Summary of questions and response for the FGC.					
NO	Questions	Men	Women	Youth	Response
1	Are there Risks of Social conflict with the establishment of the WAC?	Yes	Yes	Yes	- Youth visiting the WAC site consume drug and alcohol
					- Youth employed may use the money and spend on alcohol
					- Gender complicit of interest while seeking employment at the camp site.
					- Conflict of cultural behaviour in which locals especially youths can cause social disturbances around the camp.
2	Do you think establishing the WAC at the current location would increase prostitution, theft and substance abuse?	Yes	N/S	Yes	- People will come looking for job
					- Modern culture and cultural behaviour with modern style like dress code and other can lead to social conflict.
					- More people will be attracted
3	Explain the likely adverse impact of worker's Accommodation Camp on the following (Community dynamic) Religion, culture, community hierarchy				- People will go against religious believes.
					- People will break culture as brother and sister will be working in a same department at the same time.
					- Disrespect community leaders
					- Sometimes family break up
					- Conflict, movement of people

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4	Do you think the influx of temporary workers will affect your communities?	Yes	Yes	Yes	<ul style="list-style-type: none"> - Influx increase by the attraction of modern style and behaviour and increase opportunist.
5	Do you think the WAC will attract local entrepreneurs to set up temporary houses to sell goods to workers, and increase people visitation?	Yes	Yes	Yes	<ul style="list-style-type: none"> - Trespass in private area - The camp will attract settlers to come and set up market stalls to sell their subsistence produces to workers residing at the camp. This will exacerbate visitation by relatives in which will further increase settlers who will be residing in other people's land. - It can easily convince outsider to quickly interact with local residing near the camp site for opportunity.
6	Do you think the establishment of the WAC will increase the risk of Gender based violence sexual harassment and child abuse?	Yes	Yes	Yes	<ul style="list-style-type: none"> - There is a traditional way of solving issues of gender. However, Project may ask to assist when needed the support - Control measures at family level and Church faith groups with strong support also through traditional chiefly system
7	Do you think the establishment of the WAC will increase the risk of communicable diseases (HIV, AIDS, STIs, malaria, dengue virus, covid-19, TB, measles, Influenza-like illness)?	Yes	Yes	Yes	<ul style="list-style-type: none"> - Unsafe sex and prostitution - Interaction of people and Increasing of employment can lead to wide spread if lack of control in terms of movement.
8	Do you think establishment of the WAC will increase the risk of non-communicable diseases (drug addiction/dependency, respiratory illness, diabetes, heart disease, and hypertension)?	N/sure	Yes	Yes	<ul style="list-style-type: none"> - Introduction of food and eating habits
9	Will the WAC at the current location increase Gender base violence, sexual harassment,	Yes	Yes	Yes	<ul style="list-style-type: none"> - Alcohol consumption due to improve wages/salary of local workers will enhance such social issues.

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	child abuse and exploitation in your community?				- Domestic Violence – Only Dad the bread winner didn't provide food. / Support children at School.
10	Do you think the WAC establishment would impact the local inflation of prices due to crowding of local consumers?	N/sure	Yes	Yes	<ul style="list-style-type: none"> - Workers spending power will increase market demand. - Due to Development locals will likely increase their prices.
11	What sort of local business are currently operating in your community? Is there any?				<ul style="list-style-type: none"> - Transport, - poultry, - canteen, - piggery - Bakery - Tailoring/Dying of Clothes - Fuel
12	How do you estimate a crime situation in your community?	Low	Low	Low	<ul style="list-style-type: none"> - Currently crime in the community is low. However, might increase during company operation stage. - But will not increase if most community male youths and Adults are hired or supported in other forms of income.
13	Do you think the inflow of temporary workers in community will influence crime situations?	N/sure	o	Yes	<ul style="list-style-type: none"> - Not really sure about the level of crime in the future. - Crimes can only cause by few people not all communities' members. - Community Policing is set up in many Communities at Malango and Bahomea.
14	Does your community have a community level policing organisation?	No	Yes	No	<ul style="list-style-type: none"> - House of chief and church are well recognised body in the community - Community Policing is set up in many Communities at Malango and Bahomea.
15	What is your opinion on a regular Police presence in or around your community?		Yes		<ul style="list-style-type: none"> - Police presence within our communities is positive and Police Patrol during weekends in our community. - And daily or routine presence in the area is crucial as there may be unexpected crimes committed by youths around the area towards workers.

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16	Can the arrival of project foreign workers, influence your business development?	N/sure	none	Prefer that this occurs	<ul style="list-style-type: none"> - Market opportunity for women to sell their local products - Foreign workers will have a positive economic impact on their rural economy
17	During construction and operational phase of WAC, do you think it will have adverse impact on road safety?	Yes	None	Yes	<ul style="list-style-type: none"> - There will be impacts on road safety if HEC does not manage it properly. - Movement of vehicle will cause dust which is a health hazard. - Traffic accidents if no speed limits and safety measures are enforced - The Blackpost road is the only road used by the locals in the Malango – Bahomea region. The construction and operation of the camp will see an increase number of vehicles along the road. This may lead to traffic jam along that road. It would be great the Black post road be widened and maintained by the company.
18	The WAC will produce waste (compostable waste, recyclable waste), do you think you will be affected by the waste and explain how?	No	Yes	Yes	<ul style="list-style-type: none"> - Will be affected if there are no proper waste management measures put in place by HEC. HEC had presented to us their company's waste management plan which does sound good if implemented.
19	During construction and operational phases of the WAC, do you think you will be affected by poor air quality such as dust, odour, and combustion emissions from vehicles, machines and generators?	Yes	No	Yes	<ul style="list-style-type: none"> - No. Most of our communities are located far from the campsite. - However, there could be impacts such as dust and emission from the 24-hour operated diesel generator. - Inhaling of such gases produced from the camp could affect us to some extent.

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20	Did your community have experiences with other projects in the past years? Example, Rural Water and Sanitation Health (RWASH), Constitution Development Fund (CDF) etc.	Yes	None	Yes	<ul style="list-style-type: none"> - We have received projects from the Government, and other NGOs such as, - Rural Development Program (RDP) and Rural Water and Sanitation Health (RWASH) for water and sanitation projects - Constituency Development Fund (CDF) from the government for rural infrastructures such as churches, roads, clinics etc... funds were given to us by our MP, sometimes in form of cash and assistance in school fees and medical fees.
21	Do you think the project will bring new opportunities for communities like job, infrastructure development, and water supply?	Yes	none	Yes	<ul style="list-style-type: none"> - Project will provide us with Job opportunities

Table 5-2 Summary of Perceptions Provided during FGDs

Focus Group Survey				
PERCEPTION				
No	Question	Men	Women	Youth
1	Land ownership	we don't have any issue with land ownership	Privately owned	No issues
2	What are likely Impacts the WAC site might cause			
	a. Noise	yes, only nearby community	yes, nearby community and public	yes, noise from generators
	b. dust	yes, only nearby community	yes, nearby community and public	yes
	c. accident	yes, because of community access road to the WAC	yes, road access	yes
	d. safety	yes, high risk for people using the road	yes	yes

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3	What are some of the mitigation measures			
	a. how do you communicate problem in your community?	chiefs and community leaders	chiefs, church, community leaders	chiefs, church, police
	b. how do you solve problem in your community?	cultural protocols such as chupu ⁴	cultural protocol	chupu



5.3.2 Key Informant Interviews

The outcomes of key informant interviews with various government stakeholders is summarised in the below table.

Table 5-3 Outcome of Key Informant Interviews

NO	SIG STAKEHOLDER	RELATIONS
1	Ministry of Lands and Housing Survey (MLHS)	Government ministry that responsible for Land certification in Solomon Islands. It was verified that the said land was legally owned by Denson Denni and David Bakani under Perpetual Estate. Mr Frazer Sike Chief Lands Officer responsible for Guadalcanal province.
2	Ministry of Environment, Climate Change, Disaster Management and Meteorology (MECDM)	The regulatory body that grant Development Consent to any development in Solomon Islands is the ECD, MECDM. As a requirement of the Environment Act 1998 and Regulation 2008, a PER is necessary in order to seek Development Consent from the Director of ECD. A PER was already done for this development of WAC and the Development Consent already granted that allows for the workers' accommodation to be constructed. The Director of ECD was consulted.
3	Ministry of Mines, Energy and Rural Electrification (MMERE)	Government Ministry responsible for the TRHDP fully supports the WAC establishment and is looking forward the WAC operational phase which will be the construction of the main Tina Hydro. Mr Gabriel A. Deputy Director of Energy, MMERE, was consulted.
4	Guadalcanal Province (GP)	The provincial authority has granted the development permits HEC for the development and establishment of the WAC. The GP is very supportive of the WAC establishment as this is part of the main Tina Hydro project. Mr Timothy Ngele (PS) and Andrew Tahisilaka (Finance) were consulted.
5	TRHDP Project Office	The project office facilitates the Tina Hydro Project. Currently there were issues in relation with the WAC Site establishment. It was noted that, in order to meet requirements of the lenders, the CIA needs to be improved,

⁴ This is a common local cultural protocol which is a type of reconciliation ceremony

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NO	SIG STAKEHOLDER	RELATIONS
		hence, the GCET was sub-contracted to do the CIA and cover socio-economic aspect of the WAC which was not covered by the initial CIA. The meeting was conducted with Mr Baltazare Rongo (CLO), Joshua Toren (EHS) and Helen Dolaiano (Gender Officer).

5.4 KEY OUTCOMES



As an outcome of the consultation, it was found that all participants support the development and operation of the worker's accommodation. They perceive that the operation of the WAC is crucial in that the workers will be housed there in order to construct the Tina Hydro. They believed that there are associated benefits like employment and other spin-offs such as markets and stalls that can help generate income for people due to the operation of the WAC in the Grass Hill area.

Community members also expressed concern about the potential social impacts such that can contribute to community breakdowns and vowed to cooperate with HEC and the responsible government authority to ensure the potential social impacts are managed to a socially acceptable level. HEC informed community members that it will work hand in hand with communities to ensure they benefit the more from the operation of the WAC while at the same time carefully mitigate the potential social and environmental impacts. A full version of this ESIA will be publicly available and summary of key findings will be summarized and made available to relevant communities within the PIA



The summary of key issues and where they have been addressed within the management plans and systems of the Project are provided in the below table.

Table 5-4 Consultation Outcomes



Issues	Measures Suggested during Consultation	How addressed
Disruption to community social cohesion (eg breakdown of community social structures, and disruption of religious beliefs and cultural observances/traditions, Increase in drug and alcohol consumption	Workers are not allowed to mingle with local communities. Security will be very strict not to allow outsiders who have no busy in the WAC. The WAC will be prohibited of entrance to the general public. Camp rule and security procedure (Annex 7 and 8) will be strictly applied to the	Measures integrated into WAC Rules aspect of the HRLMP and IMP

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Issues	Measures Suggested during Consultation	How addressed
<p>especially in youth population, Conflicts between local entrepreneurs setting up in the area and the local community, Increase in theft and prostitution)</p>	<p>workers. Further, the awareness program to understand local culture will be implemented regularly and it is stipulated in the relevant ESMPs.</p> <p>In this way, the workers will be protected from socializing with the communities.</p>	
<p>Access Road (Black Post)</p>	<p>During the operational phase, HEC will ensure to implement the traffic management plan so access on the feeder road will not be disturbed. People will still be using the current feeder. Safety signs will be put in place to warn people of the operational risks.</p>	<p>Measures integrated into the TMP</p>
<p>Employment of Locals</p>	<p>HEC shall ensure employment opportunity priorities be given to people of Malango and Bahomea through the CBSP. Also, the CBSP will train local pool of labours to build their capacity/skills.</p>	<p>Quantitative targets for employment opportunities through the CBSP (as first priority) have been included within the HRLMP</p> <p>The WAC can provide additional job opportunities for housekeeping, maintenance, catering and security.</p>
<p>Safety Standards</p>	<p>The establishment of the workers' accommodation are based on standard specification and Geotech features of the site.</p>	<p>The design and construction will be undertaken in accordance with international best practice</p>
<p>Public safety during operation, including community health due to increased noise and dust</p>	<p>HEC and its workers' uphold safety at all times. Drivers will always be conscious and drive slowly along the feeder roads with safety signs on company trucks and speed limits.</p>	<p>Measures integrated into the TMP</p>
<p>Casual Labour for WACs Operations</p>	<p>Unskilled labor will be sourced from the Malango/Bahomea</p>	<p>Quantitative targets for employment opportunities</p>

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Issues	Measures Suggested during Consultation	How addressed
	communities that can work as casual labours.	through the CBSP (as first priority) have been included within the HRLMP
Land Ownership	The site is a PE and is rightly owned by Denson Denni and David Bakani. A lease agreement was signed between the HEC and the two landowners for the lease of the site for 56 months.	No action required
Police Involvement	Law and lawfulness is part and parcel of any development. Local communities adjacent to the Black Post Road expressed concerns and suggested a number of measures to improve the safe environment around the project communities as was noted during the community consultation and Focus Group consultation. People have raised concerns for a continuous or routine patrol to the site by police officers to prevent any unexpected crimes that could be committed by youths towards workers.	Measures integrated into the TMP and IMP

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6 BASELINE CONDITIONS

6.1 BIODIVERSITY

The WAC site was studied during the PER process for WAC by Robson Haveleo, EIS specialist (refer to **Annex 5** for details). Simultaneous surveying of the Black Post vicinity was arranged in a timeframe, to allow separate synoptic conversations with different sets of stakeholders. Stakeholders visited included Provincial environment section, the HEC team, and various dwellers of the subjected area. A total of 500 meters was observed during a day trip to the area. Observation involves determining the general pattern of vegetation and habitats surrounding the proposed project area. This sampling approach also aimed to profile the baseline. Elements of significance were identified such as local knowledge and historical recollections in order to provide some context for time-dependent effects and process-level considerations for future impacts assessments.

The survey depicted that the site is highly exposed and consists mainly of lowland and secondary undergrowth, and thus modified habitat across the entire site. This is due to previous agricultural developments and human settlements in the area. As noted in the PER prepared prior to establishment of the WAC, there are plenty of planting of cash crops, with shrubs and trees dominated by exotic and invasive plants. This site is relatively modified due to the long term presence of human occupation and modification of the land scape, and thus dominated by the invasive plants, paper mulberry, *Boussonetia papyrifera*, the monkey pod tree, *Albizia spp*, *Swietenia spp*, *Tectona spp* and the African tulip, *Spathodea spp*. Along the tree trunks were epiphytic plants such as the orchid, *Dendrobium spp* and the ferns, *Asplenium nidus*, *Davalia solida*. The terrestrial environment (inland observation) is highly modified and has been considerably degraded over years due to human activities. As discussed in Annex 5, the whole area had shown presence of successive plants which can grow after human activities, as such, *Syzigium spp*, *Litsea spp*, *Aglaia spp*, *Ficus spp*, *Harpulia spp* (Tulipwood). These plants can form the bases of re-succession of other small understory plants to grow in riverine inland areas. Overall, this is a piece of grassland and palm oil plantation surrounding it. As discussed in the survey conducted as well as the aerial iamgeries in Annex 5, there was not a single protected species or large size tree to be cleared for the construction of the WAC.

This is the thin 5m width area adjacent with the road with the presence of *Casuarina equisetifolia* and some edible plants for example, the Jackfruit (*Artocapus spp*), Coconut (*Cocos nucifera*), bread fruit (*Articpaus artili*), cocoa trees and few nut trees

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(*Canarium* spp, and *Terminalia* spp). Grasses includes the grass of the genus *Batika* spp and the *Cyperus* spp, *Mimosa pudica*s. There is a swamp forest located surrounding the WAC site. It is noted that there was no wetland within the camp site. In addition, no drainage in/around wetlands was constructed in or around the wetland but upgrade of the existing drainage. This area is defined with the presence of some *Pandanus* spp and *Mariscus javanicus*. The *Sorghum halpense* (Johnson grass) plus other includes *Alocasia macrorrhizos* and the *Diplazium proliferum* which were present on shady, moisture and wet areas. Some areas include the presents of the Paper reed grass (*Cyperus* spp). This area was previously accessed by human intermittently, mainly for food gardening purposes. Thus, the area defines has been modified with gardens; food crops and edible plants, *Maniok* spp, *Colocasia* spp, *Ipomea batasa*. This habitat had also shows areas where traces of invasive species were dominantly made of Paper mulberry while other areas exhibited cattle industry as para grass, *Brachiara mutica* and legumes *Centrosema pubescens*, and *Pueraria* spp were found.





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Figure 6-1 WAC site at Grass Hill, Malango ward (JUNE 2020)



6.2 PHYSICAL ENVIRONMENT

This section and sub-sections provide details of physical environment of the area where the WAC site is located. It is noted that some of the physical environment parameters (e.g., climate and meteorology, rainfall, humidity and temperature) are of secondary and represent the regional characteristics rather than site-specific. However, some parameters were site-specific (e.g., air quality), as monitored at WAC site.

6.2.1 Rainfall and Climate

The Solomon Islands is often subject to the south-easterly trade winds from May to October and the north-westerly trade monsoon winds from December to March. Due to proximity to the equator, there is very little variation to air temperature. The average annual rainfall ranges from 3,000 to 4,000mm. The country's daily average rainfall is averaged at 190 and 330mm.

As part of this project, a rainfall gauge has been installed at Chupu Karma (no longer operational), approx. 1,400 m asl, along the western catchment boundary of the Tina River. Daily records have been taken between June 2010 to February 2013 as well as from March 2017 to July 2017. From this data there are only 2 full calendar years of

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data with the average annual rainfall of 5,630 mm. A rainfall vs altitude relationship has been estimated for northern side of Guadalcanal, where rainfall increases by approx. 320mm for every 100m rise in ground elevation (Institute of Hydrology,1993). The same study observed that the reason for the higher rainfall at altitude is due to more frequent rainfall, rather than greater rainfall intensity (Institute of Hydrology,1993).

Given the location of the Worker's Camp facility at low elevation, the amount of rainfall should instead use the annual average for the Henderson Airport station. Annual rainfall at the camp will be about 2,000 mm similar to that at Honiara and Henderson airport, Figure 6-2.

Table 6-1 Annual Average Rainfall

Altitude (masl)	Annual Average Rainfall (mm)	Rainfall Station
0-100	2,000	Honiara/Henderson
100-500	2,700	Mbumulake
1,400	5,630	Chupu Karma
1,600	6,400	Mt. Chanapaho

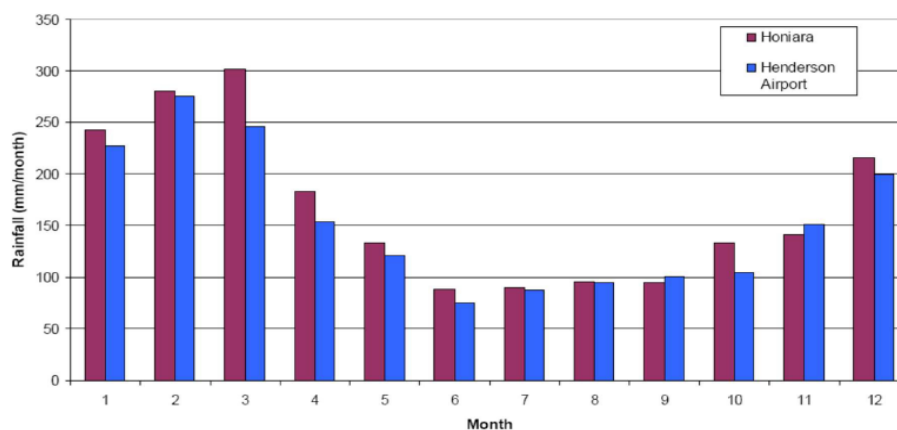




Figure 6-2 Annual rainfall at Honiara and Henderson Airport

November to January as being the wettest months. The climate in Guadalcanal is tropical with distinct wet and dry seasons.

Generally, the weather between March and November is dry and humid followed by a wet season from December to April. Based on the rainfall data for Henderson from 1975 - 2015, the average monthly rainfall for the area of interest is averaged at 76 and 286 mm (**Figure 6-2**). The wet season often coincides with the cyclone season. Being a large and mountainous island attribute to the island as being less dry and colder than the smaller islands in the archipelago.

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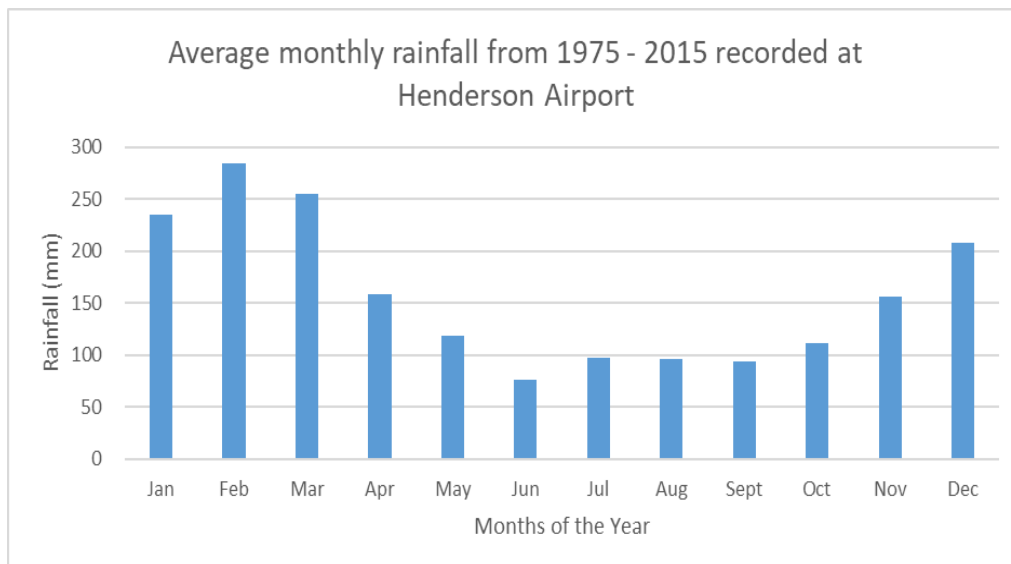


Figure 6-3 Average monthly rainfall.

