Strengthened adaptive capacity and reduced exposure to climate risks of vulnerable livelihoods and infrastructure in the Vaisigano River Catchment

Environmental and Social Management Framework and Management Plan
Introduction

1. This Environmental and Social Management Framework and Management Plan (ESMF and MP) has been prepared in support of a project proposal on “Strengthened adaptive capacity and reduced exposure to climate risks of vulnerable livelihoods and infrastructure in the Vaisigano Catchment” by the Government of Samoa to the Green Climate Fund (GCF). In line with Samoan law, and Environmental and Social Impact Assessment is only required for a portion of the project and this has previously been undertaken by the Government. As this project is supported by UNDP in its role as a GCF Accredited Entity, the project has been screened against UNDP’s Social and Environmental Standards Procedure and deemed to be a medium risk (Category B) project. Discussions on the impact assessment are provided in the Social and Environmental Screening Template which provided the rationale for the project being classified as a Category B. This ESMF and MP provides further discussion below.

Project Overview

2. The project promotes a paradigm shift through its integrated and holistic approach to both hard and soft flood protection of the Greater Apia Catchment, and specifically, the Vaisigano River through three inter-linked outputs:

a. Strengthening capacities and mechanisms for integrated approach to reduce flood-related risks. Under this output, the activities include:
   i. Conduct a feasibility study to review the interdependence of flood mitigation options: A number of flood mitigation interventions have been identified but have to-date only been considered in isolation and without the benefit of detailed LiDAR topographic data now available. An assessment of the overall performance of the proposed interventions as an integrated flood management system is required. This is best achieved through the use of an integrated hydraulic model;
   ii. Conduct feasibility studies for flood-buffering reservoir in the upper catchment of the Vaisigano River: The study will assess options to support flood management with potential co-benefits in hydropower generation and as a potable water storage for the Apia Urban Area (AUA). Terms of Reference for the study have been prepared as part of this proposal;
   iii. Conduct a feasibility study for improving the flood resilience of the Central Cross Island Road: The Central Cross Island Road is one of the main economic arteries on Upolu Island, as well as an important evacuation route for the densely populated AUA. The feasibility study will assess design as well as undertake an environmental and social impact assessment as there is the potential need for land acquisition for the widening of the road corridor;
   iv. Conduct feasibility studies for Apia integrated sewage system: the project will undertake a feasibility study to develop an integrated sewage system for the whole AUA;
   v. Establish a health surveillance system to track and manage flood related health issues; expand the early warning system to provide coverage for flood alerts in the AUA;
   vi. Conduct awareness raising campaigns on building practices and designs for communities at risk in the Vaisigano River Catchment;
   vii. Expand the early warning system’s coverage to provide flooding alerts in Apia; and
   viii. Conduct awareness raising campaigns on climate resilient building practices and designs for at risk communities living along the Vaisigano River.

b. Flood roof key infrastructure in the Vaisigano River Catchment to increase resilience to negative effects of excessive water. Under this output, the activities include:
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i. Review proposed designs for channelization of Segment 2, 3 and 4 of the Vaisigano River including the impact on channel capacity and the potential for optimizing scheme design and durability;

ii. Establishment of flood protection measures along segments 2, 3 and 4 of the Vaisigano River;

iii. Replacement of Lelata Bridge to accommodate increase flood waters;

iv. Extension of floodwalls at Leone and Lelata Bridges to prevent damage during extreme events;

v. Capacity building of maintenance teams for flood protection measures;

vi. Contracting members of the local communities for execution of activities with regards to building and landscape restoration along the Vaisigano River; and

vii. Implement ecosystem responses upstream for decreased flows during extreme weather events including through participatory mapping by communities and value chain system actors, with a focus on women and youth, to support adoption of climate-resilient technologies and practices.

c. Upgrading drainage in downstream areas to increase water flow regulation. Under this output, the activities include:

i. Developing a climate resilient Stormwater Master Plan; and

ii. Upgrading drainage systems in nine (9) priority segments and outfalls in the central business district coastal hazard area to accommodate flooding events.