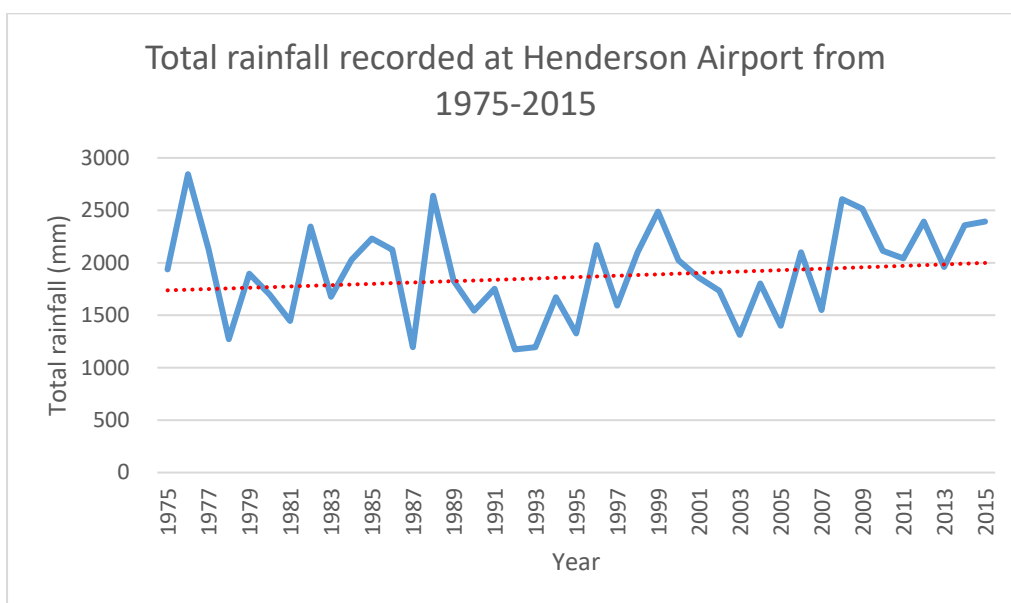




Figure 6-4 Total rainfall per year, ranging from 1975-2015.

The highest rainfall is recorded for Henderson in 1976 with a total rainfall of 2,845 mm, with the highest monthly rainfall recorded being in January which coincides with the wet-season. The driest month on record was June of 1987 which recorded 1 mm. It can be noted from the graph above that rainfall intensity shows a general linear increase over the years.

Humidity and Temperature - According to the data provided by HEC, the average relative humidity for the site is 56.3% with an average temperature of 33.9 Celsius

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degree. Both humidity and temperature for the site are not bad. People typically found relative humidity of 30-60% comfortable. In the tropics, the temperature of 33.9 Celsius degree is still conducive for human health and comfort.

6.2.2 Geology, Landform and Soils

The geology of the project area is consisted of Tertiary Volcanic rocks, sedimentary rocks originated from marine and continental environment. The Tina River is located within five key lithological units, summarized below and shown in **Figure 6-5**:

Five key lithological units are Suta Volcanic (Suta Fomation, α), Mbetilonga Limestone (Tmb) and Tina Calcarenite (Tmt) which belong to the Mbetilonga group, Toni Conglomerate (Tpnc), the Mbetivatu Sandstone (Tpe) which belong to the Toni Formation (Tpn) and Quaternary alluvium deposited in the site **Figure 6-5**.

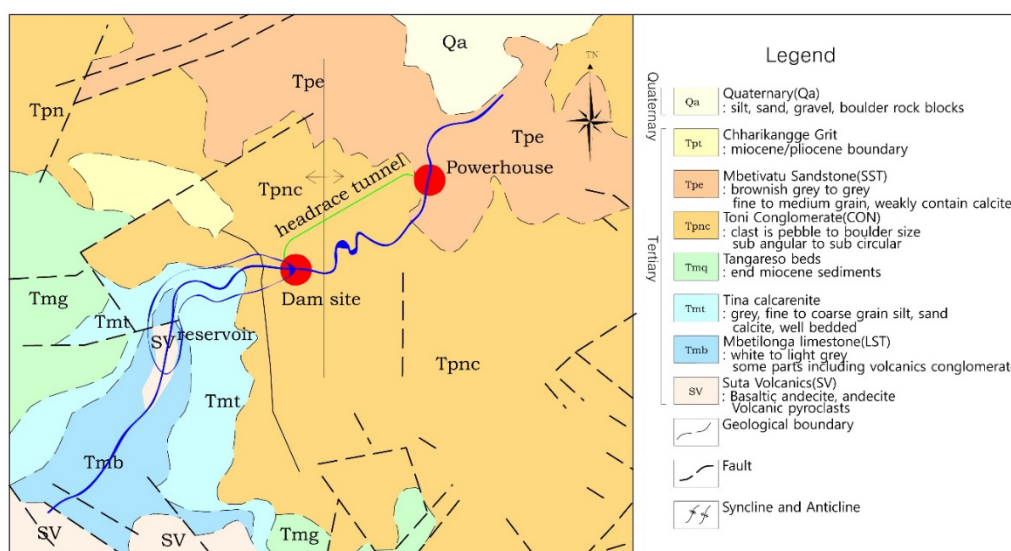




Figure 6-5 Regional geological map (Hackman, 1980)

Suta Volcanic rocks at the Oligocene consist of basalt, basaltic andesite, pyroclastic and subsidiary limestone. The end of reservoir area is distributed predominately and a small lense phase in younger sediments is found in the Tina River.

Mbetilonga group at the Lower Miocene consist of both biogenic limestone (Tmb) and Tina calcarenite (Tmt) at the Middle Miocene comprises well-bedded, flaggy calcarenites with a high terrigenous admixture, planktonic forms and carbonized wood. These groups are distributed at upstream of the dam site.

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Toni Formation (Tpn) at the Upper Miocene-Middle Miocene consist of both conglomerate (Tpnc) and Mbetivatu sandstone (Tpe). Toni conglomerates are essentially rudaceous (>30% clasts) with the material being mostly volcanic in origin. Both orthoconglomerates (clast supported conglomerates) and paraconglomerates (matrix supported conglomerates) are present. Clasts are typically up to 300mm. Toni formation are distributed largely from dam site to powerhouse area including headrace tunnel.



The outwash material which floor is the deltaic alluvial plains of northern Guadalcanal has been termed the Ngalimbiu Alluvials. The surface of the plains dips at a very low angle northward. The WAC sits on the Guadalcanal alluvial plain. The geological sequences in the project area summarized as below **Table 6-2**:

Table 6-2 Geological sequences in the project area

Geologic Age		Formation	Constituent
Period	Epoch		
Quaternary	Holocene	Ngalimbiu alluvials	Sand, pebble ~ boulder size rock fragments
Tertiary	Upper Miocene ~ Middle Pliocene	Toni Formation (Tpn)	Toni conglomerate (Tpnc) (Conglomerate layer, Sandstone layer) Mbetivatu sandstone (Tpe)
	Lower Miocene ~ Middle Miocene	Mbetilonga group	Tina Calcarene (Tmt) Mbetilonga Limestone (Tmb)
	Oligocene	Suta Formation (SV)	Basaltic andesite Andesite, volcanic pyroclasts

Table 6-3 Detailed geological sequences in the project area.

Quaternary	<div style="border-left: 1px solid black; padding-left: 10px;"> Alluvium : River deposit (clay, silt, sand, gravel and boulder) </div>	Qa
	- Unconformity -	
Tertiary	<div style="border-left: 1px solid black; padding-left: 10px;"> Mbetiva sandstone : Brownish yellow arenite with lenses of conglomerate, mudstone and siltstone Toni Conglomerate : Conglomerate layer, Sandstone layer </div>	Tpe Tpn

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- Unconformity -	
Tina Calcarenite(CA) : Calsic sandstone, siltstone	Tmt
Mbetilonga Limestone(LST) : Biogenic limestone and calcarenite	Tmb
Suta volcanics(SV) : Basaltic andesite, andesite, volcanic pyroclasts	SV

The land structure and lithology across the entire Tina River Hydropower Project area (including the WAC site area) captures characteristics of three land region based on Hansel and Wall 1974 categorization of Land system in the Solomon Islands:

- Pusuraghi Land System- comprise of small and extensive, mainly forested, topogenic swamps with pale gleyed clays and peats. The swamps in this land system appear to have a level surface, that is, they are not domed above adjacent rivers as are many tropical peat swamps. This land system is entirely of unconsolidated recent, inorganic and organic accumulations in a hydromorphic environment.
- Metapona Land System-Extensive terraces of recent, predominately fine and medium grade alluvium with mottled clay under forest, grassland and cultivation, in the plain area of northern Guadalcanal. The source of alluvium is varied in most places are either sedimentary or volcanic, predominate minerals are andesitic or basaltic origin, moderately well sorted and weakly consolidated.
- Tenaru land System-the land system is formed from recent littoral strand lines and swales of coarse sediments and greyish sands under cultivation and grassland throughout northern Guadalcanal. This is the most evident categorisation at the project site, from the black-post road to WAC site corridor. Sediments forming this land are both reworked fluvial materials that are weakly sorted.

Much of the landform in this area, covering areas towards Tenaru and further to the river mouth of Tina/Ngalibiu River is more of a littoral landform with coconuts, cocoa, fruit gardens, freshwater swamp forest, secondary riverine forest, lowland forest and Themeda grassland.

Soils are derived from basaltic-volcanic. Therefore, they are generally rich in nitrogen, phosphorous and organic carbon, but poor in potassium and are mostly recent alluvial soils, giving them their high fertility.

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6.2.3 Aquifer

There are three aquifers of interest, from south to north the Toni Conglomerate (Tpnc), the Mbetivatu Sandstone (Tpe) and the Guadalcanal floodplain alluvium (Qa). The two Tertiary formations dip northwestwards at 5 – 15° beneath the alluvial plain and are both fissured and faulted. It is not known at what depth the Toni Conglomerate lies beneath the Mbetivatu Sandstone at the Office site.

Toni Conglomerates are essentially cemented gravels and conglomerates (> 30% clasts) with the material being mostly volcanic in origin. Clasts are typically up to 300 mm size, but isolated boulders can exceed 10 m in diameter. Mbetivatu Sandstone comprises crudely stratified brownish yellow sandstones with lenses of conglomerate. Both are fractured and faulted.

Honiara, 27 km to the north of the Camp, is supplied predominantly from the deep confined fractured rock aquifer with borefields spread across the city. Four out of six borefields are producing less than 65% of their target yields which can attributed to a combination of well interference and screen clogging.

The semi-confined alluvial aquifer has not been developed extensively for Honiara's water supply but is used by many privately owned bores for which some census data is available at Grass Hill where reference numbers 8911 to 8913 and 9007, 9009 and 9110 (**Figure 6-6**) are recorded as generally between about 15 and 35 m deep with water level 2.5 to 4 metres below ground level (mbgl). These bores are located within 2 km of the Camp site with the closest being 800 m distant. The deepest bore encountered two water bearing zones, a shallow sand and gravel layer down to 18 mbgl and a deeper weathered sandstone layer from 27 mbgl. Further inland at Kangga Village BHs 8103 and 9212 are 35 to 45 m deep and water level is 15 mbgl, reflecting the higher elevation. There has been no systematic measurement of seasonal changes in water level only occasional observations suggesting it may be as much as 2 m. It is probably more in the range 1 to 1.5 m. Water levels peak about one month after end of wet season and then slowly decline because of evapotranspiration until start of the next wet season.

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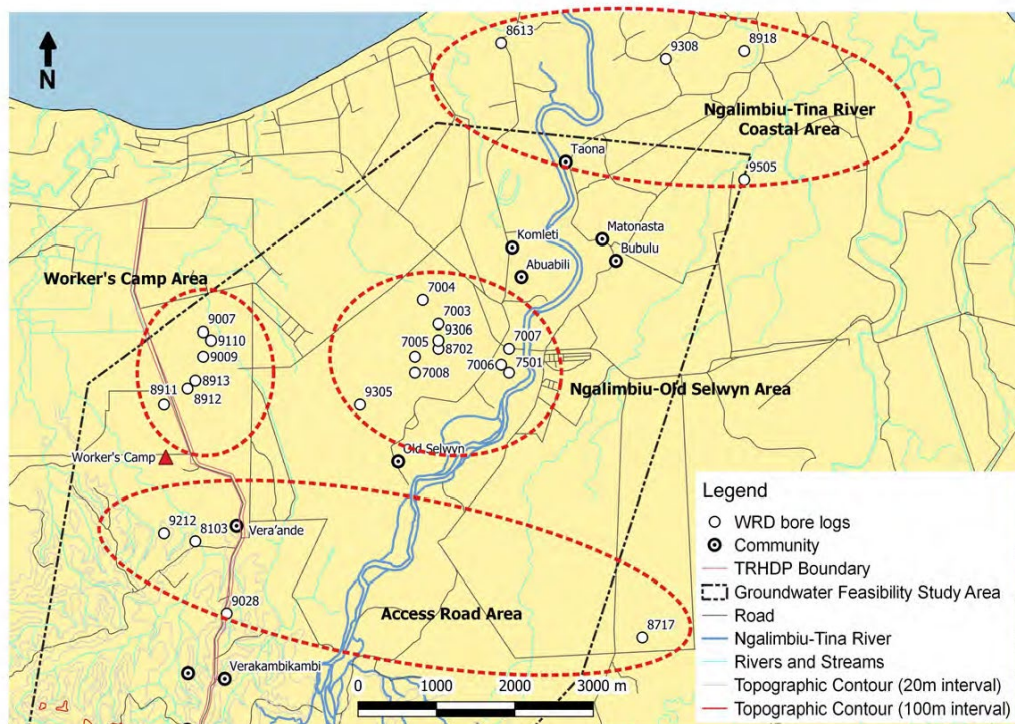




Figure 6-6 WRD boreholes

There is a bore log for one of the Water Resource Department BHs drilled at Votahombu Village in 1986 (**Figure 6-7**) which gives a description of the shallow aquifer, a coarse sand gravel beneath surface clay which appeared to collapse during drilling. This site is on the Guadacanal Plain and representative of the alluvial aquifer.

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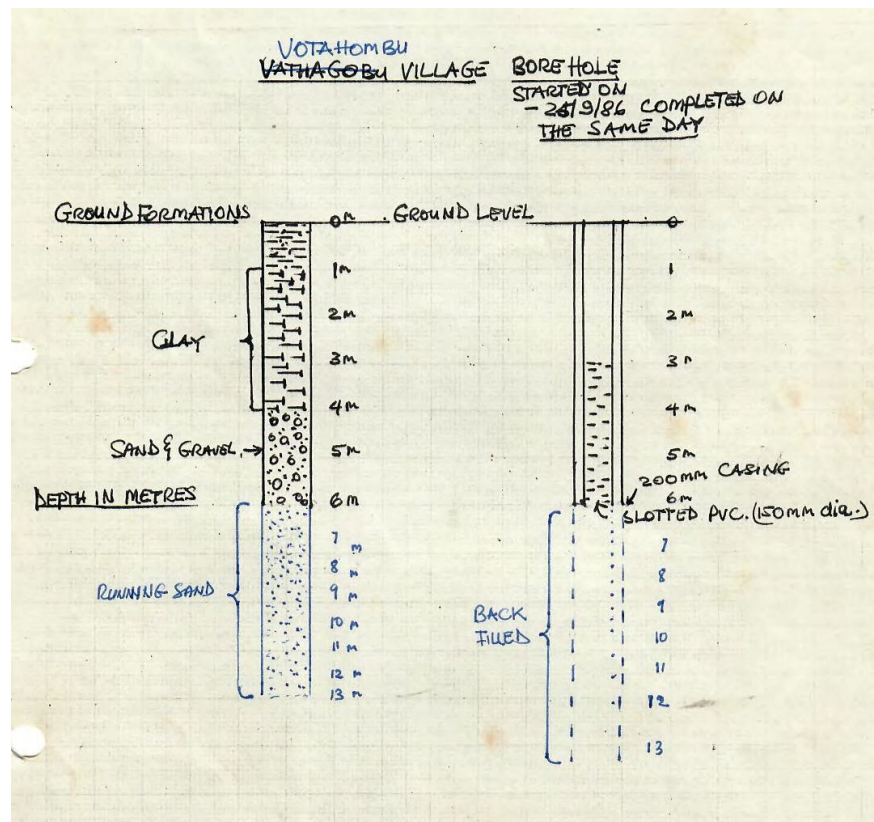




Figure 6-7 WRD BH log.

This BH was equipped with 150 mm PVC casing perforated over a 3 m interval and tested for one hour at 3 lps with drawdown stabilising after only 6 minutes, from 3.4 metres below ground level (mbgl) initial level to 5 mbgl.

6.2.4 Seismicity

The Island of Guadalcanal is located within a high seismic zone where the Pacific Rim of Fire and the Makira Trench are sources of active lithospheric movements that often triggers earthquake. Therefore, the WAC site is likely to be prone to geohazards. Furthermore, there are active volcanoes nearby including the currently dormant Savo volcano and the Kavachi submarine volcano several kilometre away to the western part of the country. These are a result of the Solomon Sea Plate is sub-ducted beneath the Pacific Plate. These seismic activities may not generate geological hazard to the site in particular, but the fact that Solomon Islands is located in such a high seismic zone, seismic hazards cannot be overruled. The largest earthquake to have hit near Guadalcanal for the period from January 1990 to July 2019 is 7.3 Mag with epicentre located in the Solomon Sea SSE of Honiara and

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occurred on 20 January 2003.⁵ It is important that the design and operation of the WAC considers the possible risk that such high magnitude earthquake may occur.

Earthquakes are also common in Solomon Islands with 66 earthquakes reported for the year 2017⁶; as such they are a near-weekly event. The active seismicity is directly linked to the location of Solomon Islands at the junction of several tectonic plates that results in constant seismic activity including earthquakes and uplifting of land and reef areas. Guadalcanal including the WAC site remain vulnerable to future earthquakes.

The most recent destructive earthquake in Solomon Islands was on the 6th of February 2013 with a magnitude 8 which struck the island of Santa Cruz in Temotu Province leading to a tsunami which generated a peak sea level change of 0.9 - 1 m. Similarly, a destructive earthquake and tsunami occurred in Western and Choiseul provinces on 2 April 2007. In the 1970's an earthquake affected the populations of Guadalcanal causing considerable destruction to villages on the weathered coast. A clear evidence of such devastating impacts of the earthquake is the mass migration of affected communities from the weather coast (southern) part of Guadalcanal to the northern parts. Some of the settlements who settled within reaches to the current WAC location include; Areatakiki, Namanu, New Koloula and Kapicha. They settled there after the original homes on the weather coast were completely destroyed by the earthquake.

⁵ <https://www.volcanodiscovery.com/earthquakes/quake-info/3105174/mag7quake-Jan-20-2003-Solomon-Islands.html>

⁶ Seismology Unit, Geology Department, MMERE.

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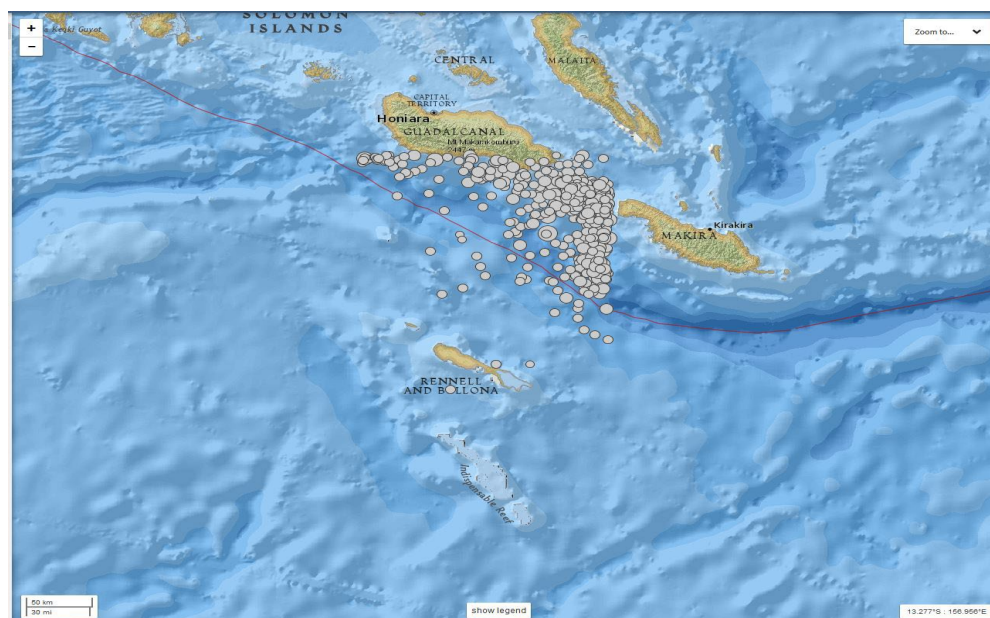


Figure 6-8 Seismic activities (epicentres of earthquake) within Guadalcanal from January 1990 - July 2019 (Source: MMERE).

6.2.5 Air Quality



The quality of air within the project area is typical of a rural setting in the Solomon Island. Air quality is generally excellent in the WAC site and throughout the PIA. There are no air quality non-attainment areas in the vicinity. Construction and operation activities of the WAC can be sources of dust pollution during wind events in the PIA.

During the WAC operation, it is expected that there will be issue of dust and this will be remarkable during dry weather conditions. However, spraying of surfaces with water will help control or minimize dust. There will be short term to medium term impacts on air quality due to operation of the WAC.

Based on the air quality monitoring of the WAC site by HEC during construction works(20th May, 2020), for PM2.5 and PM10 were collected at three sites within the WAC. WAC Site A is in WAC compound 5 meters away from Excavator operating; WAC Site B is in WAC compound near cement mixing and building construction works and WAC Site C is indoor working facility (see result below).

Table 6-4 Monitoring result for PM2.5 and PM10 at the WAC.

Monitoring Location Number	Monitoring Location Name	PM 2.5 in µg/m ³	PM 10 in µg/m ³	Remarks
----------------------------------	--------------------------------	-----------------------------------	----------------------------------	---------

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1. WAC Site A	57 L 0621053 8953041 E	4.3	5.1	In WAC compound, 5 meters away from Excavator operating.
2. WAC Site B	57 L 0621107 8952975 E	6.6	10.1	In WAC compound near cement mixing and building construction works.
3. WAC Site C	57 L 0621126 8952967 E	19.2	34.0	Indoor working facility (during the flooring construction of the facility) leading to lower air quality.



The result indicates the air quality at the WAC is within parameters able to be defined as suitable for healthy conditions for local communities. The readings were only for a day monitoring and does not depict the average air quality for the area over a period of time. Based on the general environment of the area, the readings are representational of the current air quality after the WAC was constructed. According to the WHO guideline, it stipulates that PM_{2.5} must not exceed 25 µg/m³ 24-hour mean and that PM₁₀ not exceed 50 µg/m³ 24-hour mean. With readings above it can be noted that both the PM_{2.5} and PM₁₀ are still within the acceptable standard.

6.2.6 *Natural Hazards and Climate Change*

Natural hazards are natural phenomenon that might have negative effects on humans and other animals, or the environment and the built infrastructure. Climate change has been widely accepted to have enhanced occurrence of natural hazards in small island developing states like Solomon Islands. The relevant natural hazards that will be discussed in this section are Cyclones, tsunami, volcanos, earthquake and flooding.

There have been 11 cyclones occurred within 200km from the project area in the last 60 years. Cyclone Ida in 1972 was the most severe cyclone causing an estimated loss of \$70 million dollars in export income. Cyclones are a major threat through strong winds and flooding. The WAC was prone to surface flooding due to presence of streams nearby and swampy environment of the area which is usually water-logged during heavy rainfalls. The WAC facilities are however constructed to withstand strong winds and all weather conditions reasonably expected during the 57 months that the camp will be operated. To withstand cyclones, various measures have been used in the construction of the buildings including:

- Buildings have been constructed on strong concrete foundations.
- Frames/poles have been anchored to the concrete foundation.

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- Roofing sheets have been firmly screwed and secured from being blown by wind.
- The roofing, walls and all kinds of joints have been waterproofed.
- There have been no wide roof overhangs
- The entire building frame has been tied across with guard wires.

To avoid flooding, several mitigation measures have been applied, including:

- Natural drains that carry storm water around the WAC have been dug and made deeper to facilitate quick water drainage
- Drainage system has been constructed inside the WAC to avoid water accumulation
- The accommodation units have been built at higher elevation than the other areas.

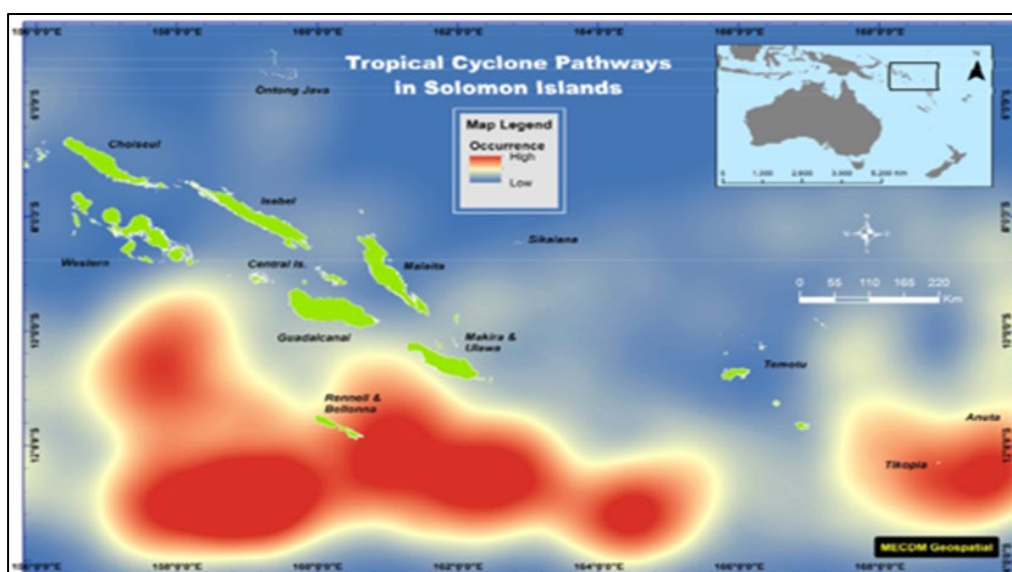




Figure 6-9 Cyclone route within 200km from the project area.

Table 6-5 Cyclones and seasons within 200km from the project area.

Season	Number of Cyclones	Names of Cyclones
1969/1970	1	ISA
1971/1972	2	CARLOTTA and IDA
1972/1973	1	MADGE
1981/1982	1	BERNIE
1985/1986	1	NAMU
1990/1991	1	JOY
1993/1994	1	REWA
1996/1997	1	CYRIL
2014/2015	1	RAQUEL

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2017/2018	1	LINDA	

Blong and Radford (1993) reported that both Savo Island and the Tinakula volcanoes have been experiencing eruptions in the past and there is possibility that such eruption may happen in the future. It was reported that the eruptions have caused deaths and destruction to the environment.

The World Bank's Natural Disaster Hotspots study⁷ identifies the Solomon Islands as the number one pacific nation and the 10th and 25th country in the world most exposed to three or more hazards and relatively high mortality risk for multiply hazards, respectively. Therefore, it is important that the establishment of the WAC take into consideration possible occurrence of those hazards in case an emergency situation may arise as a result of an occurrence of a natural hazard. The measures to address potential risks associated with natural hazards have been included within the SPERP, including as they are related to the WAC.

6.3 SOCIAL ENVIRONMENT



6.3.1 Introduction

This section presents the socio-economic baseline conditions in the area surrounding the location of the WAC. It is drawn primarily from a household survey undertaken specifically to guide this WAC impact assessment. It is noted that this household survey was undertaken specifically for the ESIA of WAC and it is separate from the project. It has also been supplemented by primary data provided by the Project Office in the form of the recently completed Socio-Economic Baseline report for the entire TRHDP (hereafter referred to as the primary social baseline survey), with information relevant to the WAC setting included to provide contextual information for Malango Ward, but also for the tribal areas of Malango, Bahomea and Bahomea Settlers across which the WAC is situated.

6.3.2 Malango Ward Social Setting

There is no official data available from the SIG National Statistics office from the 2019 census, with only provisional data at the Provincial level available, and of limited value in this context. The population of the Province of Guadalcanal (excluding Honiara) increased by 45.4% between the 2009 and 2019 census. Based on the growth rate of Guadalcanal from temporary data, it is possible that the population of

⁷ (Dilley et al., 2005)

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Malango Ward in 2019 amounted to around 15,300 people. The only detailed official sociodemographic data at the local level is from the 2009 national census. Where the population of Malango Ward which is part of the Basic Study Area (BSA) is around 10,532 people.



Language is a key indicator of cultural affiliation in the Solomon Islands. Just under 90% of the total households in 3 districts use Teha, the local indigenous language of the Malango region, as their main language. Most of the settlers in Bahomea and Malango districts speak Teha. Meanwhile, more than 50% of households in Bahomea district settlers tend to speak Tolu. Very few speak Solomon Islands' pigin as their main language at home.

Religion is an important base of social affiliation, and many community activities are organized around the church. In the BLHS region, the South Seas Evangelical Church (SSEC) is dominant. As many as 154 out of 200 households or about 77% are SSEC religious. In Bahomea and Malango the majority are SSEC religious, while in Settlers only 1 household are SSEC religious. In the Settlers District the majority are Roman Catholic.

As defined within the primary ESIA for the project (2017), there have been historic ethnic tensions centering on:

- The widespread and longstanding alienation of lands from the late 19th century onwards exacerbated by their subsequent continuous habitation and evident employment in significant articles of national infrastructure most notable of which is the capital city of Honiara
- The economic productivity of major investment projects emplaced on Guadalcanal and their historically perceived lack of lasting positive effect on either the peoples whose territory has been host or on the people of Guadalcanal as a whole. Chief amongst these have been SIPL (now GPPOL) and the Gold Ridge mine.
- Invasion of cultural and social space of the Guadalcanal people by settlers from other islands and provinces. This has been recognised as a form of structural violence taking the form of disregard and disrespect for Guadalcanal cultural forms and norms and actual violence perpetrated on indigenous Guadalcanal persons in the shape of murder and physical assaults.

These grievances took most obvious shape in the initiation and evolution of the 'ethnic tension' of 1998 to 2003 characterised by widespread violence and militancy across Guadalcanal and other provinces and the eventual functional collapse of

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major state institutions including those mandated with ensuring law and order⁸. This previous ethnic tension has been addressed and evaluated in depth as part of the previous ESIA and the project recognises the sensitivities within the local communities through these historical tensions and seeks to address them through aspects such as the Influx Management Plan and Human Resources and Labor Management Plan.

6.3.3 Household Survey Methodology

The team undertook household survey within the PIA [see Figure 2-1] in order to obtain and understand the socio-economic baseline of the WAC area of influence. The household survey is part of the Social Impact Assessment which forms an important component of the WAC Impact Assessment. The stakeholder engagements were conducted in accordance with the P3 Stakeholder Engagement and Communications Plan of the Project.

Six enumerators and three HEC staff were engaged to support the team in conducting the survey from 21st- 28th April, 2021.



The objectives for undertaking the household survey include the followings;

- To identify, describe and analyse the socio-economic baseline of the affected area.
- To obtain people's perception regarding the construction of WAC at the site.
- Predict the potential impacts (positive and negative) of the WAC during construction and operational phases on the socio-economic environment of the affected communities and notably the individuals.

The study area falls within the Malango and Bahomea Wards, Central Guadalcanal Constituency, Guadalcanal Province. The main villages for the socio-economic baseline study are Chichinge, Bethany, Mataruka, Namoraoni, Vera'ande, Keresapo and Blackpost. See Figure 2-1 map of the study area and the communities surveyed. A total of 66 households within the study area are being surveyed. Communities located furthest (> 3 km radius) from the WAC site, a sample of 20% of the households were selected for the HHS. While a sample of 30% of the total households were selected for the HHS at communities within 1km radius of the WAC location.

The HH Survey involved surveying of random households and is targeting the interview of household heads. A total of 361 individuals were interviewed, with 197 males (55%) and 164 females (45%). From the survey, it was found that 71% of

⁸ [Technical Assistance Layout with Instructions \(adb.org\)](#)

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respondents are household heads, while 29% are not. The household heads are mostly husbands and fathers. Gender-wise, 64% of the household heads are male and 36% female.





Mataruka HHS 2021.04.21



Chichinge 2021.04.22

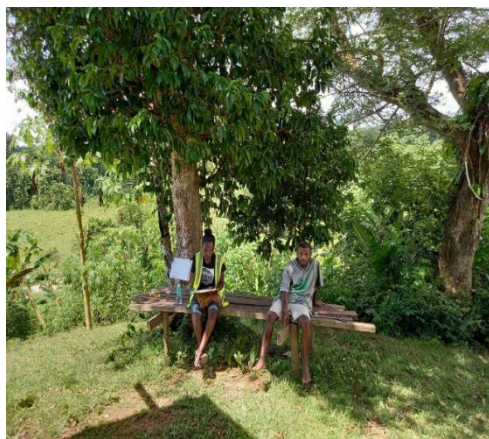


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Namoraoni 2021.04.23





Vera'ande 2021.04.24



Grass Hill 2021.04.27



Black post 2021.04.28

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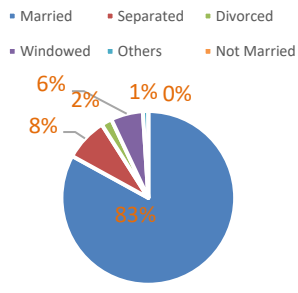
6.3.4 Marital Status and Age of Household Head (HH)

The table below shows 83% of the household heads are married, 8% are separated, 6% are widowed, 2% divorced and 2% with unknown marital status. From a gender perspective, from the primary baseline data report, 62% of the nominated household heads were male, and 38% were female, with the males on average two years older than females in the role of household head. It is noted that most of the WAC area of influence is a subset of the main Project's area of influence. As such, it is expected that those are located more than 3km from the WAC site and those are closer would experience similar impacts from labour influx. Thus, there might be no specific implications for the workers' camp compared to the whole Project.

Table 6-6 Marital status of household heads.

Marital Status	Responses	Rate
Not Married	0	0%
Married	55	83%
Separated	5	8%
Divorced	1	2%
Widowed	4	6%
Others	1	1%
Total	66	100%



Marital Status of Household heads



Information gathered during the primary survey is shown in the below table and provides overall marital status for individuals over the age of 15, as opposed to just the status of the household head. This is considered a useful indicator of broader social structures and indicates that 58.45% of people over the age of 15 were married across Bahomea, Malango and the Settler areas. There was a distinct difference when disaggregated by gender, with 43% of males recorded as single, against 31% of females. This is shown in the below figures. Higher numbers of unmarried males can be an early indicator of influx to the area, however, cannot be assumed as such unless data is captured relating to the original hometowns of these individuals.

Table 6-7 Marital Status (from Primary Social Baseline Report)

Classification		District			Persons Aged 15 and Over	
		Bahomea	Malango	Settlers	Total	% of total
Not Married	number	173	68	35	276	37.60%

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	% of row	62.68%	24.64%	12.68%		
Married	number	284	102	43	429	58.45%
	% of row	66.20%	23.78%	10.02%		
Widowed	number	9	5	6	20	2.72%
	% of row	45.00%	25.00%	30.00%		
Divorced or Separated	number	6	1	0	7	0.95%
	% of row	85.71%	14.29%	0.00%		
Other	number	2	0	0	2	0.27%
	% of row	100.00%	0.00%	0.00%		
Totals	number	474	176	84	734	100.00%
	% of row	64.58%	23.98%	11.44%	100.00%	

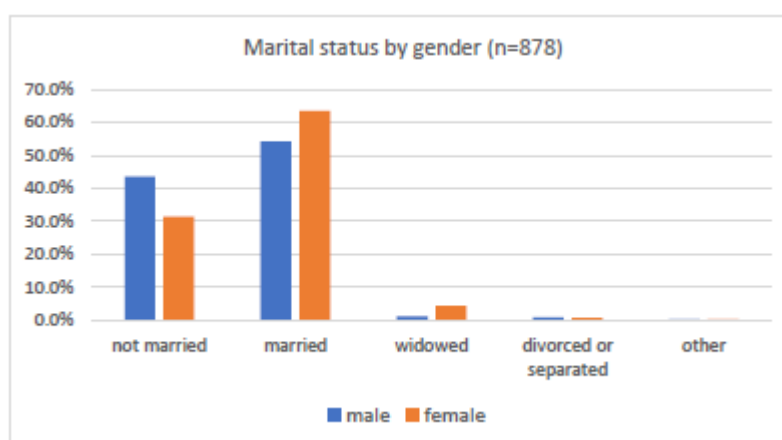




Figure 6-10 Marital Status by Gender (from Primary Social Baseline)

6.3.5 Age Structure

The table below shows the age category of the surveyed population and distribution by gender. The survey revealed the population of young people in the area is higher. There are less older people in the area than younger people (<64 years). The findings indicate more male than female in the study area.

Table 6-8 Age group of the study area.

Age Group	<4 yrs old	5- 18 yrs old	19 - 64 yrs old	>65 yrs old	Total
Male	34	55	107	3	199

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female	27	45	87	3	162
Total	61	100	194	6	361
Percentage	17%	28%	54%	2%	100%

6.3.6 Disability

In terms of disability, only 5% of the surveyed household have members of their family who are considered as people with special needs, and all of them are male.

From the primary social baseline survey across Malango Ward survey, there were 71 households with a disability or serious illness recorded, with no difference between males and females. 34.6% of the surveyed households had at least one member with such a health problem or disability, and this incidence was quite consistent across the districts (**Table 6-6**). The listed health problems and disabilities were categorised and summarised as per **Table 6-7**. Chronic illnesses and physical disabilities are the most common.



Table 6-9 Households Reporting Members with Disabilities

Classification	District			Total
	Bahomea	Malango	Settler	
Households with disabled member/s	50	14	7	71
% of households with disabled person	37,30%	30,40%	28,00%	34,60%

The primary type of disability in 3 districts in the study area are sensory (hearing, seeing), mental/learning, physical, chronic illness, malaria and others; any person with these disabilities was classified as having special needs during the survey. Chronic illness mostly attacks households in Bahomea and Malango. 25 out of 47 households in Bahomea and 9 out of 13 households in Malango suffer from chronic illness. As many as 4 out of 6 households in Settler suffer from a physical disability.

Table 6-10 Types of Disability by District

District	Type of disability						Total	Disability rate**
	Sensory (hearing, seeing)	Mental/ learning	Physical	Chronic illness	Malaria	Other		
Bahomea	8	1	22	25	3	7	47	6.30%
Malango	1	0	6	9	0	3	13	5.10%
Bahomea settler	1	0	4	1	0	0	6	4.40%
Total	10	1	32	35	3	10	66	

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6.3.7 Family Structure

As shown in the table below, 80% of the households are nuclear family and 20% are made up of extended families.

Table 6-11 Family type of study area.

Family structure	Response	Rate
Extended	13	20%
Nuclear	53	80%
Total	66	100%

For households with extended families shown in the table below, 14% have two families who are married and are living in one house with parents, 5% have three families who are married and living together with parents in the same house while 1% account for four or more of families who are married dwell in the same house with their parents.

Table 6-12 Family structure of households.

Families/HH	Responses	Rate
One /Single	53	80%
Two	9	14%
Three	3	5%
Four or more	1	1%
Total	66	100%

6.3.8 Employment

53% of the household heads are unemployed while 47% are regularly working for wages and salary. The main employment sector which accounts for 15% of employment is the public service or the government while 14% are self-employed or own private/small businesses.

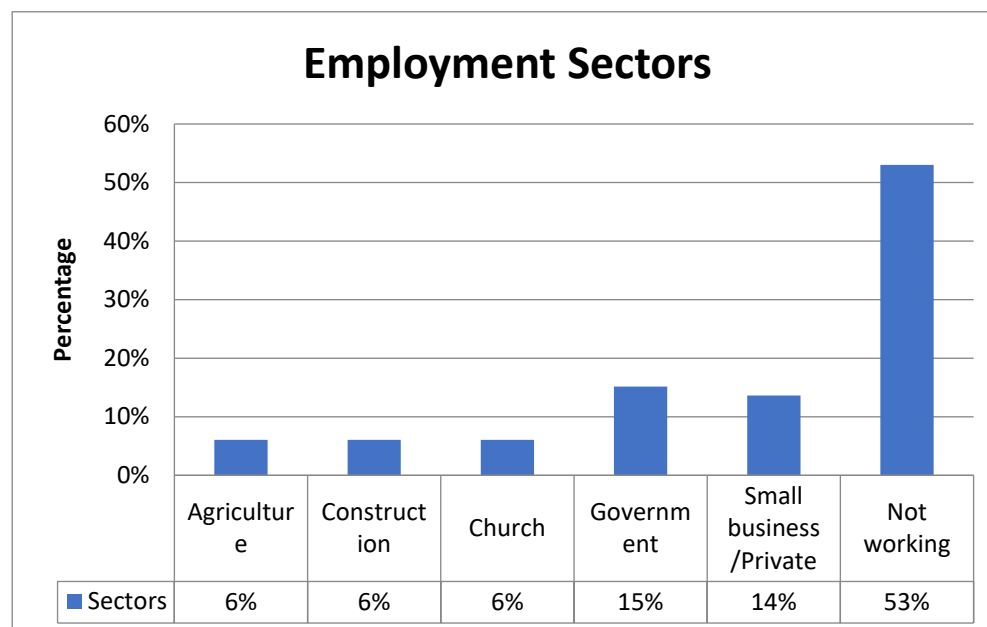


Figure 6-11 Employment sectors for households.

The primary social baseline survey looked comprehensively at the employment and income generating activities of those not pursuing education. The majority of those not studying are engaged in some kind of farming, or, in the case of females, doing unpaid work at home. Females also appear to lack employment opportunities or access to paid employment as indicated by low numbers working for an employer or government, or in self-employment.

Table 6-13 Main Activity for Those Aged 15 and Over

Classification	Number aged 15 and over			% of males	% of females	% of row total	Missing data
	males	females	Total				
Produce food/goods for sale or consumption	109	160	269	24.5	38.8	31.4	1
Student/studying	104	88	192	23.4	21.3	22.4	0
Home-based unpaid work	47	111	158	10.6	26.9	18.4	1
Work for a person/company	86	14	100	22.5	3.4	11.7	
Self employed	52	13	65	15.0	3.1	7.6	1
Work for Government	15	10	25	5.6	2.4	2.9	
Unable to work	12	12	24	5.4	2.9	2.8	
Other unpaid work	14	3	17	3.8	0.7	2.0	
Not working but looking for work	6	1	7	1.6	0.2	0.8	
Total	445	412	857	100	100	100	3



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Figure 6-12 below can be seen that 49% of the males and 80% of the females said their main occupations were “farmer” or a “farmer/housewife”, etc. Only 33 females are in non-primary production occupations or working as homemakers. Those in professions are mostly schoolteachers.

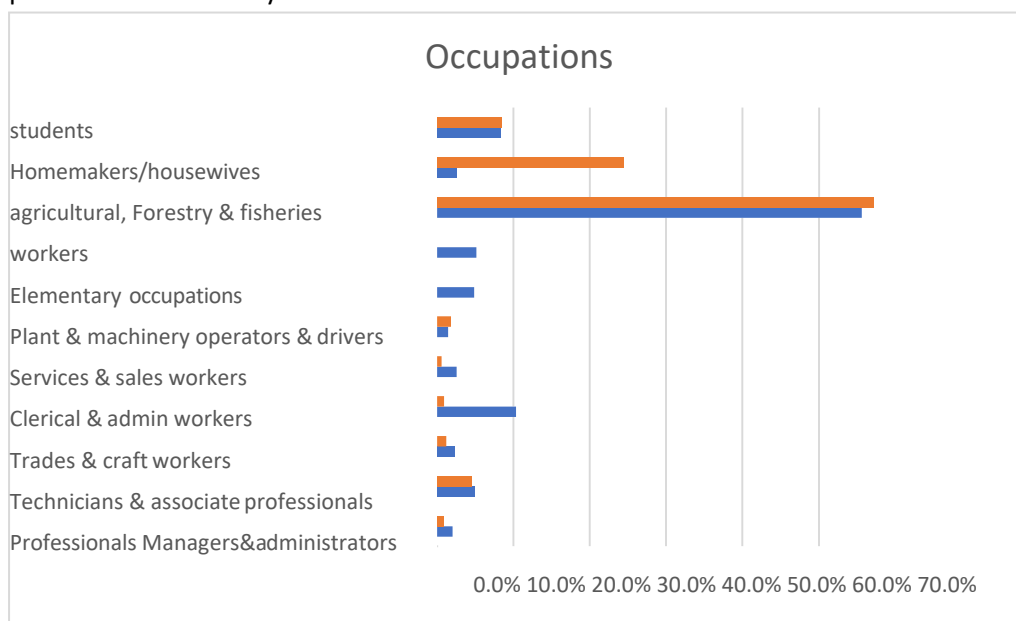


Figure 6-12 Occupations of Those Aged 15 and Over



9% of the participants in the interview had not worked in that occupation in the previous 7 days. This is likely to be a much more accurate indicator of unemployment in the area than the data collected specific for the WAC, which focused primarily on data from the household heads. The reasons for not working in that occupation are listed below.