Assumptions underpinning the development of the ESMF and MP

1. The following assumptions have been made in the preparation of this ESMF and MP:
   a. none of the interventions will require the displacement of people;
   b. none of the interventions will be conducted in sensitive locations;
   c. the excavation works for the river channel works will be undertaken during the dry season;
   d. all sediment removed from the river will be placed on existing agricultural land and/or stored in an appropriate manner;
   e. all drainage work will be undertaken in the dry season and all waste streams will be managed effectively;
   f. acid sulfate soils will be managed effectively if found during construction;
   g. the construction of the new bridge will be undertaken in the dry season and all waste streams will be managed effectively;
   h. where practicable, materials will be pre-fabricated to reduce waste;
   i. appropriate erosion and sediment control will be undertaken during all stages of the projects; and
   j. there will be no release of pollution and/or chemicals as a result of the projects.

Governing Legislation

2. The legislative basis for the provision of project and environmental and social protection in Samoa are controlled through numerous pieces of legislation and sub-ordinate legislation including but not limited to:

   a. Agriculture, Forests and Fisheries Ordinance 1959;
   b. Alienation of Customary Land Act 1965;
c. Alienation of Freehold Land Act 1972;
d. Animals Ordinance 1960;
e. Disaster and Emergency Management Act 2007;
g. Fisheries Management Act 2016;
h. Forestry Management Act 2011;
i. Health Ordinance 1959;
j. Lands, Surveys and Environment Act 1989;
k. Land Titles Registration Act 2008;
l. Marine Pollution Prevention Act 2008;
m. Ministry of Health Act 2006;

n. Ministry of Internal Affairs Act 1995, 2010 and as amended;
q. Ministerial and Departmental Arrangements Act 2003;
r. National Parks and Reserves Act 1974;
s. Pesticides Regulation 2011;
t. Planning and Urban Management Act 2004;
u. Ports Authority Act 1998;
w. Quarantine (Biodiversity) Act 2005;
x. Samoa Water Authority Act 2003;
y. Samoa Water Authority (Sewerage and Wastewater Regulations) 2009;
z. Scientific Research Organisation of Samoa Act 2008;

aa. Spatial Information Management Act 2010;

bb. Taking of Land Act 1964;
cc. Waste Management Act 2010;

cc. Water Resources Management Act 2008;

dd. Water Resources and Management Regulation 2013;

ee. Water Schemes Act 2015;


3. Additionally, the project is being undertaken by the UNDP. As such, the project will not only comply with Samoa’s national law, but with any obligations imposed and applicable under international law, whichever is the higher standard.

Planning and Urban Management Act 2004

4. The Planning and Urban Management Act 2004 is the primary piece of legislation to address nature conservation and national parks management as well as land planning and development. The Act established a development consent process mainly for land use planning.

5. The Planning and Urban Management Act 2004 is administered by MNRE. The Act broadly defines development and considers its impacts on the ‘total’ environment (social, economic and bio-physical).
The objectives of the Act are to provide for the fair, orderly, economic and sustainable use, development and management of land including the protection of natural and man-made resources and the maintenance of ecological processed and genetic diversity; to enable land use and development planning and policy to be integrated with environmental, social, economic, conservation and resources management policies at national, regional, district, village and site specific levels; to create an appropriate urban structure and form for the development of Apia and other centers so as to provide equitable and orderly access to transportation, recreational, employment and other opportunities; to secure a pleasant, efficient and safe working, living, recreational environment for all Samoans and visitors to Samoa; to protect public utilities and other assets and enable the orderly provision and co-ordination of public utilities and other facilities for the benefit of the community; and to balance the present and future interests of all Samoans.

6. The Act provides a process for the development of sustainable management plans and various coordination, education and promotional roles. With respect to the plans, a hierarchy of national, regional, district and village sustainable management plans is in place.