Table 6-14 Reasons for Not Working in The Past 7 Days

Classification	Responses	
	N	Percent
No work available	12	21.4%
Incapacitated (sick or injured)	13	23.2%
Holiday	2	3.6%
Family or community obligations	6	10.7%
Other	23	41.1%
Total	56	100.0%

6.3.9 Education

From the household survey, 57% of female and 43% of male children are regularly attending school as depicted in the table below. This is lower compared with 2009

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census which shows the Solomon Island Literacy rate is reasonably high with 89% of men and 79% of women aged 15 and older are literate⁹. The nearest schools the school children attended are Betivatu, Mataruka, Rate and Chichinge/Prilings.

Table 6-15 School children (age 5-18 years).

Gender	School Children Age 5-18 years	Rate
Male	61	57%
Female	46	43%
Total	107	100%

Within the primary baseline survey, for each household member aged 15 and over, information was gathered on the highest level of education they had achieved. Just over a third had completed primary school, and 41% have completed secondary school (**Table 6-17**). 69 survey participants (8.8%) had no schooling, the majority of whom remained illiterate. Several participants in the individual interviews and the focus groups mentioned youth “dropouts” and associated issues of employment and behaviour. 59 young people aged between 15 and 25 were recorded as having not progressed past primary school: 43 in Bahomea, 2 in Malango, and 14 in the Settler communities. The average time it takes to get to the nearest secondary school is 43 minutes: students in the surveyed Bahomea households travel an average of 50 minutes, in Malango 24 minutes, and in the Settler communities, 36 minutes.

Table 6-16 Highest Level of Education Achieved by Those Aged 15 and Over by District

Highest level		Bahomea	Malango	Bahomea Settler	Total survey participants
No schooling- illiterate	number	30	11	8	49
	% of row	61.22%	22.45%	16.33%	6.66%
No schooling – literate	number	13	3	0	16
	% of row	81.25%	18.75%	0.00%	2.17%
Completed primary school only	number	169	40	41	250
	% of row	67.60%	16.00%	16.40%	33.97%
Completed secondary/high school	number	189	79	28	296
	% of row	63.85%	26.69%	9.46%	40.22%

⁹ Asia South Pacific Association for Basic and Adult Education. 2011. Education Experience Assessment and Literacy Survey: Renbel and Isabel Provinces, Solomon Islands. Canberra; and Asia South Pacific Association for Basic and Adult Education. 2007. Solomon Islands Summary Report: Education Experience Survey. Canberra.

Vocational/trade school	number	28	11	4	43
	% of row	65.12%	25.58%	9.30%	5.84%
College/University	number	46	33	3	82
	% of row	56.10%	40.24%	3.66%	11.14%
Total persons	number	475	177	84	736

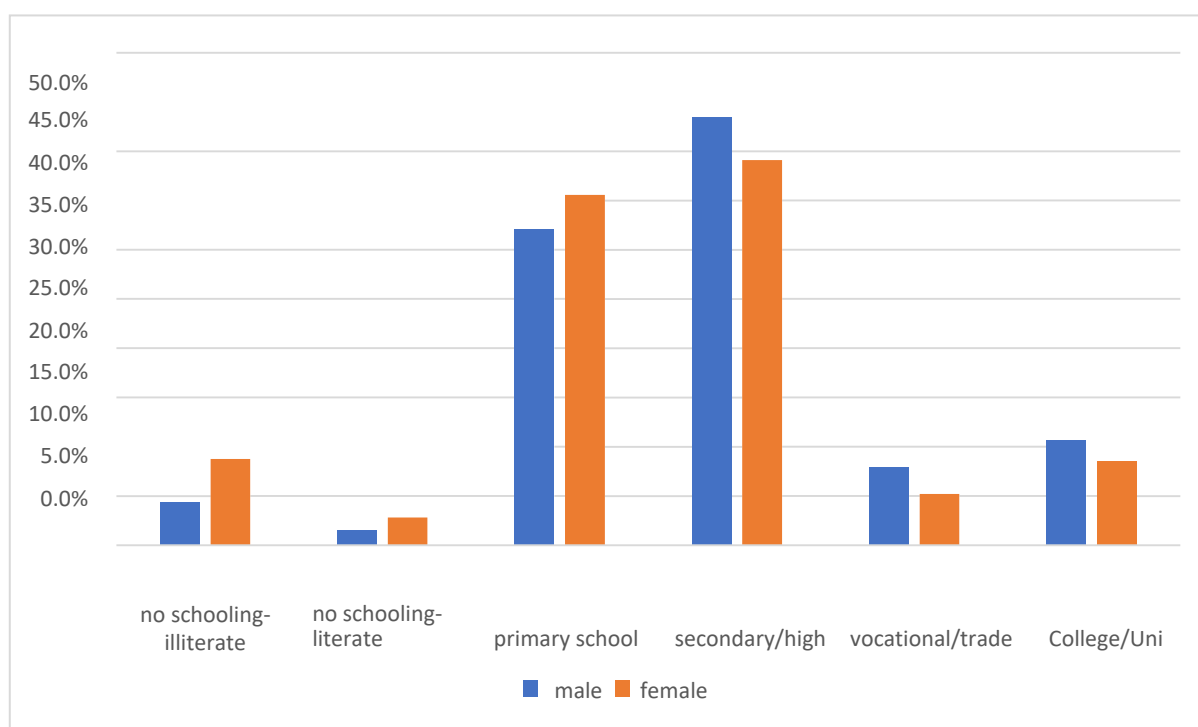




Figure 6-13 Educational Achievement by Gender

Based on **Figure 6-13**, males are more likely to have attended and completed high school and completed tertiary education than females. Earlier social impact studies attribute this disparity to inequitable access brought about by the high cost of school fees for local households. From the household survey, 57% of female and 43% of male children are regularly attending school as depicted in the table below. The nearest schools the school children attended are Betivatu, Mataruka, Rate and Chichinge/Prilings.

Table 6-17 School children (age 5-18 years).

Gender	School Children Age 5-18 years	Rate
Male	61	57%
Female	46	43%
Total	107	100%

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6.3.10 House Construction Materials



Of the surveyed households, 48% are permanent buildings, 44% are semi-permanent and 8% are of traditional/thatched construction material (see Table below). Permanent buildings are made of corrugated iron sheet, milled timber and concrete. The semi-permanent buildings are similar to permanent but are partly traditional in that their roofing, walling, flooring or post are made of building material directly extracted from the forest which are subject to any processing prior to being used in construction.

Table 6-18 Household construction materials.

House Types	Household Construction Materials	Rate
Permanent	32	48%
Semi- Permanent	29	44%
traditional/Thatch	5	8%
Total	66	100%

6.3.11 Water Supply

For the study area, most household depend on rivers and streams as source of water. This accounts for 26% of the surveyed households. 21% of the households are using boreholes as water source, 17% trap rainwater and store water on tanks, 15% rely on Water Wells, 12% community water supply, and 10% private water supply (see Figure below).

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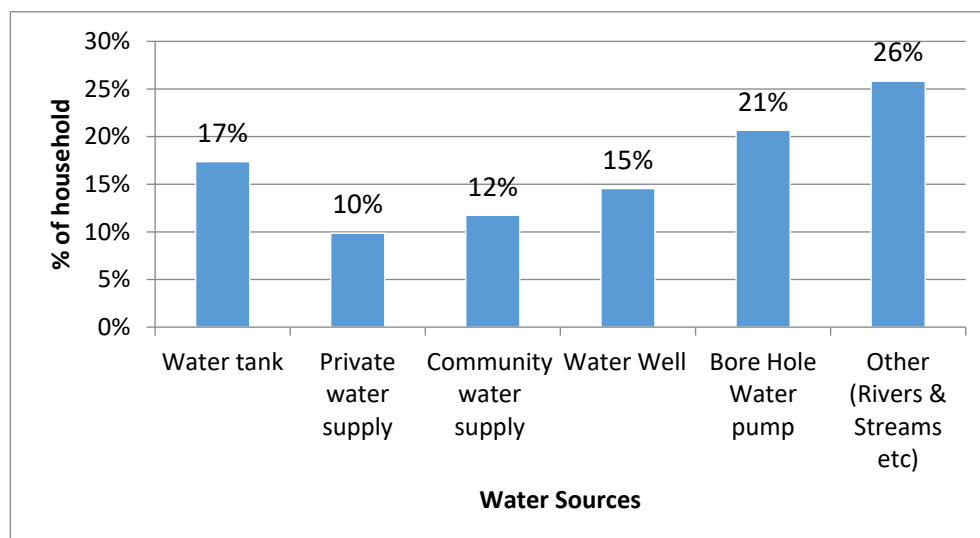




Figure 6-14 Household water sources.

It is noted that the community benefit sharing projects (CBSP), 18 community-based water packages have been identified in total and will be covered under the CBSP with intended installation start and completion dates as described in Table 5.1 of the WSRP.

6.3.12 Electricity

Only 3% of the surveyed households have access to the National Electricity Grid. The rest depend on other energy sources for their household energy needs and uses. As shown in the Figure below, the main source of energy for the study area is solar. This accounts for 51% of the households. 28% use generator as energy source, 12% use Kerosene/Hurricane Lamp and the remaining 9% use other energy sources.

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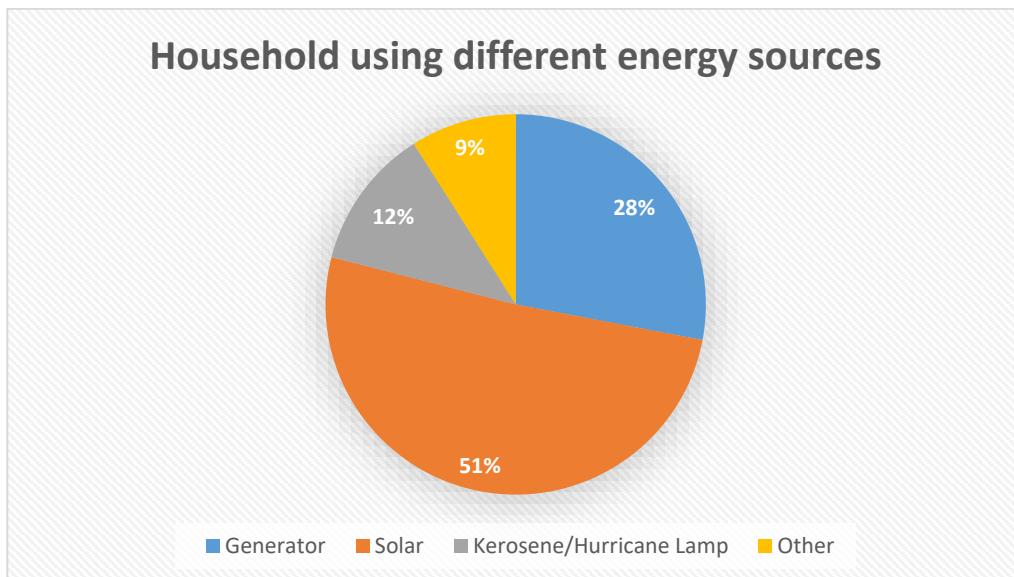


Figure 6-15 Household energy source.

6.3.13 Sanitation

Most people in the study area use pour water which accounts for Twenty-Nine percent (29%) of the surveyed households and twenty four percent (24%) used flush toilet. Eighteen percent (18%) use bush and rivers and three percent used other means for sanitation. Households without proper toilets are using pits, bush/streams/rivers and other means of toilets. While those with proper toilets have flush toilets and bucket pour water toilets (ie flushing through manual pouring of water into the cistern) represent the remainder (**Figure 6-16**).

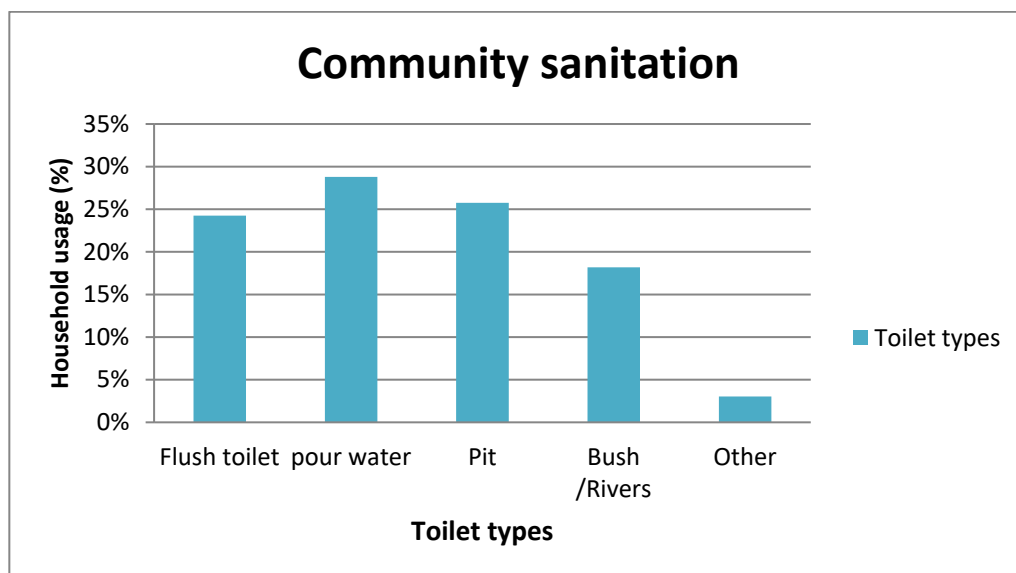


Figure 6-16 Sanitation type of households.

6.3.14 Health Facilities

There is one Rural Health Center within the study area. This is the Chichinge Rural Health Center which is served by only one Registered Nurse and its operational status is highly variable and dependent upon resourcing and local budgets. The health center is serving all the seven project affected communities which are covered under this household survey study. The project workers shall use the medical facility that will be established at the Office site. This service is provided in order to avoid placing an additional burden (i.e., the Project workforce) on the local health system which is already under pressure. The clinic will not be open to the general public. It will be a six-bed medical facility staffed by a team of at least two registered nurses (certified by MHMS). The facility will be equipped to provide basic first aid and primary care; in the event of an emergency or severe injury, patients will be transported to the National Referral Hospital (NRH) by on-site ambulance. The facility will be supervised by a General Practitioner, Dr Churchill Pedical, who will visit at least weekly for scheduled appointments and to oversee the operations of the clinic. Dr Pedical has an established general practice in Honiara. Once it is constructed, the health clinic will be inspected by MHMS (Infrastructure Division) before becoming operational. Further details on the clinic are available in the Project Workers' Health and Safety Plan (WHSP).



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Figure 6-17 Rural Health Centre at Chichinge.

6.3.15 Residency and Land Ownership

Seventy-one (71%) of the surveyed households do not own the land they are living in. Twenty-nine (29%) however own the land they are dwelling in.

From the table below it can be noted that 53% of the household are sitting on registered land (which means the land are being purchased from original landowners). Thirty-five percent (35%) owned the land with other people and only twelve percent (12%) are traditional or customary landowners.

Table 6-19 Landownership type.

Ownership status	Responses	Rate
Registered	35	53%
Traditional/Customary	8	12%
Owned with other people	23	35%
Total	66	100%

The survey also depicts that eighty-two (82%) of the households have been living in the land for 10-50 years, 17% have been living in the land for more than a century and only 2% less than 5 years (see Table below).



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Table 6-20 Residency of the area.

Length of time in the area	Responses	Rate
Less than 5 years	1	2%
10-50 years	54	82%
More than 100 years	11	17%
Total	66	100%

6.3.16 Income

Apart from the household heads, there are some members within the household who work regularly for cash income. These working members of the household worked in various sectors as shown in the Table below. 11% earned their cash income by working as teachers or other jobs in the education sector, 12% earned their cash income by working in the government or public sector, 6% from working in trade store or small businesses, 11% earned their regular cash income by working as farmers and sold their produces at the Tenaru market or the main market in Honiara, 6% earned their cash income by working as daily labours for other people, 6% earned their cash income by operating and working in transport services like bus and taxi, while 11% earned their regular cash income from other unknown means. The average monthly wage or salary of the entire household is \$SBD 1,500.00.

Table 6-21 Formal income source.

Sectors	Households	Percentage
Education	7	11%
Health	0	0%
Government	8	12%
Trade (small Business)	4	6%
Tourism	0	0%
Construction	0	0%
Agriculture	7	11%
Daily labour	4	6%
Logging	0	0%
Transport	4	6%
Others	7	11%
None	25	38%
Total	66	100%

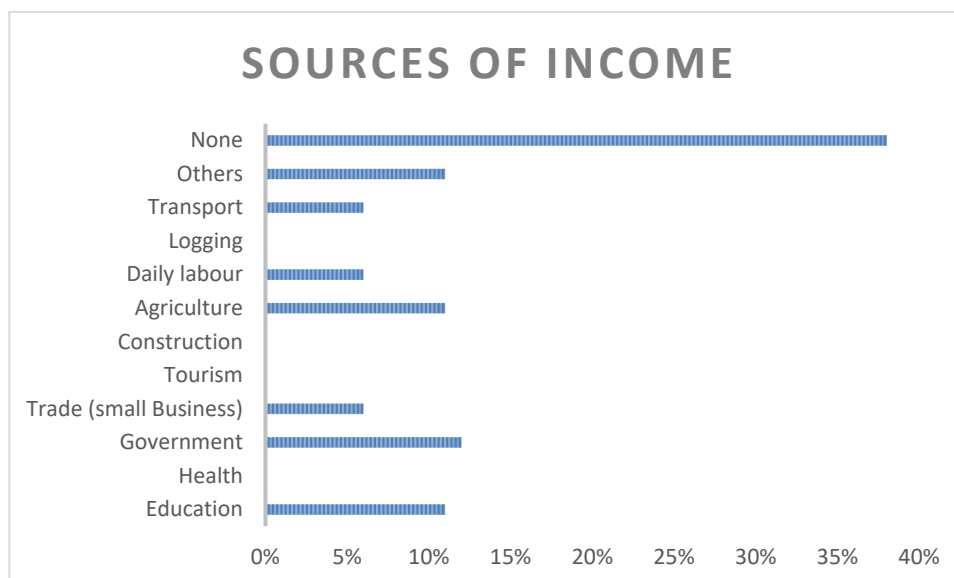




Figure 6-18 Source of Income

Other sources of income are related to non-wage/labour. The monthly average non-wage/labour income for the entire households surveyed is \$16,562.20. All households have access to producing non-timber forest products, timber/wood forest product, poultry, livestock, other crops, copra, cocoa, fruits, root crops and vegetables. The survey shows that cocoa is the main source of income which accounts for 32%.

Table 6-22 Non-wage income source.

Classification	Vegetables	Root Crops	Fruits	Cocoa	Copra	Other Crops	Livestock	Poultry	Timber/ Woodforest product	Non - Timber forest Products	Total
Responses	\$ 26,500	\$ 21,000	\$ 29,400	\$ 62,125	\$ 20,000	\$ -	\$ 13,000	\$ 10,100	\$ 8,000	\$ 6,450	\$ 196,575
Percentage	13%	11%	15%	32%	10%	0%	7%	5%	4%	3%	100%

The primary social baseline survey also undertook an in-depth examination of sources and levels of income, with the most common source of income at this time is the cultivation and sale of root crops and vegetables (67% of households), followed by income from royalties (44%), from trading and retailing (44%), and from the sale of other crops (42%). 44% of households said that in the past 12 months they received royalties from logging and/or mining, with similar proportions of male and female head of the household earning such royalties. Male head of the household is more likely than female head of the household to be earning income from production of other crops, timber, and livestock, while female head of the household are more likely to be earning from retail trade and/or a small shop.

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The average annual income from all listed sources was approximately SBD 39,086 per annum. The median income is approximately SBD 25,900. This does not take account of the value of the household's production that is consumed by the household itself (e.g., food, fuel, building materials). Production of vegetables and root crops for sale generates the most income for the communities, followed by private sector wages and salaries, and then royalties

6.3.17 Transport and Travel

The survey shows that the main mode of transport for communities in the project area in order to access key social services like schools, clinics/hospital and markets include the followings; private cars, public buses, taxi and walk. People in the study area regularly make trips to and from their communities. The table below indicates that the main purpose of regular trips made by household members in the study area is work/employment, and this accounts for 35%. 24% are purposely to access health care, 21% to access markets and 18% are purposely to access schools.

Table 6-23 Accessibility to key social services.

(Purpose of travelling:	Responses	rates
work/Employment;	23	35%
Education;	12	18%
Health Care;	16	24%
Buying/Selling goods;	14	21%
Others	1	2%
Total	66	100%

A 48-hour traffic survey was conducted on 31st August and 1st September 2021. The findings showed that

- The busiest destination was towards Blackpost (average of 11 vehicles per hour), followed by Marava with an average of 8 vehicles per hour and an average 6 vehicles per hour for Mataruka and WAC site (refer to Table 6-21).
- Traffic peak hours were observed from 07:00 - 08:00 in the morning and from 15:00 – 18:00 in the evening, with frequent user of the road being Class II and Class I vehicles¹⁰ (refer to Figure 6-18).

¹⁰ Class I. Two-wheeled or three-wheeled motor vehicles (including such vehicles with a trailer, fore car or side car attached).

Class II. Four-wheeled motor vehicles, including taxis which are not commercial vehicles (including vehicles towing a trailer or caravan).



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Table 6-24 Total number of vehicles per route per hour

Hour	Destination			Grand Total
	To Mataruka/Camp	To Marava	To Blackpost	
0700 - 0800	10	21	67	101
0800 - 0900	13	16	17	56
0900 - 1000	12	16	15	48
1000 - 1100	9	10	14	34
1100 - 1200	10	10	15	35
1200 - 1300	5	11	13	29
1300 - 1400	9	10	9	30
1400 - 1500	10	15	8	33
1500 - 1600	16	18	15	49
1600 - 1700	11	13	20	45
1700 - 1800	19	21	25	71
1800 - 1900	12	12	9	33
1900 - 2000	11	10	8	29
2000 - 2100	1	1	3	5
2100 - 2200	2	5	3	10
2200 - 2300	1	3	2	6
2300 - 0000	0	0	2	2
0000 - 0100	1	2	0	3
0100 - 0200	1	2	2	5
0200 - 0300	0	0	0	0
0300 - 0400	0	3	1	4
0400 - 0500	1	0	4	5
0500 - 0600	0	3	5	8
0600 - 0700	3	1	7	11
Average	6.54	8.46	11.00	27.17

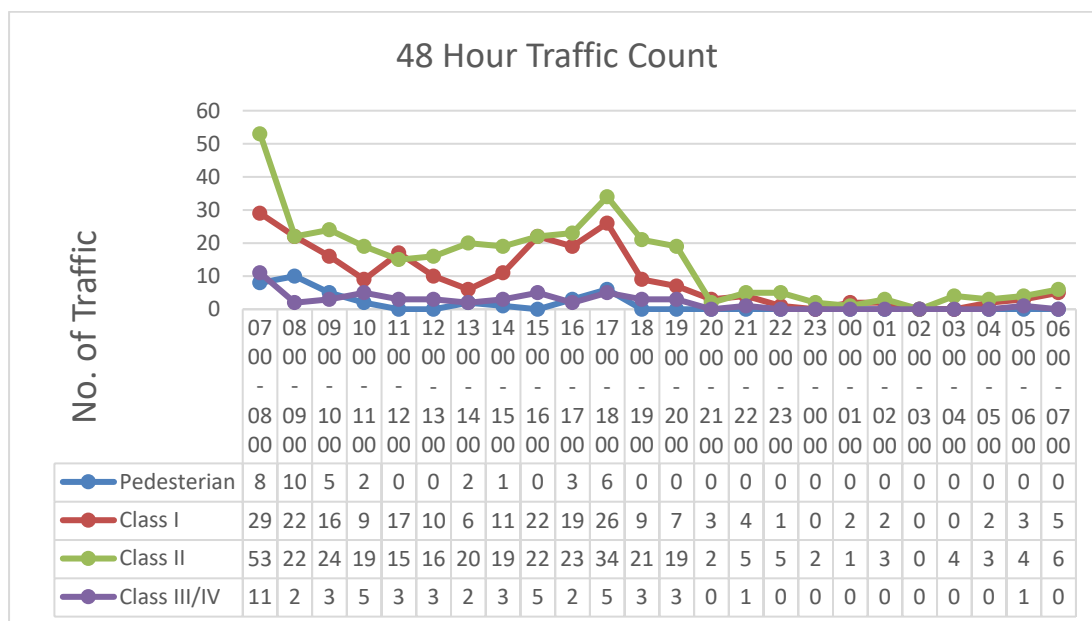


Figure 6-19 48 Hour traffic count at the road junction towards WAC, Marava and Blackpost



6.3.18 Challenges, Perceptions and Vulnerability Factors

Most respondents during the household survey have indicated that they have experienced changes in their household income since knowledge of the project became widely available from 2015 onwards. The challenges they have been facing are real and these have affected their level of income. The Table below indicate that changes in household demand is the main challenge affecting their income earnings. This accounts for 23% of responses. COVID-19 was also indicated as a factor affecting the income earnings of 12% of people in the project affected area.

Table 6-25 Socio-economic challenges affecting household income earnings.

Challenges	Responses	Rate
COVID 19	8	12%
Low Cashflow	9	14%
Household demand	15	23%
Unemployment	10	15%
Poor Management	7	11%
Whether /loss of crops	5	8%
Others	12	18%
Total	66	100%

People in the communities value their relationship with each other within their household, their custom, religion and the wellbeing of their families. Most households surveyed are found to be worried about their employment and this

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accounts for 55% of the respondents. However, 45% of the households are not worried about their current employment.

In terms of healthcare, the survey indicated that communities in the project area do have better access to adequate healthcare services. There is 62% of social acceptance for those who are satisfied that the current healthcare services accessed by the communities are sufficient.

With respect to income poverty, the World Bank International Poverty Line (IPL) for the Solomon Islands is USD1.90 per day per capita (i.e., SBD 15.16). Of the households in the baseline survey, 94 (46.1 %) fall below the IPL of USD 1.90 per capita per day (**Table 6-27**). Median daily per capita incomes fall below the IPL in Malango district and in the Settler communities. In effect, income poverty is almost the norm for people of the Project area.

Table 6-27 Estimated per Capita Income per Day (USD) and Incidence of Poverty



District	Households	Minimum	Maximum	Sum	Mean	Median	% of HH below IPL
Bahomea	133	0.06	30.16	445.14	3.35	2.23	42.1
Malango	46	0.22	12.73	122.85	2.67	1.9	50
Settler	25	0.33	5.94	46.92	1.88	1.65	60
Total	204	0.06	30.16	614.91	2.63	1.9	46.1

6.3.19 Gender and Social Inclusion

The Solomon Islanders comprise diverse cultures, languages, and customs, with 94.5% being Melanesian, 3% Polynesian, and 1.2% Micronesian. Guadalcanal Province on which the Tina Hydro Project is situated in, practices a matrilineal heritage in the Melanesian society.

In the past, women in the matrilineal societies of Solomon Islands held a prominent role with respect to land tenure. Matrilineal protocols encouraged and promoted women as equal partners in decision-making in traditional society. Women's inherited role in land succession has traditionally only been acknowledged implicitly.



Major changes in attitudes and policies with respect to land tenure, access to land and land management have resulted men taking over the role of decision makers in land matters. Men have become trustees, signatories and beneficiaries of royalty payments without proper consultation with women. Gender imbalances between men and women are embedded in Solomon Islands culture, history, and contemporary socio-economic conditions. Women's power to make decisions has been undermined by their non-participation in forums and processes at the family, tribal, community and national levels.

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Gender differences become more pronounced when we examine the paid versus unpaid status of employment. Of those employed overall, women were only half as likely as men to be in paid work (26% of women and 51% of men). The unpaid nature of women's work is especially striking in rural areas where 81% of women were engaged in unpaid subsistence work compared to men. Among the top 10 occupations held by women and men, subsistence crop farmers are the dominant category for both sexes. Other than this category, women are much more likely to be in sales and handicraft-related occupations, whereas men are more likely to be in extraction and building trades, protective services, or drivers and mobile operators. Many women sell fruit and vegetables, betel nut, tobacco, and fish at local markets or improvised stalls along roadsides or wharves. These activities enable women to learn business skills and lead to take on more entrepreneurial activities.

It is in this context that the WAC's Socio-economic impacts will be discussed. Since employment of women has been identified as a major objective for the TRHDP (with objectives being set to ensure that up to 30% of the workforce are female) and various plans are being developed to ensure that target is reached, this ESIA will address mainly, the social and economic aspects of women in relation to the WAC site. This focus is due to the fact that the WAC provides opportunities to maximise participation of women within the project workforce.

The biggest external risk to the WAC management/operation as well as to the local community is the potential for influx of people due to business opportunities such as establishment of canteens and market stalls, hence, the establishment of informal settlements or squatters in the area. Other risks/impacts from the WAC construction and operation to the community would include noise, odour, dust, pollution of soil or water, traffic, as well as risk of prostitution, health and safety, local inflation, cultural clashes (refer to IMP and CHDVMP for further details). If not managed well this can have negative impacts especially for women and girls but also for children, youths, and people with special needs. It is noted that a GAP has been developed for the main project's operation and therefore, it will be applicable to be implemented for this sub-project (the establishment and operation of the WAC).

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7 IMPACT ASSESSMENT

7.1 OVERVIEW



An impact assessment was conducted to identify the project activities that might present a risk or impact to environmental and social receptors arising from the pre-construction, construction, and operations phase of the WAC. A range of mitigation measures and management approaches were then identified to achieve a reduction in overall residual impact level. The objective in implementing these measures and approaches is to reduce the level of residual impact to moderate or minor.

To ensure general consistency of approach in identifying and assigning impact significance, the following steps were undertaken:

- Identification of all activities and sub-activities associated with pre-construction, construction, and operation of the WAC
- Assess the likely impact of the activity on the environment, safety and security of workers and the public, and the socio-cultural aspects of the WAC setting
- Define receptor sensitivity
- Determine the possible magnitude of the impact
- Assess the likelihood of each impact occurring in the absence of any controls (i.e., the unmitigated impact)
- Determine the significance of the impacts accounting both receptor sensitivity and impact magnitude
- Document current and future management, mitigation and monitoring measures that need to be implemented to bring the level of risk down to an acceptable level, mapping these measures to the existing management plans in place for the main Project
- Re-evaluate to determine the residual risks assuming the application of the recommended management, mitigation and monitoring measures.

The general impact assessment methodology utilised is described further within Section 7.2 below.

The proposed management, mitigation and monitoring measures presented within this section are then further developed within Section 8 “Implementation and Management”. This includes mapping where the measures are to be integrated into the suite of management plan and procedures in place for the THRHDP. Once these measures have been reviewed and accepted by the OE and Lenders, they will be

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integrated into the respective management plans. The proposed measures have been designed to be as consistent as possible with those already in place.

The water supply and wastewater treatment system have already been subject to intensive impact assessment and the outcomes of these are not reproduced within this document.

Likewise, it is acknowledged that the facility has already been constructed and therefore construction phase impacts have already been realised. Consistent with the stated requirements from the Owners Engineer, these are not included within this ESIA and are to be subject to a separate audit prior to the camp being occupied. Immediately after occupation, and once the full camp services are in place, an audit will be undertaken to confirm that the commitments made within this ESIA and accompanying checklist have been implemented. This will include not only the structural components, but all camp services (eg catering, cleaning services and security) to determine if the practices and policies committed to within this ESIA and the various suite of ESMP's are being correctly. Any corrective actions will be implemented based on an agreed schedule and in accordance with the identified risk levels.

7.2 IMPACT ASSESSMENT METHODOLOGY

7.2.1 Impact Significance

In general, impact significance is determined through a combination of receptor sensitivity and magnitude of change to that receptor. Impacts within the ESIA will be identified, and significance assessed, in a structure manner which accounts for this sensitivity and magnitude interaction as presented within the below table.

Table 7-1 Determining Impact Significance

Classification		Impact Magnitude			
		Negligible	Small	Medium	Large
Sensitivity of Impact Receptor	Negligible	Negligible	Negligible	Negligible	Minor
	Low	Negligible	Negligible	Minor	Moderate
	Medium	Negligible	Minor	Moderate	Major
	High	Minor	Moderate	Major	Major

The resultant impact significance is as generally described below, however this may vary between various technical specialities, particularly where numerical standards (rather than qualitative evaluation) is utilised in determining impact magnitude. The descriptions below have drawn on international best practice.





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Table 7-2 Description of Impact Significance

Impact Importance	Definition
Negligible	<u>Insignificant impact:</u> <ul style="list-style-type: none"> ▪ Magnitude of the change is still within the limits of its natural variation ▪ Impact is quite low and localized ▪ Low probability of impact occurrence ▪ Impact is reversible in a short period
Minor	<u>Insignificant impact:</u> <ul style="list-style-type: none"> ▪ Magnitude of the impact is relatively small and the probability of impact occurrence is low. ▪ Impacts on physical and chemical environmental components are within the applicable environmental quality standard ▪ Impact is reversible
Moderate	<u>Significant impact:</u> <ul style="list-style-type: none"> ▪ Moderate impacts occurring over short period ▪ Environment has enough time to recover its condition (homeostasis) ▪ Benefits of project existence are limited to few number of communities (people) ▪ Project activity has an irreversible impact, but impact is moderate ▪ There is a conflict of interest in the use of various natural resources (agriculture, forestry, recreation, water resources, etc.) and other established uses in the project area ▪ Impacts need to be managed effectively and efficiently so that the magnitude of the impact is reduced to a level of 'as low as reasonably practical' (ALARP).
Major	<u>Significant impact:</u> <ul style="list-style-type: none"> ▪ Impact is classified as irreversible affecting high number of community (people). ▪ Impact exceeds the applicable environmental quality threshold ▪ Disturb and/or have a negative impact on property of cultural significance to a community or ethnic or social group ▪ Projects cause significant population growth or population concentration ▪ Project converts productive (prime) agricultural land to non-agricultural use ▪ Impacts need to be managed effectively and efficiently so that project activities do not cause large residual impacts over a long period of time and over a large area

Both receptor sensitivity and magnitude themselves require structured and rigorous multi-factor assessment before being utilised within the impact significance matrix. These are further described below.

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7.2.2 Magnitude

The assessment of impact magnitude is generally undertaken across two steps. Firstly, the identified impact is categorised as either beneficial or adverse. Secondly, impacts will be categorised as major, moderate, minor or negligible based on consideration of parameters such as:

- Impact Duration: this ranges from “beyond decommissioning” to “temporary with no detectable impact”
- Spatial extent of the impact: for instance, within the site boundary, to within village, Regency, Province, National or Trans-boundary
- Reversibility: ranging from permanent requiring significant intervention to return to baseline to no change
- Likelihood: ranging from occurring regularly under typical conditions to unlikely to occur
- Compliance with legal standards and established professional criteria. These are often discipline specific and range from “substantially exceeds national standards or international guidelines to “meets standards” (ie impacts are predicted to be less than allowed by a quantitative standard)



The below table presents generic criteria utilised in determining impact magnitude. Each detailed technical assessment will define impact magnitude in relation to its environmental or social aspects.

Table 7-3 Criteria for Determining Impact Significance

Magnitude (beneficial or adverse)	Definition (consider duration, spatial extent, reversibility and emission standards compliance)
Major	Fundamental change to the specific conditions assessed resulting in long term or permanent change, typically widespread in nature and requiring significant intervention to return to baseline; would violate National Standards, IFC PS or GIIP without additional mitigation
Moderate	Detectable change to the specific conditions assessed resulting in non-fundamental temporary or permanent change
Minor	Detectable but small change to the specific conditions assessed
Negligible	No perceptible change to the specific conditions assessed

7.2.3 Receptor Sensitivity

Sensitivity is specific to each aspect and the environmental resource or human population affected, with criteria developed from established baseline information.

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Generic criteria for determining sensitivity of receptors are outlined in the below table. The detailed technical assessments will define sensitivity in relation to the environmental or social aspect.

Table 7-4 Receptor Sensitivity Definitions

Sensitivity	Definition
High	Receptor (human, physical or biological) with little or no capacity to absorb proposed changes and/or minimal opportunities for mitigation
Medium	Receptor with little capacity to absorb proposed changes and/or limited opportunities for mitigation
Low	Receptor with some capacity to absorb proposed changes and/or reasonable opportunities for mitigation
Negligible	Receptor with good capacity to absorb proposed changes or good opportunities for mitigation

7.2.4 Mitigation and Enhancement Measures



The mitigation hierarchy will be applied to ensure that all residual impact levels can be reduced to minor or negligible through considering aspects such as:

- Changes in technology choice
- Avoidance and reduction of impacts through design (embedded mitigation)
- Abate impacts at the source or at receptor
- Report, restore, or reinstate to address temporary effects
- Compensation and offsetting for loss or damage

Importantly, consideration is also given to the identification of enhancement measures to ensure that any positive impacts associated with the Project are both maximised and directed to the most vulnerable beneficiaries. These measures are actions that:

- Create new positive impacts or benefits
- Increase the reach or amount of positive impacts or benefits
- Distribute positive impacts or benefits more equitably

The proposed mitigation measures are integrated into the impact assessment and residual impact level defined (see below). All the proposed mitigation, management and monitoring measures to reduce impacts to acceptable levels have been consolidated and mapped to the various management and monitoring plans that comprise of the C-ESMP for the project

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7.2.5 Residual Impact Levels

Residual impacts are those that remain after the application of mitigation and enhancement measures. The ESIA presents all residual impacts regardless of the significance. The intention is to ensure that all major and moderate impacts can be reduced to at least minor with the application of appropriate management and mitigation measures.

7.3 RISK AND IMPACT SCREENING



An initial risk driven process was undertaken to identify risks and impacts associated with the development of the WAC. The outcome of this is provided as Appendix 13 and has previously been submitted to the OE and Lenders for review. This screening has been utilised in developing the detailed impact assessment for the pre-construction, construction and operations phase presented below.

7.4 PRE-CONSTRUCTION PHASE IMPACT ASSESSMENT

7.4.1 Displacement impacts associated with securing land

As noted previously the WAC requires an area of approximately 30,000m² and the site was selected as an outcome of the result of various assessment of alternatives described in Section 3 of this report. The site was selected with the support of the Project Office through which two senior members of the Euluna Tribe of the core group within Malango Ward were identified as possessing a piece of land held under Perpetual Estate ownership. This PE was identified to be legally valid under the Lands and Titles Action (1996) and is free from any dispute. HEC entered a willing-buyer willing-seller negotiation with the registered owners with the view to securing a lease agreement. This lease agreement was signed on 2 October 2019, with renegotiation of terms completed in June 2021.



Information provided by the registered land-owners was that they derived minimal economic benefits from the land, with the exception of minor use for food crops and therefore economic displacement impacts are not anticipated. Likewise, HEC understands that the site was not being utilised by any non-titled land-user for any part of their livelihoods and therefore there is no uncompensated economic displacement arising from HEC entering into the lease agreement over the parcel of land. This does not preclude the possibility that in the future stakeholders may raise claims of previous use over the land, and HEC therefore needs to ensure that the GRM remains in place to receive and evaluated any such claims.

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At the conclusion of the lease agreement, legal provisions require that the cleared land, all fences, and temporary buildings be transferred to the landowner who wishes to own and operate the buildings. This will provide longer term economic benefits for the landowners once the lease agreement has concluded, however an audit will need to be undertaken prior to formal handover to ensure that all parties are aware of any future liabilities associated with the buildings. Impacts relating to longer term influx and community health concerns for longer term use of the facility are evaluated further below.

Impact	Impacts associated with land acquisition			
Criteria	Description and Evaluation			
Impact Nature	Negative		Positive	
	Securing a lease for the WAC will have a negative effect as the land owners will lose access to part of their land			
Impact Duration	Temporary	Short-Term	Long-Term	Permanent
	Given the nature of the lease (56 months) this will be a short-term impact			
Impact Spatial Extent	Local		Regional	Global
	The impact will be limited to only the owners of the PE			
Likelihood	Unlikely	Low Likelihood	Medium Likelihood	High/Inevitable Likelihood
	This is an activity which has already occurred, and therefore the likelihood is high/inevitable			
Impact Magnitude	Negligible	Small	Medium	Large
	The impact magnitude is considered minor as it is limited in duration, spatial extent and it reversible (i.e. the land will be returned in accordance with the requirements of the lease.			
Receptor Sensitivity	Negligible	Low	Medium	High
	The receptor sensitivity is defined as medium, due to the individual landowners having secure tenure and multiple sources of livelihoods in comparison to other members of the nearby Malango and Bahomea communities			
Significance	Negligible	Minor	Moderate	Major
	Based on a small impact magnitude and medium receptor sensitivity, the significance is assessed as minor			

The impact is considered as **minor negative** and there are no specific livelihood restoration measures required to be implemented. Potential economic displacement impacts have been fully compensated through the willing-buyer willing-seller process that resulted in the lease agreement. However, the following additional management and mitigation measures will be implemented to ensure that the assessed minor impact level remains:

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- The Grievance Redress Mechanism (GRM) is to be implemented for the life of the WAC to ensure that any parties or individuals who may have previously utilised the site for all or part of their livelihoods can still lodge a formal claim with HEC
- Prior to hand-over of the WAC location at the conclusion of the lease period, a condition report of the buildings and structures to remain will be provided to the land-owner, such that there is clear hand-over of responsibilities from HEC
- Any changes in use of the WAC, including occupation period and inclusion of additional uses, are to be subject to variations to the existing lease agreement

Based on the implementation of these mitigation and management measures, the residual impact level is expected to remain as minor.

7.4.2 Detailed capacity planning

As established in the assessment of alternatives, the need for having a large proportion of the expatriate workers, in a single consolidated camp is a preferred outcome from multiple perspectives. However, an inappropriately sized facility can have the effect of placing greater pressure on local services than originally planned for, lead to failure in systems in the camp that can cause environmental impacts (eg failure of STP to operate as designed due to excess wastewater generation) and potential for additional staff to be either accommodated through increased density within the camp or to be housed in surrounding communities. Therefore, should more workers from abroad be required, or extra workers required to provide camp services above the existing 26 planned, this could in turn place pressure to increase camp capacity which in turn may have impacts on both the camp residents and surrounding communities.



Impact	Impacts associated with camp capacity planning			
Criteria	Description and Evaluation			
Impact Nature	Negative		Positive	
	Increases in camp capacity above that planned may lead to negative impacts to its inhabitants, local communities and environmental receptors.			
Impact Duration	Temporary	Short-Term	Long-Term	Permanent
	Given the nature of the lease (56 months) this will be a short-term impact			

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Impact	Impacts associated with camp capacity planning			
Criteria	Description and Evaluation			
Impact Spatial Extent	Local	Regional	Global	
	The impact will be localised to either the inhabitants of the camp, local communities in Malango Ward, or immediate environmental receptors			
Likelihood	Unlikely	Low Likelihood	Medium Likelihood	High/Inevitable Likelihood
	The challenging nature of the project means that continual re-evaluation of the workforce requirements are necessary, and therefore there is a medium likelihood			
Impact Magnitude	Negligible	Minor	Moderate	Major
	The impact magnitude is considered as moderate, primarily given the level of effort to ensure reversibility should any impacts eventuate			
Receptor Sensitivity	Negligible	Low	Medium	High
	The receptor sensitivity is defined as as high			
Significance	Negligible	Minor	Moderate	Major
	Based on a medium magnitude and high receptor sensitivity, the raw impact significance is assessed as Major			

The assessed impact level is **major negative**. To reduce the impact level to minor requires measures to (a) limit the need to recruit additional staff that would need to reside within the WAC, or (b) ensure that any increase in capacity of the WAC is subject to detailed planning, scrutiny and impact assessment. These measures may include:

- Where labour demand is lower than estimated at any stage during construction, priority will be given to retaining locally employed workers (using the hierarchy outlined in the HRLMP), including unskilled workers. This will act to reduce camp capacity below 214 wherever possible
- Where labour demand exceeds expectations, HEC will seek to secure additional accommodation in Honiara or surrounding areas as a first option, particularly if the number of additional individuals is low and can be readily accommodated safely in a single house.
- Where it is proposed to provide accommodation for any workers of the approved figure of 214 within the WAC, HEC will provide additional plans, impact assessment and justification for the review and approval of the PO and Lenders prior to any increase in capacity

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- Monthly reporting to Lenders will include camp capacity averaged across the previous month and projections for future labour requirements and camp occupancy levels.



The application of these management and mitigation measures will reduce the residual impact level to Minor Moderate.