7. MNRE has a statutory role under Section 63 of the Act to “…remove or minimize the impacts affecting the amenity of an area or place…” Amenity is defined as the pleasant, comfortable and normal convenient values of an area or place that must be protected and safeguarded from negative impacts of a nuisance. Pursuant to section 63, the amenity of an area or place must not be comprised by:
   a. Excessive noise; or
   b. Excessive dust;
   c. Visually offensive signage, material or structures;
   d. Poor airspace, lighting or ventilation; or
   e. Excessive traffic generation;
   f. Smell, fumes, vapour;
   g. Waste materials, including bulk material, used goods and property
   h. Waste water, sewage and drainage; and
   i. Stray and domestic animals.

8. While the Planning and Urban Management Act 2004 does not outline an administrative process, it does require an environmental impact assessment to be prepared in accordance with written specifications under Section 42 of the Planning and Urban Management Act 2004 PUMA (s42 (2)). These requirements can be generated without Regulation although this is not ruled out as the power to institute Regulations under s105, includes the following with respect to environmental assessment
   (e) the documents and information required to accompany development applications, including documents that will assist the Agency in assessing the environmental effects of development;
   (j) the form of statements of environmental effects and environmental impact assessments;
   (k) the documents and information required to accompany statements of environmental effects and environmental impact statements;
   (r) the factors to be taken into account when consideration is being given to the likely impact of a development on the environment;
   (s) the preparation, contents, form and submission of environmental impact assessments;
   (t) the making of environmental impact assessments available for public comment;
   (u) the methods of examination of environmental impact assessments and representations made with respect to activities to which any such statements relate.

9. The riverbank works have previously undertaken an environmental impact assessment and this has been attached as an annexure to the ESMF and MP. No other works undertaken under the project require an environmental and social impact assessment.
Planning and Urban Management Regulations 2007

10. The Planning and Urban Management (EIA) Regulations 2007 establishes a process required to assess the environmental impacts of any development works. The regulation is developed as per the Act, to facilitate the requirement for environmental assessment reports as one of many key considerations when assessing the development proposals. The proposed programme will be fully aligned with these procedures and will further strengthen them through supporting the integration of climate change and disaster risk management considerations during a formal review process.

11. No works undertaken under the project, apart from the riverbank works, require an environmental and social impact assessment.

Lands, Surveys and Environment Act 1989

12. The Lands, Surveys and Environment Act 1989 is the primary piece of legislation for any project on Government land. The Vaisigano River is government land as are the areas where drainage works will be undertaken.

13. The Lands, Surveys and Environment Act 1989 requires the completion of an environmental impact assessment as a prerequisite for development proposals. As noted above, the riverbank works have previously undertaken an environmental impact assessment which has been approved by Government. The Act also prohibits activities in the coastal zone. The only actions that will be taken indirectly in the coastal zone are those related to drainage, although the project will not specifically be undertaken in the coastal zone.

14. The Act also establishes a regime for monitoring of environmental impacts and the undertaking of investigations of activities affecting the environment through the provision of compliance orders. The project will follow any requirements under the Act for all projects undertaken on Government land.

Water Resources Management Act 2008


16. The Water Resources Management Act 2008 requires the precautionary principle (Part II, s. 5) to be considered for any potential environmental impacts.

Overview - Institutional Requirements for the Environmental and Social Management Framework and Management Plan

17. The ESMF and MP will be assessed for each component of the project by the Ministry of Natural Resources and Environment (MNRE) and UNDP prior to any works being undertaken and will be reviewed continuously through the life of the project. The ESMF and MP identifies potential risks to the environment and social matters from the projects and outlines strategies for managing those risks and minimizing undesirable environmental and social impacts. Further, the ESMF and MP provides a Grievance Redress Mechanism for those impacted by the projects that do not consider their views have been heard.

18. The Ministry of Finance (MOF) in coordination with MNRE will be responsible for the supervision of the ESMF and MP. The UNDP with gain the endorsement of the MNRE and will ensure the ESMF and MP is adequate and followed. The supervising engineer will ensure timely remedial actions are taken by the contractor where necessary.