7.4.3 Impacts to occupants and surrounding communities due poor detailed design and planning

The design phase of the camp is necessary to ensure that a facility is built which is suitable for the location and climatic conditions, provides for accommodation that meets basic density and comfort requirement, is serviced in a manner that reduces pressure on services in the surrounding communities, and incorporates sufficient recreation and eating facilities such that it is able to operate as a fully self-contained entity. Failure to design an appropriate facility can lead to impacts such as:

- Uncontrolled access by the occupants to local communities seeking recreation, entertainment or food. This increases the possibility of an increase in influx driven impacts as assessed comprehensively in the IMP
- Lack of appropriate food arrangements meaning that workers either need to prepare their own food or purchase food externally. This increases the possibility of an increase in influx driven impacts as assessed comprehensively in the IMP
- Poor designed camps with high occupant rates and insufficient services and sanitation can exacerbate not only influx driven impacts, but also have a detrimental impact to the physical and mental health of the camp occupants



The camp has been designed (and eventually constructed) in accordance with the requirements of international best practice guidelines, primarily the IFC/EBRD Workers Accommodation: Processes and Standards guidance note. The detailed description of the camp, its facilities, services and permitted uses are provided within Section 2 of this document. A completed checklist of the proposed WAC against the requirements of Annex I of IFC/EBRD Guidance on Workers' Accommodation (contained within Annex 14) demonstrates that the camp design has considered all relevant best practice requirements.

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Impact	Impacts to occupants and surrounding communities due poor detailed design and planning			
Criteria	Description and Evaluation			
Impact Nature	Negative		Positive	
	The impact will be negative in nature			
Impact Duration	Temporary	Short-Term	Long-Term	Permanent
	Given the nature of the lease (56 months) this will be a short-term impact			
Impact Spatial Extent	Local	Regional	Global	
	The impact will be localised to either the inhabitants of the camp, local communities in Malango Ward, or immediate environmental receptors			
Likelihood	Unlikely	Low Likelihood	Medium Likelihood	High/Inevitable Likelihood
	The WAC has been subjected to rigorous design and therefore it is unlikely there will be any impacts related to this aspect			
Impact Magnitude	Negligible	Minor	Moderate	Major
	The magnitude of minor due to its low likelihood, small spatial extent and short-term duration, however any impacts that would result are acknowledged to be difficult to reverse given the complex social setting			
Receptor Sensitivity	Negligible	Low	Medium	High
	Receptor sensitivity of the surrounding communities is high			
Significance	Negligible	Minor	Moderate	Major
	Based on minor impact magnitude and high receptor sensitivity, the assessed impact significance is moderate			

Having the appropriate camp design will result in **Moderate Negative** impacts. To further reduce residual impacts, it is important to ensure that (a) the camp as designed is built and maintained, and (b) that camp inhabitants are fully aware of their rights and obligations in relation to conditions within the camp and the manner in which they are able to interact with the surrounding communities in Malango Ward. The additional management, mitigation and monitoring measures will therefore be applied as it applies to the camp design aspects:

- Immediately after occupation, and once the full camp services are in place, an audit will be undertaken by an independent 3rd party to confirm that the commitments made within this ESIA and accompanying checklist have been implemented. This will include not only the structural components, but all camp services (eg catering, cleaning services and security) to determine if the practices and policies committed to within this ESIA and the various suite of ESMP's are being correctly. Any corrective actions will be implemented based on an agreed schedule and in accordance with the identified risk levels.

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- The planning for camp operation and management of its occupants (as further detailed below) is to be undertaken in accordance with key management plans already developed for the project, including the Influx Management Plan (IMP), Human Resources and Labor Management Plan (HRLMP), Grievance Redress Mechanism (GRM) and Workers Code of Conduct (WCC)

With the application of these measures, the camp design and planning for operations will be consistent expected best practice and reduce the residual impacts associated with poor design to Minor Negative.

7.4.4 UXO Clearance

Given the known presence of UXO's dating from World War II across the Province of Guadalcanal, it is feasible that UXO's and any other war remnants may be situated in and around the location of the WAC. Any UXO encountered during construction or camp operations can lead to mass injuries and potential fatalities to the construction team, camp inhabitants and surrounding community. To eliminate this risk and substantial impact as much as possible, UXO survey and scanning has been undertaken prior to construction commencing. A clearance report has been provided by the UXO subcontractor, OPEC (Annex 11) which concluded that there are "no items of live UXO or explosive ordinance in the camp area. There were also no chance finds reported during the camp construction phase. Nevertheless, UXO chance find procedure was developed for any contingency (Annex 12).

Impact	Impacts due to inappropriate UXO clearance			
Criteria	Description and Evaluation			
Impact Nature	Negative		Positive	
	Any impacts associated with UXO discharge will be negative			
Impact Duration	Temporary	Short-Term	Long-Term	Permanent
	Given the nature of the lease (56 months) this will be a short-term impact			
Impact Spatial Extent	Local		Regional	Global
	The impact associated with any UXO's will generally be highly localised			
Likelihood	Unlikely	Low Likelihood	Medium Likelihood	High/Inevitable Likelihood
	Given that the area has already been subject to UXO clearance activities, the likelihood is unlikely			
Impact Magnitude	Negligible	Minor	Moderate	Major

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Impact	Impacts due to inappropriate UXO clearance			
Criteria	Description and Evaluation			
	Given the impact duration, spatial extent and likelihood, coupled with the potential devastating outcomes of a UXO being encountered, the magnitude is assessed as moderate			
Receptor Sensitivity	Negligible	Low	Medium	High
	Receptor sensitivity is medium given that it is likely to be HEC and its workers exposed to any risks and will have been subjected to training that will allow them to identify and appropriately react to any UXO encounters			
Significance	Negligible	Minor	Moderate	Major
	The impact significance is moderate based on moderate magnitude and medium receptor sensitivity			

The impact is defined as **Moderate Negative**, mainly due to the catastrophic nature of injuries that can be caused by UXO. To further reduce the likelihood of UXO's being disturbed during camp pre-construction, construction and operations, the adopted Chance Finds Procedure for the project is to be applied to the camp site and its surrounds. This is defined within the UXO Management Plan and also captures awareness and training requirements, and the role of the Royal Solomon Islands Police Force EOD team in ensuring safe disposal of any UXO's. This will reduce the residual risk to Minor, however it is recognised that not applying the UXO Management Plan properly may still lead to injuries and deaths should an UXO be encountered.

7.4.5 Biodiversity Impacts



As described within Section 6.1, the site is modified habitat due to its previous history of agricultural development and the presence of human settlements across Malango Ward. It is situated within an area subject to historical disturbance and is situated in a broader landscape dominated by palm oil monoculture as shown in the below photograph.

The development of the WAC required the complete removal of all vegetation from the location. As it is modified habitat, rather than natural or critical, there is no requirement for this to be included within the terrestrial biodiversity offset calculations presented within the BMP. Impacts are limited to immediate loss of this modified habitat, approximately 30,000m².

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Impact	Impacts to biodiversity values due to vegetation clearance			
Criteria	Description and Evaluation			
Impact Nature	Negative		Positive	
	The removal of vegetation will be a negative impact			
Impact Duration	Temporary	Short-Term	Long-Term	Permanent
	Given the nature of the lease (56 months) this will be a short-term impact, however as the WAC structures will be retained in-situ at the completion of the construction phase, the loss of biodiversity is considered permanent			
Impact Spatial Extent	Local		Regional	
			Global	
Likelihood	The impact will be confined to the camp footprint			
	Unlikely	Low Likelihood	Medium Likelihood	High/Inevitable Likelihood
Impact Magnitude	The works have been completed and therefore it is a high likelihood			
	Negligible	Minor	Moderate	Major
	The magnitude is moderate, largely driven by its high likelihood and the fact that the site will not be entirely replanted at the end of construction, but rather handed over “as is” to the current landowner. Therefore, there is limited chance to reverse the loss			
	Negligible	Low	Medium	High

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Impact	Impacts to biodiversity values due to vegetation clearance			
Criteria	Description and Evaluation			
Receptor Sensitivity	As it is modified habitat only, the receptor sensitivity is low			
Significance	Negligible	Minor	Moderate	Major
	Based on a moderate magnitude and low receptor sensitivity, the impact significance is assessed as minor			

Biodiversity impacts resulting from vegetation clearing to accommodate the WAC have been assessed as **Minor Negative**. To further reduce impacts associated with modified habitat loss, it is recommended that the principles within the Post Construction Rehabilitation and Revegetation Plan be adopted, with opportunities for establishing natural vegetation species within and adjoining the WAC as part of landscaping efforts to be evaluated.

7.5 CONSTRUCTION PHASE IMPACT ASSESSMENT

The construction of the WAC was completed and is presently in a maintenance phase awaiting clearance by Lenders to allow for it to house the workforce. Assessing impacts typically associated with the construction phase has not been undertaken as this occurred in the past and is therefore better subject of an independent audit to verify that no environmental or social legacies have been created due to the construction phase. Impacts that required management during the construction phase included:

- Community health and safety impacts associated with mobilisation of heavy equipment, the workforce and camp infrastructure itself (eg buildings and construction materials) and ongoing heavy vehicle movements along the existing local road network
- Operation of heavy machinery that can generate exhaust emissions, noise and vibration that can impact sensitive environmental and social receptors
- The generation of hazardous and non-hazardous waste streams requiring storage and disposal
- Issues associated with clearing of vegetation to create a bare surface for the construction pad, including increased dust emissions (dry season), sediment laden surface water run-off (during wet season) and potential disposal of vegetation through burning

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- Impacts to the local communities through interaction with the workforce involved in the development of the construction camp
- Direct and indirect impacts to flora and fauna during vegetation removal phase
- Management of the health, safety, and fundamental labour rights of the workforce engaged in the construction of the camp



The construction of the WAC was undertaken implementing best practice management, mitigation and monitoring measures as outlined within the various plans approved for Lot 1 Access Road. Ongoing monitoring implemented during and after the construction of the WAC indicates that there are no legacy environmental or social issues requiring ongoing attention. There were also no recordable health and safety incidents or labour grievances during the construction of the WAC. Additionally, SIG, through Guadalcanal Province has provided certification that the camp has been inspected and satisfies all the relevant requirements and plans lodged for approval and have been deemed as “Fit for Human Occupation/Habitation” in the form of a Certificate of Occupancy (included within Annex 5). However, as part of the audit of the WAC against the design criteria, the evaluation will also need to include an assessment of surrounding environmental receptors to determine if there any matters (eg waste disposal in unapproved location, evidence of sediment travelling offsite and unresolved grievances from the community) that need to be resolved once the camp is operational.

7.6 OPERATIONS PHASE IMPACT ASSESSMENT

7.6.1 Impacts due to camp acting of new influx focal point

The WAC has the potential to introduce a new focal point for potential in-migrants who may be seeking economic opportunities associated with the construction of the project. The previous potential focal point was the site office, which due to its location at the dam construction site, was not particularly accessible. The WAC is located on flat ground, on the existing public road network, surrounded by open areas, and readily accessible from Honiara. It has the potential to act as a “pull” factor for in-migrants who come from outside of Guadalcanal Province and into Malango and Bahomea seeking opportunities. Typically, this will manifest in multiple forms, all of which have the potential to impact on the existing local communities.

Local entrepreneurs from outside of Malango and Bahomea will likely see the WAC as a focal point for business and supply opportunities to serve both the Project and its workforce. This would involve them setting up temporary premises to provide a range of services, including food and beverage, entertainment, camp services and

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construction materials supply. Typically, such mobile entrepreneurs and economic migrants will have education levels and the financial means to readily outcompete locally based families and take advantage of the opportunities that a project such as this presents. This has the potential to lead to substantial social and community upheaval through competition and aggravation between the local community and the new in-migrants. These markets can also become a pull factor for both WAC inhabitants (discussed further below) and other settlers coming into the area seeking direct employment opportunities.

The WAC may also form a focal point for those from outside of the area seeking direct employment with the Project. When combined with the presence of the aforementioned entrepreneurs, this can drive the development of informal and illegal settlements in the areas immediately surrounding the WAC.

The overall unmitigated effect of this will be impacts such as:

- Placing pressure on government services and resources in an area where the governments capacity to provide services such as health care, schooling, clean water, sanitation and education facilities is already stretched and being supplemented by initiatives driven by the Project such as the CBSP
- The short-term drive for economic opportunities has the potential to place the desirability of financial gains above children's education and safety (i.e. children and teenagers may be taken out of school to work in shops and entertainment facilities
- The development of illegal entertainment facilities and the flow-on social ills and community health impacts that are often associated with these. This includes social impacts such as increase in gender-based violence, communicable disease transmission and increased dependency on drugs and alcohol¹¹
- Introduction of multiple potential drivers of conflicts in an area that has already experienced conflict and internally displaced people in the recent past
- Any in-migrants to the area who do not secure employment with the project and become established as squatters can be placed at risk of labor

¹¹ As described throughout this impact assessment, there was a previous incidence of an illegal entertainment facility (being a nightclub) established directly adjoining the WAC site. This was actually developed by the owner of the land on which the WAC is situated. Rather than a project driven opportunity, this was reported by the owners to be in response to an opportunity to provide entertainment facilities given that nightclubs in Honiara had been closed during 2020 in response to the Covid-19 pandemic. HEC has actively worked with both the landowner and other important stakeholders to ensure that this facility has been closed down and other uses investigated for the structure. HEC is committed to ensuring that no other similar entertainment facilities open within the Core Land area.



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exploitation (e.g. salary below minimum wage, unpaid overtime) for contractors and suppliers seeking short term workers

In general, the local community across Malango and Bahomea are sensitive receptors, with the impact assessment for potential influx driven impacts to these communities presented in the below table.

Impact	Impacts due to camp acting of new influx focal point			
Criteria	Description and Evaluation			
Impact Nature	Negative		Positive	
	Any influx driven impacts will generally be negative in nature			
Impact Duration	Temporary	Short-Term	Long-Term	Permanent
	Given the nature of the lease (56 months) this will be a short-term impact, however it is recognised that should the impact manifest itself there will be reversibility concerns			
Impact Spatial Extent	Local	Regional		Global
	The impact will be localised to either the inhabitants of the camp, local communities in Malango Ward, or immediate environmental receptors			
Likelihood	Unlikely	Low Likelihood	Medium Likelihood	High/Inevitable Likelihood
	There is no evidence to date that such influx driven impacts have occurred, however as with any large scale construction project in a developing country context, some in-migration can be expected.			
Impact Magnitude	Negligible	Minor	Moderate	Major
	The impact magnitude is considered moderate as although its extent will be limited, any attempts to reverse the impact may be difficult and require multiple stakeholders to be involved			
Receptor Sensitivity	Negligible	Low	Medium	High
	The sensitivity of surrounding communities to influx impacts is high			
Significance	Negligible	Minor	Moderate	Major
	Based on a moderate impact magnitude and high receptor sensitivity, the impact significance is Major			

Based on the unmitigated assessment above, influx driven impacts arising from the development of the WAC within the Core Area are **Major Negative**. While efforts are being made to reduce overall receptor sensitivity through initiatives contained in documents such as the CBSP and CHDVMP, the key to reducing influx driven impacts is to reduce the likelihood that they will occur. Table 4.2 of the IMP contains all management and mitigation measures to be applied to avoid influx driven impacts to

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the extent possible. The implementation of this will be done by HEC on a daily basis, with an Influx Management Committee having already been established to ensure a multi-stakeholder approach to influx management.



Additionally, expectations will also be placed on camp occupants to ensure that they do not engage in activities that will encourage influx into the area, particularly those seeking economic opportunities and provision of illegal entertainment facilities. Of particular note is the zero-tolerance policy for alcohol and drug consumption inside the camp, as described within Annex G of the Workers Code of Conduct (WCC). All of these expectations and measures will be implemented through the WCC and include:

- HEC alcohol and drug policy will ensure that any breaches of the policy will result in disciplinary actions as per employment agreement clause 6. This includes a prohibition on any drugs or alcohol, or being under the influence of either while working in the Project.
- Prohibition on workers entering the workplace (checked during Toolbox Meeting) and unpaid for the day if found to be intoxicated.
- Workers found to be intoxicated will be subject to an alcohol breath test immediately prior to starting their next shift. If the test returns a positive result they will be subject to disciplinary action as per the Workers Code of Conduct (WCC). Testing shall be undertaken by the Project doctor and/or HEC HSE Management.
- Workers will only be able to leave the camp in cases where advance permission is provided by the Security Manager. This permission will only be granted for people who have a legitimate reason to leave the camp outside of working hours or overnight. This includes such as visiting with family members based in Honiara.
- Warnings are to be issued for any unpleasant or anti-social behaviour to others inside and outside the camp. This includes actions such as visiting any illegal entertainment facilities in the area. Repeated warnings will be addressed in accordance with the WCC and the employment agreement.

In addition to these measures, HEC will actively monitor the areas surrounding the WAC for indicators of influx into the surrounding area and ensure that these are reported both internally (to allow for adaptive management) and externally (to Lenders and SIG). This will be conducted through measures outlined within the SIMP.

7.6.2 Community benefits associated with WAC

Providing that influx impacts are comprehensively managed, the establishment of the WAC within the Malango and Bahomea communities will provide greater

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opportunities for the local community to actively participate in a way that see economic benefits derived. This is a key advantage of having the WAC in lieu of a dispersed workforce based in Honiara where access to economic opportunities for its residents are typically greater.

These positive impacts include through increased opportunities for local small enterprises to provide services and supplies to the camp (eg food) and to establish market stalls in a controlled setting. HEC suggested communities to submit the goods and service proposals and, HEC shall record the received proposal in a register.

Additionally, it also provides opportunities for semi-skilled and non-skilled employment in aspects such as administration, housekeeping, catering, security force and drivers. These positive impacts will be directed towards sensitive social receptors in a way that will provide for the greatest economic opportunities.

Impact	Community benefits associated with WAC			
Criteria	Description and Evaluation			
Impact Nature	Negative		Positive	
	The impact is positive			
Impact Duration	Temporary	Short-Term	Long-Term	Permanent
	These positive impacts will be experienced during the 56 month construction phase			
Impact Spatial Extent	Local	Regional		Global
	Positive impacts will be local in extent			
Likelihood	Unlikely	Low Likelihood	Medium Likelihood	High/Inevitable Likelihood
	HEC is committed to ensuring the the local community is provided opportunities to access project benefits			
Impact Magnitude	Negligible	Minor	Moderate	Major
	N/A			
Receptor Sensitivity	Negligible	Low	Medium	High
	N/A			
Significance	Negligible	Minor	Moderate	Major
	N/A			

The realisation of these positive impacts will rely on HEC executing the measures contained within a range of existing plans. This includes the CBSP (for aspects relating to local suppliers), HRLMP (for providing preferential access to employment opportunities) and IMP (to ensure that businesses from outside of the area do not

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establish themselves and outcompete in areas where the local community are well placed to provide services).

7.6.3 Impacts to local communities and road users resulting from changed project road use patterns

The introduction of the WAC into the Core Area will not be generating any additional traffic movements through Black Post and into the Lot 1 Access Road area, rather it will be primarily changing journeys points of origin. The majority of journeys associated with the project through Lot 1 Access Road (public road over which HEC does not have legal control) and into Lot 2 and Lot 3 (over which it contains complete control) will originate from the WAC rather than Honiara. This will include morning and afternoon periods when workers will be transported to active construction sites and the main site office, requiring movement across the T-junction intersection near the Lot 1 road.

Observations during the baseline survey indicated that vehicle patterns at this intersection were as follows:



- The busiest destination was towards Blackpost (average of 11 vehicles per hour), followed by Marava with an average of 8 vehicles per hour and an average 6 vehicles per hour for Mataruka and WAC site (refer to Table 6-21).
- Traffic peak hours were observed from 07:00 - 08:00 in the morning and from 15:00 – 18:00 in the evening, with frequent user of the road being Class II and Class I vehicles¹² (refer to Figure 6-18).

While local traffic volumes remain low, as identified within the Traffic Management Plan (TMP) the introduction of any higher traffic volumes into this area presents a source of impacts such as:

- Increased vehicles incidents, injuries or fatalities, with an increased risk of collision with local vehicles parked on the side of roads
- Development of potholes – and subsequent increase in road accidents and damage to vehicles and flow-on effects to pedestrian movements (e.g. increased risk of tripping or falling, or vehicles swerving to miss potholes and striking pedestrians

¹² Class I. Two-wheeled or three-wheeled motor vehicles (including such vehicles with a trailer, fore car or side car attached).

Class II. Four-wheeled motor vehicles, including taxis which are not commercial vehicles (including vehicles towing a trailer or caravan).



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- Light vehicle movement (is those transporting workers along the Black Post Road and Access Road into the Workers Camp may come into contact with children travelling to school both in local transportation or on foot.
- It is recognised that the road use patterns around the WAC can be a potential “flash-point” for interactions between the community and HEC personnel, particularly given that it is a public road that multiple users utilise on a daily basis. This can increase the possibility of road blockages and unlawful violence should not proper traffic management measures be observed.

The impact assessment presented below is based on an evaluated receptor sensitivity (being the local roads users, both vehicles and pedestrians) being high, with this exacerbated by the fact that the area has not typically experienced high volumes of traffic in the past.

Impact	Impacts to local communities and road users resulting from changed project road use patterns			
Criteria	Description and Evaluation			
Impact Nature	Negative		Positive	
	Traffic impacts will be negative			
Impact Duration	Temporary	Short-Term	Long-Term	Permanent
	These impacts will be experienced during the 56 month construction phase			
Impact Spatial Extent	Local	Regional		Global
	The impact will be localised to either the inhabitants of the camp, local communities in Malango Ward, or immediate environmental receptors			
Likelihood	Unlikely	Low Likelihood	Medium Likelihood	High/Inevitable Likelihood
	Given these are planned traffic movements, it is highly likely that interactions between HEC vehicles and the community will occur			
Impact Magnitude	Negligible	Minor	Moderate	Major
	Magnitude will be low given interactions will be highly localised and limited in time			
Receptor Sensitivity	Negligible	Low	Medium	High
	The sensitivity of the local community to traffic impacts will be high			
Significance	Negligible	Minor	Moderate	Major
	as the assessed impact is moderate based on minor magnitude and high receptor sensitivity			



The assessed impact significance is **Moderate Negative**. To reduce the residual impacts to Minor Negative, the management and mitigation measures outlined extensively within the TMP will be applied. This includes provisions such as:

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- The peak morning movement times for mobilisation from the WAC to the active construction sites and site offices has been planned for between 5am and 6am, which is outside of the observed peak times for local commuters on the road network. Therefore, the chances of interactions between Project vehicles and sensitive receptors on the road network will be minimised
- This section of public road is managed by the PE Title Holder, Guadalcanal Provincial Authorities and RSIPF. HEC will need to work closely with these authorities in the management of this road. This includes actions such as working closely with RSIPF to ensure that any accidents that occur and appropriately reported and managed such that they do not become flash-points. HEC will also continually monitor road conditions (particularly during the rainy season) and communicate with Provincial Authorities to ensure that any potholes and damage to the road are repaired
- HEC to play its by enforcing control measures such as restricting movements of vehicles in and out of the camp, enforcing a speed limit for HEC drivers and workers within and existing/entering the camp, and conducting random alcohol breath tests at the gate
- HEC drivers will obey the legal rules of the road rules at all times, as set out by the Solomon Islands Internal Revenue Division and RSIPF
- HEC's security contractor will have the responsibility to ensure that there is no Project vehicle parking along this section of the feeder road, with all parking to be within the WAC only. This will ensure that all parking and all vehicle stopping and starting will be in an appropriately controlled setting to limit chances of collisions with local road users
- HEC drivers will observe all posted speed limits, including temporary limits, within the WAC area
- Workers will follow the procedures outlines in the TMP and WHSP regarding driver behaviour, vehicle maintenance, reporting and responding the traffic incidents, and the cleaning/removal of pest species from vehicles within the WAC area
- All signage and traffic control measures described with the TMP will be installed and observed.