Objectives of the Environmental and Social Management Framework and Management Plan

19. An ESMF and MP is a management tool used to assist in minimising the impact to the environment and reach a set of environmental objectives. To ensure the environmental objectives of the projects
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are met, this ESMF and will be used by the contractor to structure and control the environmental management safeguards that are required to avoid or mitigate adverse effects on the environment.

20. The environmental and social objectives of the projects are to:
   a. ensure the river bank, drainage and other construction and ecosystem works do not cause environmental and social impacts;
   b. improve upstream sediment retention through revegetation of the catchment thus increasing water quality both downstream and entering the coastal lagoon;
   c. reduce the impact of flooding and thus the loss of assets and social disruption from overtopping of the Vaisigano River;
   d. enhance the existing early warning system that ensures adequate measures are undertaken prior to any rainfall and flood event;
   e. encourage good management practices through planning, commitment and continuous improvement of environmental practices;
   f. minimise or prevent the pollution of land, air and water pollution;
   g. protect native flora and fauna from the impacts of flooding;
   h. comply with all applicable laws, regulations and standards for the protection of the environment; adopt the best practicable means available to prevent or minimise environmental impact;
   i. describe all monitoring procedures required to identify impacts on the environment; and
   j. provide an overview of the obligations of MNRE and UNDP staff and contractors in regard to environmental and social obligations.

21. The ESMF and MP will be updated from time to time by the contractor in consultation with the UNDP staff and MNRE to incorporate changes in the detailed design phase of the projects. The ESMF and MP will continue through the life of the project to comply with the UNDP Safeguards policies and all relevant Samoan laws.

Livelihood Interventions and Soft Infrastructure

22. The project proposes to undertake a number of livelihood interventions and soft infrastructure. These include:
   a. Establish a health surveillance system to track and manage flood related health issues; expand the early warning system to provide coverage for flood alerts in the AUA;
   b. Expand the early warning system’s coverage to provide flooding alerts in Apia;
   c. Conduct awareness raising campaigns on building practices and designs for communities at risk in the Vaisigano River Catchment;
   d. Conduct awareness raising campaigns on climate resilient building practices and designs for at risk communities living along the Vaisigano River.
   e. Contracting members of the local communities for execution of activities with regards to building and landscape restoration along the Vaisigano River
   f. Implement ecosystem responses upstream for decreased flows during extreme weather events including through participatory mapping by communities and value chain system actors, with a focus on women and youth, to support adoption of climate-resilient technologies and practices

23. Dot points a and b require the installation of infrastructure, albeit, relatively small infrastructure including field monitoring instruments and sirens as examples. It will be necessary to ensure during the installation of this equipment that it is placed so as to not impact the community but ensure that it provides the most benefit and sufficient warning prior to an event.
24. Dot points c and d are related to the whole of the population of the AUA. They will be undertaken widely and as such, there will be no specific targeting or particular sectors of the community, notwithstanding that it will be targeted at those living in vulnerable housing.

25. As part of the previous and current project assessment, a total of 18 villages that are vulnerable to climate change were identified in the AUA, these being Aai o Niue, Avele, Faatoialemanu, Lelata, Leone, Levili, Letava Maagiagi Uta, Matautu Uta, Papauta, Tanugamanono, Vaiala Uta, Vailima, Vaipuna, Vaala, Vasigano, and Vinifou. The total population for the 18 villages identified is 8,651 with 4,318 females, or 50% of the population, according to the 2011 population census. The 2014 School to Work Transition Survey listed 2,392 youths defined as those between the age bracket of 18 and 35 years of age for these villages.

26. These villages will receive access to a number of livelihood interventions as well as soft infrastructure projects and have been targeted for their vulnerability. No indigenous people and/or ethnic minorities are known to live in Samoa.

27. The villages at the heart of this proposal are located in urban or peri-urban areas, and as such there may be some variance from traditional village governance and distribution of resources. For example, the market analysis conducted for this proposal notes that the 18 communities are more likely to live on freehold land than on customary lands, with 58% of households in the Apia Urban Area located on freehold, 12.5% on leased land, and 29.2% on customary land. This is likely to give households more autonomy on what they might develop on their respective lands, compared with those on customary land.

28. These villages will be targeted with respect to dot points e and f to provide both employment and resilient communities. The intervention focuses on implementation of the Upland Watershed Conservation Policy, the 2-million-trees campaign as well as activities under the Integrated Water Management Plan which deal with protecting the upstream and midstream areas of the Vaisigano River against soil degradation and increasing the water holding capacity of both soils and land use systems. That would mean introducing agroforestry systems that introduce as much soil cover as possible and integrate as much organic material into the soil as possible, without reducing soil porosity. For the more sensitive areas, such as river- and streambeds and other water bodies, the existing regulations with regards to preserving a strip of original vegetation along riparian corridors should be strictly obeyed; which would mean no building or agricultural activities in this strip that might cause soil disturbance. Above a certain percentage, slopes should no longer be used for agricultural purposes without anti-erosive measures and on even steeper slopes, only land use should be applied that doesn't disturb the soil; which mostly coincides with pure conservation through reforestation, preferably with native tree species.

29. Given that there are no indigenous people and/or ethnic minorities, there is no need to develop specific plans for these activities. However, the project will develop specific consultation plans for these vulnerable communities to ensure there is free, prior and informed consent before any consultation occurs and the same re their engagement in activities. There has also been a Memorandum of Understanding drafted for signing between the Ministry of Women, Community and Social Development and Small Business Enterprise Centre (SBEC) to work together to establish a Small Business Incubator for Youth in Apia, Samoa, along with a Memorandum of Understanding signed by the Government, SBEC and Development Bank of Samoa for the Samoa Agricultural Competitiveness Enhancement Project. Copies of both Memorandum of Understanding are annexed to the ESMF an MP.

30. Further, it will be imperative that no impacts occur to the use of one’s land where ecosystem based activities are to be conducted and moreover, that this does not impact the livelihoods of those living on their lands. As such, prior to undertaking any activities, the Project Management Unit will undertake appropriate consultations and prepare a Livelihood Plan. The Livelihood Plan should include access rights and resource rights.
Land Issues

31. For the purposes of the current projects, excluding other aspects of the programme, all activities will be undertaken on land or within rivers currently owned by the Government of Samoa. As such, there is no requirement for any form of land acquisition and/or compensation to be paid.

32. With respect to the land where ecosystem based activities, the land tenure in 2011 shows around 29.9% of Vaimauga West households living on customary land, 55.9% on freehold land and 13.7% on leased land. The land tenure ratio for Vaimauga West is very similar to that of the AUA with 29.2% on customary land, 58% of households on Freehold land and 12.5% living on leased land. This compares to the majority of households outside AUA living on customary lands. Thus the majority of the 18 vulnerable communities are more likely to live on freehold land which gives these households more autonomy on what they could develop on their respective lands compared to those living on customary lands. All the activities under the project will not require any acquisition and or resettlement.

Indigenous Peoples

33. As part of due diligence, an analysis and consultations were undertaken as to the likelihood of any of the project’s activities involving indigenous people and/or ethnic minorities. No indigenous people and/or ethnic minorities are known to live in Samoa.

Environmental and Social Impact Assessment

34. An impact risk assessment was undertaken to assess the likelihood (remote, rare, unlikely, possible, occasional, likely) and the consequence of each impact (negligible, minor, moderate, severe, major, catastrophic). From this, a significance value was attributed to the potential impact (negligible, low, medium, high and extreme).