In addition to these measures (already captured within the TMP) HEC will also implement the following:

- Traffic marshals (planned to be security officers with specific training) are to be assigned to provide physical control of traffic turning across this intersection as required. This may include implementing a "stop-light" system to ensure that HEC vehicles do not enter this intersection when there are other road users approaching

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- Engagement with stakeholders in the vicinity of the WAC to (a) gain feedback on the behaviour of HEC's drivers, and (b) evaluate if there a need to slightly change the timing of HEC's daily mobilisation to site in order to avoid any local traffic and pedestrian movements either associated with regular activities (such as start of the school day) or periodic events such as markets and religious events.



Based on the implementation of these measures, it is considered that residual traffic impacts associated with the change in assessment traffic movements patterns from the WAC will be Minor Negative

7.6.4 Impacts to health and safety of camp occupants

It is important to ensure that not only is the WAC appropriately designed, but that it is managed in such a way that the health and safety of its occupants are treated as important considerations. These health and safety impacts can manifest from a number of avenues, including:

- Accidents and incidents relating to malfunctioning electrical, mechanical or structural components of the camp
- Outbreaks of communicable diseases, food poisoning and other matters as described in detail within the HRLMP
- Natural disasters fires and other emergencies either starting within the WAC side or originating from the outside
- Abuse of alcohol, drugs and other potentially harmful substances
- Risks and concerns relating to HIV/AIDS and other STI's
- Mental health concerns relating to lack of entertainment, recreation, religious and cultural considerations, services and communications infrastructure
- Risks of transmissible diseases, including Covid-19, in a setting where occupants are sharing communal spaces



The receptors in this case will be the occupants of the WAC and have been assigned a medium sensitivity given that most of the workforce housed in this location are either skilled or semi-skilled and are working with the Project through freedom of choice.

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Impact	Impacts to health and safety of camp occupants			
Criteria	Description and Evaluation			
Impact Nature	Negative		Positive	
	These will be negative impacts			
Impact Duration	Temporary	Short-Term	Long-Term	Permanent
	The impacts may be felt for the 56 month construction phase			
Impact Spatial Extent	Local	Regional		Global
	The impacts would be limited in extend to WAC occupants			
Likelihood	Unlikely	Low Likelihood	Medium Likelihood	High/Inevitable Likelihood
	Given the attention to design and development of maintenance protocols it is considered a low likelihood			
Impact Magnitude	Negligible	Minor	Moderate	Major
	The magnitude is considered minor			
Receptor Sensitivity	Negligible	Low	Medium	High
	The WAC occupants are considered medium sensitive receptors			
Significance	Negligible	Minor	Moderate	Major
	as the assessed significance is moderate negative			

The evaluated significance is Moderate Negative. To reduce the residual impact further, a range of management, mitigation and monitoring measures as already outlined within various management plans (including HRLMP, CHDVMP, WCC, SPERP and IMP) are to be implemented. This includes, but not limited to, the following:

- Maintenance of machinery, electrical devices, complex systems and structures are to be conducted by the specialist camp maintenance team only
- There is to be a specific duty to report to the health authorities (ie MHMS) in the case of any communicable or non-communicable disease outbreaks. This is consistent with commitments made within the CHDVMP
- Staff and workers are to be trained to provide first aid such that they can act as first responders where necessary
- Equipment use refresher courses and periodic drills are to be implemented such that the workforce is effectively able to respond to fires and any other emergencies (as defined in the SPERP)
- The fire safety plan for the WAC (as defined by the SPERP) is to be implemented. This includes training of fire wardens, periodic testing and monitoring of fire safety, and the installation of smoke detectors in each

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room and corridor. ABC types of fire extinguishers are to be installed in each building.



- On a bi-annual basis, mosquito borne disease, drug and alcohol, HIV/AIDs, and STI awareness programmes will be provided by public health providers such as the Malaria Department and the Solomon Islands Planned Parenthood Associations
- Only skilled workers assigned for the maintenance works shall carry maintenance under the supervision of the HEC Maintenance Manager in case of workshop, and the HEC Camp and Office Managers for other camp works
- Maintenance of the worker's camp building is to be notified in advance to occupants (at least one week) and carried out in accordance with safe practices contained within the WHSP
- All workers are to be provided with appropriate PPE for any tasks being undertaken within the WAC for maintenance purposes
- The HEC HSE Manager has been assigned as the designated person to communicate during the event of an outbreak as per the Emergency Communication Protocol
- Maintenance will ensure that all aspects of camp services and planned recreation facilities remain available and in good working order throughout the construction phase¹³. The GRM and WCC are to be effectively implemented to ensure that any workforce members are able to access this to raise grievances regarding camp facilities and services
- Acknowledging the importance of mental health of camp occupants, the WAC will provide access to mental health services as necessary. This is likely to include remote access to doctors and therapists in countries of the worker's origin. Mental health campaigns and availability of such facilities will be organised as required

With the implementation of these measures through the various existing management plans, impacts to camp occupants health and safety can be reduced to Minor Negative

7.6.5 Impacts related to improper non-hazardous and hazardous waste management

The WAC is a potential generator of both non-hazardous waste (largely resulting from domestic waste streams such as food and paper waste) and hazardous waste (associated with operation of the vehicle maintenance facility). The improper

¹³ This includes ensuring the canteen and cooking facilities are kept in a clean and working condition, kitchen staff being trained to prepare food as per religious or cultural norms for all inhabitants, food contains appropriate nutritional values, internet services are provided and private choices provided in relation to mobile phone networks, recreational facilities provided and include table tennis, fitness centre etc, and rooms provided for any religious observances that may be necessary



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collection, storage and disposal of general domestic waste streams can lead to an increase in the number of rodents and cockroaches and a subsequent drive in vector borne diseases. It can also cause general unhygienic conditions and bad odours that will impact camp occupants and surrounding communities.

The WAC will be utilised as an important point for the storage and management of hydrocarbons, the storage of which presents health and safety risks (eg risks of explosions and odours) it also presents an environmental risk should uncontained hydrocarbons make their way into surface water and groundwater bodies. This is important given the reliance of the local community on various surface and groundwater bodies for domestic water in the absence of a reticulated water supply system.

The receptors are the local community reliant on water resources for domestic purposes (highly sensitive) and the camp occupants (moderately sensitive). The impact assessment is presented within the below table.

Impact	Impacts related to improper non-hazardous and hazardous waste management			
Criteria	Description and Evaluation			
Impact Nature	Negative		Positive	
	Impacts associated with waste management will be negative			
Impact Duration	Temporary	Short-Term	Long-Term	Permanent
	The impact duration will be limited to the 56 months construction phase			
Impact Spatial Extent	Local	Regional		Global
	Impacts will be localised to either the WAC, any receptors immediately adjoining the WAC			
Likelihood	Unlikely	Low Likelihood	Medium Likelihood	High/Inevitable Likelihood
	The likelihood of the waste being generated in a manner that requires such storage and treatment is high			
Impact Magnitude	Negligible	Minor	Moderate	Major
	The impact magnitude is considered minor, as it will be limited in extent and contained within a control setting			
Receptor Sensitivity	Negligible	Low	Medium	High
	The potential receptors include the local community who utilise water sources that may be contaminated by an poorly managed waste streams.			
Significance	Negligible	Minor	Moderate	Major
	as the assessed significance is moderate, based on minor magntidue and a high receptor sensitivity.			

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The assessed impact significance is Moderate Negative. The waste generated at the WAC will be managed in accordance with the Waste Management and Point Source Pollution Management Plan (WMPSPMP). This includes principles such as:

- Waste to be collected at the designated waste collection areas in labelled containers
- Residential wastes are to be characterised and segregated at source in bins provided at strategic locations in the WAC
- A waste management hierarchy is to be applied accounting for principles of re-use, recycle, segregation, recovery, and disposal. Given limitations in the waste management networks on Guadalcanal, disposal shall be a last option and only through an approved waste management contractor.



For hazardous waste streams, these are to be managed in accordance with the Hazardous Materials Management Plan (HMMP) and the SPERP. This includes the application of such principles as:

- Only workers skilled and training for vehicle maintenance works shall undertake maintenance under the supervision of the Maintenance Manager
- All employees and contractors will be trained in proper methods for transporting, transferring, handling and storing hazardous materials such as hydrocarbons
- All hazardous materials shall be stored at designated places following the pertinent MSDS and in accordance with the HMMP. Any disposal by a third party contractor is to also be conducted in accordance with the HMMP
- The application of these management, mitigation and monitoring measures will reduce the residual impacts to minor.

7.6.6 Impacts to community health and safety due to camp emissions

There are two primary sources of impacts to the health and safety of the surrounding communities from the storage of fuel and other hazardous material chemicals, and the power generating unit and maintenance workshop which is a potential source of noise and vibration. As shown in the below figure, the only receptor (excluding the WAC itself) within a 500m radius is the land owners house.

The impacts associated with storage of hazardous materials are potential spills of hazardous chemicals, fires and other similar emergencies. The use of generators and conducting vehicle maintenance has the potential to be a source of nuisance noise and air quality emissions, vibration and other sensory disturbances. However, the



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generator is the primary source of power and requires a high degree of functionality and reliability to ensure the comfort of the camp occupants.



The impact assessment presented below is based on an evaluation of receptor sensitivity as being medium for both the landowner and camp occupants.

Impact	Impacts to community health and safety due to camp emissions			
Criteria	Description and Evaluation			
Impact Nature	Negative		Positive	
	This is considered a negative impact			
Impact Duration	Temporary	Short-Term	Long-Term	Permanent
	The impact duration will be limited to the 56 months construction phase			
Impact Spatial Extent	Local	Regional		Global
	Impacts will be localised to either the WAC, any receptors immediately adjoining the WAC (being the landowner)			
Likelihood	Unlikely	Low Likelihood	Medium Likelihood	High/Inevitable Likelihood
	This is a planned activity and the generator will be required to be continually operational, therefore likelihood is high.			
Impact Magnitude	Negligible	Minor	Moderate	Major
	The magnitude is classed as moderate, primarily due to the high likelihood and potential continual nature of the noise emissions from the generator			
Receptor Sensitivity	Negligible	Low	Medium	High
	The receptors include the WAC occupants and landowners, both of whom are assessed as moderate			

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Impact	Impacts to community health and safety due to camp emissions			
Criteria	Description and Evaluation			
Significance	Negligible	Minor	Moderate	Major
	as the significance as assessed as moderate based on moderate magnitude and medium receptor sensitivity			

The assessed impact level is moderate negative. To reduce further, the measures outlined above in relation to the storage and handling of hazardous waste will also be applied to the handling of all hazardous materials and be implemented through the HMMP.



In relation to management of noise and vibration from the generator and operation of maintenance shed, the following measures are to be implemented through the Noise and Vibration Management Plan (NVMP):

- The generator will integrate the use of noise proof acoustic canopy type features
- The maintenance plan for the generator will be such that it remains relatively silent and therefore reduce disturbance to WAC occupants and the adjoining landowner throughout the construction phase. This maintenance plan will include regular cleaning of moving parts and components that are known to create the most noise
- Workshop activities will be limited to daytime hours as defined by the NVMP
- The GRM will be utilised to determine if there are any noise or vibration complaints related to the operation of the WAC. Additionally, regular engagement with the adjoining landowner and communities will be undertaken to qualitatively assess changes in noise levels
- Noise levels will be monitored at regular intervals at the perimeter of the accommodation area of the camp to determine if noise levels within worker's quarters are compliant with the NVMP requirements

The application of these measures through the HMMP and NVMP are predicted to reduce residual impact levels to Minor Negative.

7.6.7 Impact to community health and safety due to poor security management practices

In addition to community health and safety impacts driven by influx and traffic management, the WAC has the potential to introduce an additional source of impacts arising from the utilisation of a security force to guard the perimeter and ensure the



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safety of the workforce. This can be the result of use of excessive force or mistreatment of community members undertaking activities such as approach the WAC to lodge a grievance regarding the project, or responding in an inappropriate manner to situations such as road-blocks, theft, damage to project assets, or civil unrest. Such impacts are generally associated with an inappropriately trained security force, with unclear instructions about specific duties and responsibilities, lack of understanding of local community dynamics, nepotism, willingness to resort to humiliation tactics (eg intrusive body searches) and an apparent willingness to utilise force.

The impact assessment presented below is based on an evaluated receptor sensitivity (ie the local community) as being high.



Impact	Impact to community health and safety due to poor security management practices			
Criteria	Description and Evaluation			
Impact Nature	Negative		Positive	
	This is considered a negative impact			
Impact Duration	Temporary	Short-Term	Long-Term	Permanent
	The impact duration will be limited to the 56 months construction phase			
Impact Spatial Extent	Local	Regional	Global	
	Impacts will be localised to either the WAC, any receptors immediately adjoining the WAC (being the landowner)			
Likelihood	Unlikely	Low Likelihood	Medium Likelihood	High/Inevitable Likelihood
	HEC plans to engage a reputable security provider, however this does not preclude any individuals being used who may not adhere to acceptable principles of security management and use of force			
Impact Magnitude	Negligible	Minor	Moderate	Major
	The magnitude is considered medium, largely because any impacts associated with improper security practices are very difficult to reverse			
Receptor Sensitivity	Negligible	Low	Medium	High
	The receptors include the local community, who are highly sensitive receptors			
Significance	Negligible	Minor	Moderate	Major
	The significance is assessed as major			

The assessed impact is Major Negative. To further reduce residual impacts, a range of management, mitigation and monitoring measures have already been developed and



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captured within an overarching Security Management Plan (SMP). This will apply for the entire project, including the WAC to provide for clear policies on appropriate conduct, use of force, respect towards community and workers and has been carefully designed to meet international best practice. Key measures from this plan include:

- Security staff from both genders are to be recruited and trained by the selected security contractor
- The recruitment process for any security personnel must include background checks prior to formal appointment
- The selected Security Subcontractor will be required to provide extensive training to its team. As defined within Section 5.3 of the SMP, this includes training specific to the Project and its setting (e.g. HEC organisation structures, labour regulations, GRM and Gender Based Violence policies, emergency response provisions, use of security and safety equipment, basic reaction skills, radio skills, conflict management, human rights and code of conduct).
- Pat down searches (and any intrusive searches) on female workers shall be performed by female security staff only
- A good understanding about the importance of respecting the rights of both workers and the community are to be established and monitored. This includes how to handle potential domestic violence situations and grievances
- Proper training on the guard post/boom gate check for entry into the WAC will be undertaken, as well as any obligations in regards to traffic management with vehicles moving in and out of the WAC
- Ensuring the regular and meaningful engagement is maintained between the security force, HEC and important local stakeholders to ensure information flows and early identification of any issues related to security management
- The GRM is to be in place and used to address any grievances against security or the workforce. This will be directly communicated to the community.
- The security force will be provided training in the GRM and the actions they are to take if a member of the community approaches them to lodge a grievance
- Security offices are to be made aware in advance of any visitors to the WAC. Visitors will be logged and issued with temporary passes upon entry to the camp, and be required to carry and display this at all times. Visitors will be escorted/accompanied by the person they are visiting at all times while within the premises
- There are to be no non-work visitors of overnight guests permitted within the WAC, unless specifically and jointly authorised by the Camp Manager, Security Manager and Construction Manager

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The application of the SMP in an effective manner will ensure that inappropriate use of force is limited and therefore the likelihood of security incidents impacting the health and safety of community members significantly reduced. As a result, it is considered that residual impact levels will be Minor Negative.

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7.7 CUMULATIVE IMPACT ASSESSMENT

This section will provide a brief assessment on the cumulative impacts of the WAC construction and operation in combination with artificial activities currently occurring around the WAC site.

7.7.1 Approach for cumulative impact assessment

The assessment of cumulative impacts considers the combination of multiple impacts that may result when the WAC is considered alongside other existing or proposed projects/artificial activities in the same geographic area or similar development timetable. The assessment of cumulative impacts will identify where particular resources or receptors would experience significant adverse or beneficial impacts as a result of a combination of projects/activities (inter-project cumulative impacts). Considering the current development phase of the WAC and Tina River Project, a Rapid Cumulative Impact Assessment (RCIA) has been undertaken in accordance with the IFC PSs and the accompanying Good Practice Handbook: Cumulative Impact Assessment and Management Guidance for Private Sector in Emerging Markets (the “IFC Handbook”).



The RCIA will focus on developing an understanding of its contribution to cumulative impacts on valued environmental and social components (VESCs) within the WAC site and immediate surrounding areas. The RCIA has been developed to meet the following objectives:

- Determine spatial and temporal boundaries of WAC impacts, identify VESCs and the key external natural and social stressors impacting them
- Identify how the WAC, along with other existing and planned projects/activities, if any, may contribute in an additive or interactive manner on the predicted condition of the VESCs
- Develop appropriate mitigation, management and monitoring measures, which are readily implementable by the WAC to ensure these impacts can be avoided or minimised.

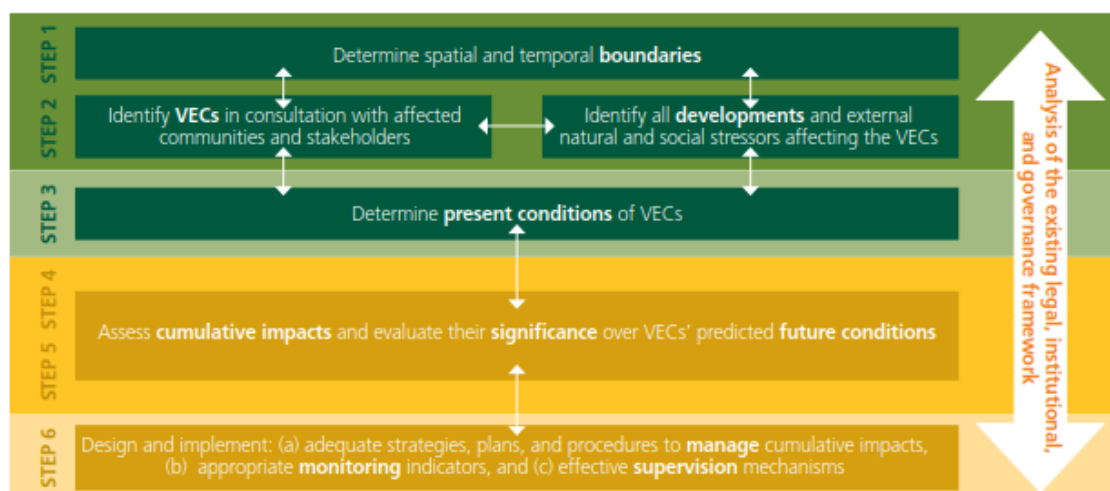
It is noted that this section will provide an overview of methodology for how RCIA is conducted (refer to **Section 7.7.2** below).

7.7.2 RCIA Methodology

The RCIA will be undertaken in accordance with the requirements of the IFC Good Practice Handbook, and in particular, the six-step approach shown within the figure below.

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The emphasis of this RCIA will be placed on taking a qualitative approach in identifying general trends and developing mitigation, management and monitoring measures.



Source: IFC Good Practice Handbook, "Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets (2013)

Figure 7-1 RCIA Six Step Approach.



The assessment method for RCIA, including the determination of impact magnitude, receptor sensitivity and impact significance primarily follows the impact assessment methodology as presented in **Section 7.2**.

Identification of VESCs

As noted above, the first step is to identify all possible and relevant VECs. The ESIA identifies and describes the current condition of a range of sensitive receptors (and resources upon which they rely), which have also been defined as VESCs for the objective of this RCIA. These include:

- Vegetation and habitats, including flora and fauna located within and surrounding area (within 500m radius) of the WAC site as presented in **Figure 7-2**;
- Water resources and quality of the area, including surface and groundwater;
- Local communities and labour resources who are engaging in unskilled labour works.

Identification of spatial boundaries

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The spatial boundaries for the RCIA have been considered based on the various factors including the locations of VESCs as noted above, locations and distances of various civil facilities/projects or activities observed on site during various site visits and studies. It is noted that the spatial boundaries considered for different VESCs also varied. For example, the consideration of spatial boundary for vegetation, habitats, flora and fauna, as well as water resources would generally be directly at the WAC site plus 500m radius around its boundary. On the other hand, the spatial boundary for local communities and labour resources would be similar to the WAC's AOI as determined in **Section 2.1**.

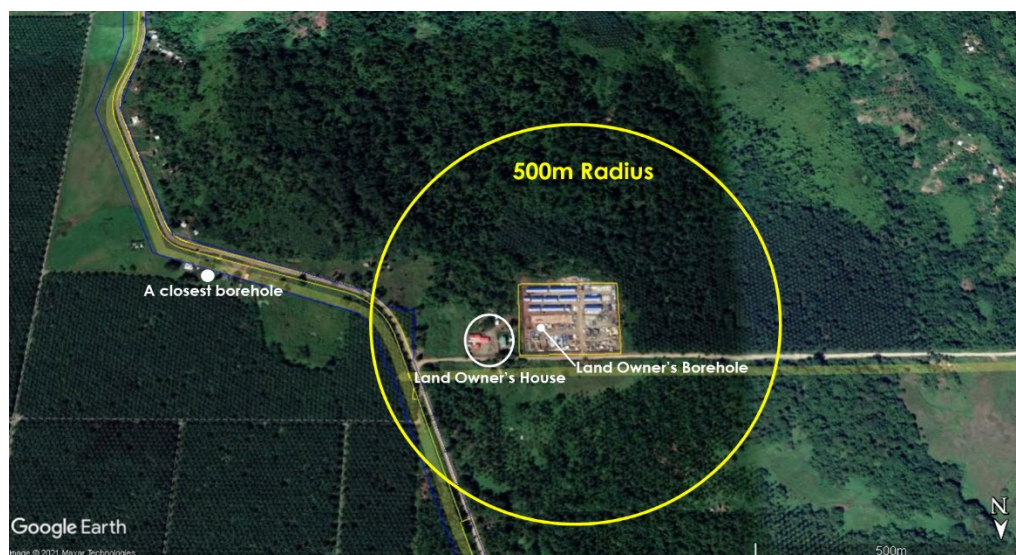




Figure 7-2 VESCs and spatial boundary around the WAC site.