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<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Negligible</th>
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35. When undertaking the risk assessment, all activities were assessed, including, hard, soft infrastructure and livelihood interventions. Specific measures for each matter eg water are discussed with mitigation measures provided later in this ESMF and MP.
<table>
<thead>
<tr>
<th>Activity</th>
<th>Unmitigated Impacts</th>
<th>Likelihood of Impact and Consequence</th>
<th>Avoidance and Mitigation Measures</th>
<th>Likelihood of Impact and Consequence post mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct a feasibility study to review the interdependence of flood mitigation options</td>
<td>This will involve hydrological modelling. The only impacts would be the installation of equipment to collect data. As such, the study is unlikely to have any significant impact although there is the potential, albeit small to impact the environment or land during the installation of loggers</td>
<td>Likelihood: 1 Consequence: 2</td>
<td>Prior to installation, the project should undertake due diligence and ensure no land is being adversely affected and that the monitoring equipment is not placed in a sensitive location.</td>
<td>Likelihood: 1 Consequence: 1</td>
</tr>
<tr>
<td>Conduct feasibility studies for flood-buffering reservoir in the upper catchment of the Vaisigano River</td>
<td>This will involve undertaking engineering and an environmental and social impact assessment. The only impacts would be the installation of equipment to collect data and or geotechnical works to understand the geology of the existing environment. As such, the study is unlikely to have any significant impact although there is the potential, albeit small to impact the environment or land during the installation of loggers and or drilling bore holes</td>
<td>Likelihood: 4 Consequence: 2</td>
<td>Prior to undertaking any works, the project should undertake due diligence and ensure no land is being adversely affected and that the monitoring equipment is not placed in a sensitive location.</td>
<td>Likelihood: 1 Consequence: 1</td>
</tr>
<tr>
<td>Conduct a feasibility study for improving the flood resilience of the Central Cross Island Road</td>
<td>This will involve undertaking engineering and an environmental and social impact assessment. The only impacts would be the installation of equipment to collect data and or geotechnical works to understand the geology of the existing environment. As such, the study is unlikely to have any significant impact although there is the potential, albeit small to impact the environment or land during the installation of loggers and or drilling bore holes</td>
<td>Likelihood: 4 Consequence: 2</td>
<td>Prior to installation, the project should undertake due diligence and ensure no land is being adversely affected and that the monitoring equipment is not placed in a sensitive location. It is noted that there is the potential for land acquisition to need to occur; however this will only be considered should the project follow through following the feasibility assessment.</td>
<td>Likelihood: 1 Consequence: 1</td>
</tr>
<tr>
<td>Conduct feasibility studies for Apia integrated</td>
<td>This will involve undertaking engineering and an environmental and social impact assessment. The only impacts would be the installation of equipment to collect data and or geotechnical works to understand the geology of the existing environment. As such, the study is unlikely to have any significant impact although there is the potential, albeit small to impact the environment or land during the installation of loggers and or drilling bore holes</td>
<td>Likelihood: 4 Consequence: 2</td>
<td>Prior to undertaking any works, the project should undertake due diligence and ensure no land is being adversely affected and that the monitoring equipment is not placed in a sensitive location.</td>
<td>Likelihood: 1 Consequence: 1</td>
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#### Greenwood Climate Fund Funding Proposal

<table>
<thead>
<tr>
<th>Activity</th>
<th>Impact Description</th>
<th>Likelihood</th>
<th>Consequence</th>
<th>Mitigation Measures</th>
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</thead>
<tbody>
<tr>
<td>Establish a health surveillance system to track and manage flood related health issues;</td>
<td>The only impacts would be the installation of equipment to collect data. As such, the study is unlikely to have any significant impact although there is the potential, albeit small to impact the environment or land during the installation of loggers.</td>
<td>3</td>
<td>1</td>
<td>Given the nature of the activity, it is unlikely that there will be the need to undertake any mitigation measures.</td>
</tr>
<tr>
<td>Conduct awareness raising campaigns on building practices and designs</td>
<td>The activity will engage with community so as they can better understand the implications of the new Building Code and what matters they should consider when undertaking the construction of a new dwelling etc.</td>
<td>0</td>
<td>1</td>
<td>Given the nature of the activity, it is unlikely that there will be the need to undertake any mitigation measures.</td>
</tr>
<tr>
<td>Expand the early warning system's coverage to provide flooding alerts in Apia</td>
<td>The only impacts would be the installation of equipment to collect data. As such, the study is unlikely to have any significant impact although there is the potential, albeit small to impact the environment or land during the installation of loggers.</td>
<td>1</td>
<td>1</td>
<td>Given the nature of the activity, it is unlikely that there will be the need to undertake any mitigation measures.</td>
</tr>
<tr>
<td>Review proposed designs for channelization of Segment 2, 3 and 4 of the Vaisigano River including the impact on channel capacity and the potential</td>
<td>This activity will have no environmental or social impacts, although if the review was not conducted effectively, this could then have flow on impacts to the relevant activities in stream which could result in impacts as identified for each activity.</td>
<td>1</td>
<td>1</td>
<td>Given the nature of the activity, it is unlikely that there will be the need to undertake any mitigation measures.</td>
</tr>
<tr>
<td>Activity</td>
<td>Likelihood</td>
<td>Consequence</td>
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</table>
| Establishment of flood protection measures along segments 2, 3 and 4 of the Vaisigano River | 5          | 2           | This activity will require the potential need for road closures, loss of access to the River where works are being undertaken. An Environmental and Social Impact Assessment has been prepared for the project and included as an annexure to this ESMF and MP.  
The activity will not impact on greenfield locations; it will all be undertaken in existing locations. There are a number of potential impacts associated with the works including but not limited to the potential erosion and sediment movement during rainfall events and as a result of dust, all of which could have impacts on water quality, noise impacts from the use of jack hammers and excavators, the potential leakage of chemicals and oils, and other potential impacts.  
The construction activities could also result in changes to people’s ability to move within the region and a loss of access for recreational activities.  
The ESMP sets out appropriate mitigation measures for the impacts of the construction of the river walls. The most appropriate mitigation measure is to ensure activities do not occur during periods of rainfall which could significantly increase sediment discharges and erosion. |
| Replacement of Lelata Bridge to accommodate increase flood waters       | 5          | 2           | This activity will require roadworks and road closures to remove the existing bridge and construct the new bridge. This might also require the relocation of services.  
The activity will not impact on greenfield locations; it will all be undertaken in existing locations. There are a number of potential impacts associated with the works including but not limited to the potential erosion and sediment movement during rainfall events and as a result of dust, all of which could have impacts on water quality, noise impacts from the use of jack hammers and excavators, the potential leakage of chemicals and oils, and other potential impacts.  
The ESMP sets out appropriate mitigation measures for the impacts of the upgrading of the Lelata Bridge. One critical mitigation measure would include not undertaking the decommissioning and construction of the Lelata Bridge until such time as the Leone Bridge has been commissioned. |

 Likelihood: 4  
Consequence: 2
<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
<th>Likelihood</th>
<th>Consequence</th>
<th>Mitigation Measure</th>
<th>Likelihood</th>
<th>Consequence</th>
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<tbody>
<tr>
<td>Sediment movement during rainfall events and as a result of dust, all of which could have impacts on water quality, noise impacts from the use of jack hammers and excavators, the potential leakage of chemicals and oils, and other potential impacts. The construction activities could also result in changes to people’s ability to move within the region.</td>
<td>This activity will require river works and potential road closures to access the river, undertake excavation works and construct the river walls. This might also require the relocation of services. The activity will not impact on greenfield locations as the river is highly disturbed both natural and anthropogenic. There are a number of potential impacts associated with the works including but not limited to the potential erosion and sediment movement during rainfall events and as a result of dust, all of which could have impacts on water quality, noise impacts from the use of jack hammers and excavators, the potential leakage of chemicals and oils, and other potential impacts. The construction activities could also result in changes to people’s ability to move within the region.</td>
<td>5</td>
<td>2</td>
<td>The ESMP sets out appropriate mitigation measures for the impacts of the construction of the river walls. The most appropriate mitigation measure is to ensure activities to do not occur during periods of rainfall which could significantly increase sediment discharges and erosion.</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Extension of floodwalls at Leone and Lelata Bridges to prevent damage during extreme events</td>
<td>This activity will engage GoS so as they can better understand the implications of maintaining the works post construction</td>
<td>1</td>
<td>1</td>
<td>Given the nature of the activity, it is unlikely that there will be the need to undertake any mitigation measures</td>
<td>1</td>
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</tr>
</tbody>
</table>
**Contracting members of the local communities for execution of activities with regards to building and landscape restoration along the Vaisigano River**

This activity will involve the creation of jobs and businesses for the local community. There are unlikely to be any environmental impacts associated with the activity. There is the potential for social impacts including health related issues, pressure from family members to gain access to the financial benefits that contracted people gain, potential loss of businesses which could result in family upheaval should businesses fail.