Identification of temporal boundaries

The temporal boundaries considered for the RCIA have been considered based on the various factors including particularly the construction and operation of the WAC and various surrounding civil facilities/projects or activities as identified in **Section 7.7.3** below. It is noted that most of the current activities surrounding the WAC site are long terms/persistent agricultural activities, including subsistence farming and palm oil outgrows. Therefore, the surrounding activities will have overlapping potential with the whole construction and operation phases of the WAC, which is expected to be limited in four months (March – June 2021) and four years (2021-2025), respectively.

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7.7.3 Current activities in the area

Settlement patterns, subsistence farming and Palm oil out growers have contributed to increased pressure on the natural environment and local communities over the past few decades, and the full impact of these activities is still not known. Expected impacts from these activities are detailed in **Table 7-5** below. Burnings especially from subsistence gardening has resulted into producing dust and releasing carbon dioxide to the local atmosphere. Clearance for settlements and gardening and farming of palm oil outgrows alike have led to erosion, siltation and enhance surface run-offs that went unnoticed. Superimposed by the vegetation clearance, hence loss of habitats, this has become cumulative impact, which will overtime be experienced by the people in the area. These are exact real-life situations that their impacts went unnoticed or are neglected by human perception. Overall, the local activities context that would be considered to have ongoing impacts which would contribute to cumulative impacts with WAC include:

- Subsistence farming activities;
- New settlements;
- Palm oil out growers; and
- Logging.

7.7.4 Potential cumulative impacts

Potential cumulative impacts that are relevant to the WAC's PIA include:

- Vegetation clearing leading to disturbance to flora and fauna;
- Water quality impacts; and
- Employment for unskilled labours

For a clear view of the potential cumulation of impacts, impacts from individual activities are presented within the below table.







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Table 7-5 Interaction of Impacts from WAC and other Artificial Activities

Impacts of the WAC	Impacts of Subsistence farming	Impacts of Palm oil outgrow farming	New settlements	Logging
Vegetation clearing at the WAC	Subsistence farming activities/shifting cultivation led to clearance of large areas of vegetation overtime leads secondary regrowth	Large area of land cleared and burnt releasing CO ₂ to local atm. Secondary regrowth especially with succession species (<i>Meremia peltata</i>), pepper mulberry and <i>Themeda australis</i> .	In recent years, people migration to inland areas has resulted in felling of trees and vegetation to build homes and settlements and gardening or farming.	Current and previous logging operations in the area especially in the hinterlands led to clearance of vegetation before felling of logable lowland tree species. Massive vegetation destruction.
Water Quality Impacts from excavation and site discharges (e.g., stormwater, wastewater)	Siltation/sedimentation/runoffs from soil exposure can impact water quality.	Increase siltation/sedimentation/runoffs on exposed surfaces.	The increase settlement patterns in land will generate silt and enhance runoffs that will contaminate water bodies. Inadequate sanitation facilities will also contaminate waterbodies (e.g., open defecation; raw wastewater discharged directly to ground soakage)	Top soil in logged areas are exposed to sunshine and rainfall due to no canopy protection. Thus, very high silt/sediment load washed through surface runoff to be deposited in waterways.

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Disturbance to flora and fauna	Vegetation clearance will result in degradation to precious habitats.	Original flora/fauna have been destroyed. Habitat highly degraded.	Vegetation clearance will result in degradation to precious habitats.	Clear felling method by logging companies result to loss of niches and habitats. Also lead to loss of key cornerstone species.
Employment for unskilled labours.	Self-employment.	Self-employment	Majority of the homes are semi-permanent. These buildings have had to acquire minimum labour.	Most unskilled labour are sourced from the area particularly from relevant tribes.



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7.7.5 *Vegetation clearing and disturbance to flora and fauna*

There are negligible impacts in terms of potential habitat loss as the habitat at the WAC site is highly modified, highly exposed and comprises entirely of lowland and secondary undergrowth, and thus modified habitat across the entire site. As noted in Section 6, within the WAC site itself and 500m radius from its boundary, there are plenty of planting of cash crops, palm oil monoculture plantation, edible plants (e.g., jackfruit, coconut, bread fruit, cocoa and nut trees), surrounded with shrubs and trees dominated by exotic and invasive plants within and surrounding the WAC site. This is assumed due to previous agricultural developments and long-term presence of human occupation and modification of the land scape. This area was previously accessed by human intermittently, mainly for food gardening purposes. The WAC site is therefore considered highly modified and has been considerably degraded over years due to human activities. Thus, the entire WAC site is dominated by the invasive plants together with epiphytic plants and successive plants, which can grow after human activities. The site is also dominated by grasses of the genus *Batika spp* and the *Cyperus spp*, *Mimosa pudics*. It is also surrounded by a swamp forest. Overall, this is a piece of grassland and cash crops, palm oil plantation surrounding it and there was not a single protected species or large size trees to be cleared for the construction of the WAC.

Terrestrial fauna (including amphibian, avifauna, reptiles and mammals) include about 50 bird species, 61 species of reptiles and 21 species of frogs recorded with the dominance of species with least concern or exotic in terms of conservation values. These species are also common in the Island of Guadalcanal and can be found in highly impacted areas due to adaptation and camouflage characteristics.

Overall, impacts to biodiversity associated with habitat loss are considered to be Minor. This is because the site itself is small (i.e., around three hectares), located within a large landscape that has been highly modified. In addition, the timeframe for the impact would be in short term (i.e., construction and operation from 2020 – 2025). Thus, no specific management or mitigation measures are needed except good practice measures during construction and operation. These include already developed ESMPs, including minimize vegetation clearing to project footprint, and in compliance with wider Project ESMPs such as the Forest Clearance Plan. Non land



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assets to be compensated at replacement cost. Implementation and disclosure of prevention of accidental harming or trapping of wildlife due to excavation works, controlled traffic routes, prevention of over clearing of vegetation as required by the Project as well as checking for wildlife prior to clearing should be implemented. The project will also minimize any impacts that are likely to affect flora and fauna in the area through educating workers.

7.7.6 Impacts to water quality

Regarding surface water bodies, there is a swamp forest surrounding the WAC site. It is however, noted that there was no wetland within the camp site. According to the WAC PER report 2020, this area is defined as shady and wetly areas surrounding a surface flow of the creek with the presence of some *Pandanus spp* and *Mariscus javanicus*. The *Sorghum halpense* (Johnson grass) plus other includes *Alocasia macrorrhizos* and the *Diplazium proliferum* which were present on shady, moisture and wetly areas. Some areas include the presents of the Paper reed grass (*Cyperus spp*). Also, according to the WAC PER report 2020, the water within the surface flow of the creek (i.e., the core of the wetland) was observed to be at low quality to the extent that it might only support low diversity of fauna. The water was also observed having low flow and poor tidal circulation and increase turbidity. In addition, no drainage in/around wetlands was constructed in or around the wetland but upgrade of the existing drainage. In addition, the WAC will include a sewage treatment plant (STP) that will treat all wastewater to a high standard and can be sprayed on roads and within the facilities for dust suppression and also recycled.

Regarding groundwater quality, this has been thoroughly assessed in a separate groundwater impact assessment report. In general, all potential impacts from WAC construction and operation to groundwater quality and quantity are rather insignificant or minor due to short term (4-5 years), and no other significant contamination risk at WAC site or the surrounding. Cumulatively, the potential risk of groundwater contamination (CN or heavy metals, and pesticide) from both WAC construction and operation and surrounding activities such as gold mining or palm oil plantations. No source for CN or heavy metals has been identified in Tina River. In addition, no pathway exists from palm oil plantations to the mid or deep aquifer at the three BH sites within the WAC.

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Conclusively, potential cumulative impacts to the surface and groundwater quality from the construction and operation of the WAC in combination with surrounding activities may therefore include:

- Increase turbidity and subsequent sedimentation in the freshwater systems due to vegetation clearing and earthworks;
- Spillage of hydrocarbons and other potential contaminants from vehicle operation, heavy machineries, transport or handlings of materials/substances into the freshwater ecosystem.
- Increase nutrient enrichment to the freshwater from storm water runoffs, wastewater discharge from WAC
- Introduction of freshwater pests from substances/materials transported or excavated.
- Degradation of water quality affecting the freshwater biota and the surrounding communities.

However, such cumulative impacts are considered of minor significance, localised and short-term. Thus, no specific management or mitigation measures are needed except good practice measures during construction and operation. These include construction of silt barriers and sediment ponds, and implementation of controls as detailed in the Project' Drainage, Erosion and Sediment Control Plan (C10 - DESCP). Installation of self-sufficient wastewater treatment systems and responsible disposal for wastewater generated at the WAC, as detailed in the project Waste Management and Point Source Pollution Plan (P12).

7.7.7 Impacts to local labour resources

The construction and operation of the WAC facilities are anticipated to bring short-term economic benefits/ employment to the local area, in particular the villages, which is closely located to the WAC site. As shown in the figure below, WAC is located within 1.3 km ('as the crow flies') from the nearest community settlement, Vera'ande. The communities of Kapicha, Windy Hill, New Tavalasi (1 and 2) Veravaolu and Mahata 2 are also located within a 1.5 km radius of the WAC (see the figure below). These may include unskilled and semi-skilled labour during the civil works phase (e.g., construction workers) and provision of goods and services (e.g., foods and beverages, kitchen staff, cleaning services, security, drivers, etc.). However, these economic benefits are expected to be limited due to short construction time of

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the hydropower plant (within five years) and limited amount of workforce both in construction and operation phases of the WAC.

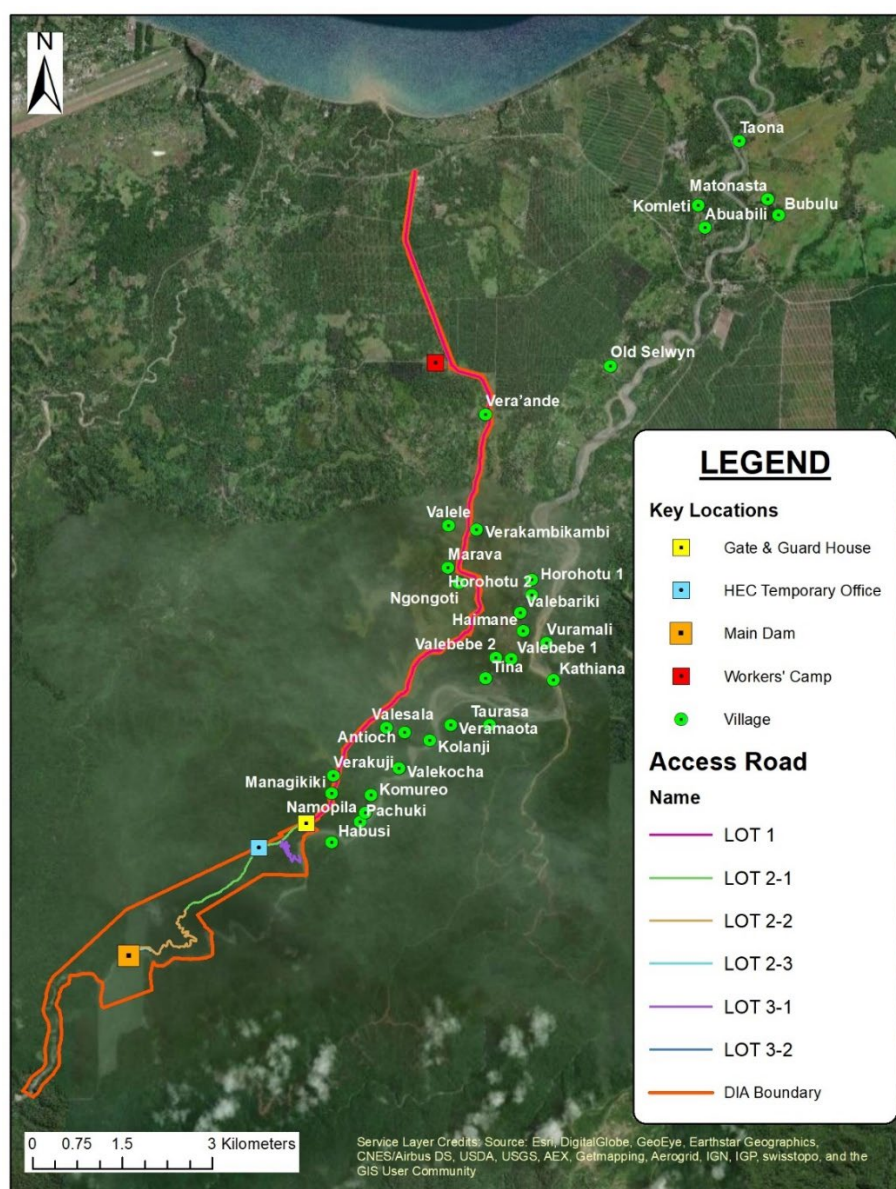






Figure 7-3 The WAC site and nearby villages.

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The construction and operation of the WAC will provide limited unskilled and semi-skilled employment to the local labour forces, which together with current economic activities in the area (i.e., mainly agricultural and palm plantation requiring unskilled labours), will cumulatively bring limited socio-economic benefits to local communities. Thus, the cumulative impacts from construction and operation of the WAC to local labour resources are considered minor. No specific management or mitigation measures are needed except good practice measures during construction and operation. Unskilled work will be sourced from the nearby communities as a priority, in case they meet the job's requirements, by HEC and all sub-contractors. It is noted that as outlined in the World Bank Performance Standards, HEC's recruitment and employment practices and procedures will be based on the principle of equal opportunity and fair treatment, and will not discriminate with respect to any aspects of the employment relationship, such as recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, job assignment, promotion, termination of employment or retirement, and disciplinary practices. A key gateway for recruitment is the CBSP/PO collaboration, through which the highest priority for local level recruitment will be undertaken. Procedures to be implemented through the CBSP/PO mechanism are as follows:

1. HEC to supply monthly vacancies (individual employment + sub-contracts requirements) to CBSP;
2. CBSP to prepare a data base for the benefit sharing communities, provide up-skill trainings for them, and be ready to take up jobs offered by HEC. CBSP will also refer candidates/interested applicants and applications to HEC for review and approval (this includes going into communities).
3. HEC to make available/known to CBSP all the application conditions, forms to pass on to interested applicants to satisfy point #2;
4. HEC at the end of each month to inform CBSP through the employer on the status of recruitment for that particular month. For example, how many members in the community region were employed?

This procedure to be followed both for current vacancies and projected vacancies. Recruitment shall strictly follow the Human Resources and Labour Management Plan (P4 – HRLMP).

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8 IMPLEMENTATION AND MANAGEMENT

8.1 INTRODUCTION



The WAC Impact Assessment has identified and assessed various environmental and social risks associated with the construction and operation of the WAC. A range of management, mitigation and monitoring measures have been developed to reduce these risks and impacts to acceptable levels and achieve compliance with the Applicable Standards. Within the setting of the overall TRHDP, the Construction Environmental and Social Management Plan Framework (C-ESMP) provides the framework of, and represents the minimum Lender's requirements for, the Construction ESMP. It has been formulated based on the Project understanding and the findings and the recommendation of the approved ESIA (2019) and being a live document, is used to integrate management, mitigation and monitoring measures recommended by additional impact assessments conducted in relation to the project.

The CESMP Framework specifies the Management Plans that are required, as part of the contract between the SIG and HEC, to be implemented and complied with by HEC during the construction phase of the Project. It also provides an overview of how these plans interact and serve to reduce the overall risks associated with the Project during the construction phase.

8.2 INTEGRATION WITH C-ESMP DOCUMENTS

The management, mitigation and monitoring measures developed within the WAC Impact Assessment will not be contained within a single management plan, but rather are anticipated to be integrated across a range of existing management plans including, but not limited to:

- P3: Stakeholder Engagement and Communication Plan (SECP)
- P4: Human Resources and Labour Management Plan (HRLMP)
- P5: Influx Management Plan (IMP)
- P6: Grievance Redress Mechanism (GRM)
- P7: Security Management Plan (SMP)
- P9: Workers Code of Conduct (WCC)

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- P10: Community Health and Disease Vector Management Plan (CHDVMP)
- P11: Traffic Management Plan (TMP)
- P12: Waste Management and Point Source Pollution Plan (WMPSP)
- P13: Hazardous Materials Management Plan (HMMP)
- P15: Air Quality Management and Dust Control Plan (AQMDCP)
- C2: UXO Management Plan (UXO-MP)
- M4: Social Impact Monitoring Plan (SIMP)

The proposed monitoring measures have been consolidated into the following section and have been mapped to the relevant management plan. The updating of the management plans will occur once the OE and Lenders have provided review and approval of this WAC impact assessment.

8.3 **MONITORING MEASURES**



It is recognised that the SIMP details monitoring measures primarily for “outside the fence” and not directly applicable to the WAC or its applicants. Therefore, based on the outcomes of this ESIA, the following additional measures are to be monitored and reported on as part of regular quarterly safeguards reporting to Lenders:



- Any changes in use of the WAC, such as occupation period and inclusion of additional uses are to be evaluated either as they occur, or as part of review of operations every 6 months to determine if (a) there are variations to the lease agreement required, or (b) re-assessment of impacts
- Monitoring of camp capacity averaged across each month, and projections of future labour requirements (for expatriate workers) and service staff to determine if exceedances of approved occupancy levels may occur
- As part of the SECP processes, monthly engagement with stakeholders in the vicinity of the WAC to monitor (a) the behaviour of HEC’s drivers, and (b) evaluate if there a need to slightly change the timing of HEC’s daily mobilisation to site in order to avoid any local traffic and pedestrian movements either associated with regular activities (such as start of the school day) or periodic events such as markets and religious events.
- The number of grievances related specifically to the operations of the plant

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- Noise levels will be monitored quarterly and on an as needed basis at the perimeter of the accommodation area of the WAC to determine if noise levels within workers quarters are compliant with NVMP requirements
- The number of corrective actions required arising from the implementation of the scheduled maintenance programmes

These monitoring measures will generally be reported as part of the quarterly safeguard monitoring reports. However, the camp capacity (current numbers of forecast for the next month) and grievances related to the WAC will be reported within the monthly reporting obligated by HEC.

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9 CONCLUSION



This ESIA has been conducted to meet the request of the Projects Lenders that a stand-alone impact assessment be conducted in relation to the WAC prior to approval being granted for occupation. The originally approved ESIA for the overall Project provided that accommodation for expatriate workers was not be located within/around Project Area, primarily to avoid the presence of expatriate workers in proximity to local communities. This assessment has been undertaken having regard for this initial concern and incorporates primary and secondary baseline data, the outcomes of community consultation and international best practice in conducting such assessments. It also recognises that the construction phase has already been completed and a certificate of occupation issued by SIG.

A detailed assessment of alternatives has been developed which concluded that having a WAC and situating it within the proposed location is preferable over a number of options due to the fact that it:

- Provides better living standards for the expatriate workers
- Provides facilities for outdoor activities, games, and recreation
- Decreases the burden on community infrastructure and public resources
- Decreases pressure on the limited existing housing stock across Honiara
- Less traffic congestion within Honiara and less time spent by workers travelling to the workplace
- Access to high quality services such as internet
- Job opportunities for locals to provide goods and services.



Lastly, the selected site was the result of extensive searches to secure a site held under Perpetual Estate and with owners agreeable to entering into a lease agreement.

The environmental and social impact assessment has noted that a number of the impacts are generally short-term in nature and the necessary management, mitigation and monitoring measures able to be implemented through the existing comprehensive suite of ESMP's developed by the project. Key impacts assessed include:



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- The land was secured through lease on a willing-buyer willing-seller model and therefore was not involuntary resettlement. Potential economic displacement impacts have been fully compensated, however HEC recognises the need to continue implementation of the GRM in the case where land-users raise future claims
- The design of the camp has been undertaken to meet all international standards and ensure the health, safety and security needs to the occupants can be met. The camp as built needs to be maintained and the camp inhabitants to be made fully aware of their rights and obligations in relation to conditions within the camp and the manner in which they interact with surrounding communities
- Biodiversity impacts are minimal given the modified nature of the habitat on the site. The principles developed within the overall Post Construction Rehabilitation and Revegetation Plan are to be adopted where the opportunity for plantings and landscaping is identified
- The introduction of the camp into the vicinity of the core area presents a potential influx focal point. HEC recognises that while efforts are being made to reduce overall receptor sensitivity through initiatives contained within documents such as the CBSP and CHDVMP, the key to reducing influx driven impacts is to reduce the likelihood they will occur. Specific attention needs to be paid to ensuring that the IMP is implemented and the occupants of the camp are aware of their obligations under the WCC to ensure that they do not engage in any activities that may encourage influx into the area
- The WAC will change journey movement focal points and will largely be managed through the application of the TMP. Additionally, the peak morning movement times for mobilisation from the WAC to the active work sites is planned between 5am and 6am which is outside the observed peak time for local commutes on the road network
- Waste generated at the WAC will be managed in accordance with the Waste Management and Point Source Pollution Management Plan and the outcomes of the ESIA that has been prepared for the STP



All of these impacts are considered manageable with the applications of management and mitigation measures that have been developed through the suite of management plans that have been the subject of extensive review by the Lenders and updating by HEC to ensure that the Project has a solid and best-in-class approach

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to management environmental and social matters. This concept is extended to the WAC for which this ESIA has demonstrated is the most preferred alternative and able to be operated in a manner which minimises residual negative environmental and social impacts.

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10 ANNEXES

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ANNEX 1. LAND LEASE AGREEMENT

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ANNEX 2. OFFICIAL LETTERS TO STAKEHOLDERS

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ANNEX 3. DETAIL OF WORKERS' ACCOMMODATION CAMP FACILITIES

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***ANNEX 4. ASSESSMENT OF COMPLIANCE TO IFC, EBRD GUIDANCE ON WORKER'S
ACCOMMODATION***

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ANNEX 5. PER & DEVELOPMENT CONSENT & CERTIFICATE OF OCCUPANCY

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ANNEX 6. CAMP MANAGEMENT ROLES AND RESPONSIBILITY

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ANNEX 7. CAMP RULE

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ANNEX 8. CAMP SECURITY PROCEDURE

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ANNEX 9. HEC COMMUNITY CONSULTATIONS REPORT

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ANNEX 10. GCET COMMUNITY CONSULTATIONS REPORT

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ANNEX 11. UXO ALARP CERTIFICATION



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ANNEX 12. UXO CHANCE FIND PROCEDURE

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ANNEX 13. RISK ASSESSMENT



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ANNEX 14. IFC/EBRD GUIDANCE ON WORKERS' ACCOMMODATION ANNEX I