- **Likelihood:** 2
- **Consequence:** 3

**Implement ecosystem responses upstream for decreased flows during extreme weather events**

This activity will involve undertaking replanting and other livelihood interventions on both private and GoS land. It will not require any acquisition or resettlement. Previous modelling undertaken for the EWACC Project has highlighted the significant environmental and social benefits of these activities. However there is the potential, if not properly conducted to have both environmental and social impacts.

Environmentally, the impacts include the potential erosion and sediment movement during rainfall events and as a result of dust, all of which could have impacts on water quality, noise impacts from the use of any machinery, the potential leakage of chemicals and fertilisers, and other potential impacts.

Social, the activity could result in changes to livelihoods and the normal day to day activities. It is critical that due diligence be properly undertaken prior to the undertaking of any activity including the development of a Livelihood Plan.

- **Likelihood:** 3
- **Consequence:** 3

**The project has established a Memorandum of Understanding signed between the Ministry of Women, Community and Social Development and Small Business Enterprise Centre to work together to establish a Small Business Incubator for Youth in Apia, Samoa. Where possible, this should be extended under the project to ensure those people entering business are provided the proper training and advice to know how to properly manage their activities, both individually and communally.**

- **Likelihood:** 1
- **Consequence:** 2

**If the appropriate mitigation measures as identified in the ESMF and MP are undertaking, including for example, the establishment of sediment curtains etc, and the development of a Livelihood Plan, then the impacts should be significantly mitigated.**

- **Likelihood:** 2
- **Consequence:** 1
### Developing a climate resilient Stormwater Master Plan

This will involve undertaking engineering and an environmental and social impact assessment. The only impacts would be the installation of equipment to collect data and or geotechnical works to understand the geology of the existing environment so as septic tanks could be assessed. As such, the study is unlikely to have any significant impact although there is the potential, albeit small to impact the environment or land during the installation of loggers and or drilling bore holes.

**Likelihood:** 2  
**Consequence:** 2

Prior to undertaking any works, the project should undertake due diligence and ensure no land is being adversely affected and that the monitoring equipment is not placed in a sensitive location. It may be necessary to re-route traffic during times of any testing etc.

### Upgrading drainage systems in nine (9) priority segments and outfalls

This activity will require roadworks to access existing drainage lines. The activity will not impact on greenfield locations; it will all be undertaken in existing locations. There are a number of potential impacts associated with the works including but not limited to the potential disturbance of acid sulphate soils, erosion and sediment movement during rainfall events and as a result of dust, all of which could have impacts on water quality, noise impacts from the use of jack hammers and excavators, the potential leakage of chemicals and oils, and other potential impacts.

**Likelihood:** 5  
**Consequence:** 2

The ESMP sets out appropriate mitigation measures for the impacts of the upgrading of the drainage lines.

**Likelihood:** 4  
**Consequence:** 2
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General Management Structure and Responsibilities under the ESMF and MP

36. The UNDP and MNRE are accountable for the provision of specialist advice on environmental and social issues to the contractor and for environmental and social monitoring and reporting. The MNRE will assess the environmental and social performance of the contractor in charge of construction throughout the project and ensure compliance with the ESMF and MP.

37. The MNRE will be responsible for monitoring the implementation of the ESMF and MP by relevant supervisory staff during construction. During operations the contractor will be accountable for implementation of the ESMF and MP. Contractors working on the projects have accountability for preventing or minimising environmental and social impacts.

Administration

38. The MNRE will be responsible for the revision or updates of this document during the course of work. It is the responsibility of the person to whom the document is issued to ensure it is updated.

39. The site supervisor will be responsible for daily environmental inspections of the construction site. The MNRE will cross check these inspections by undertaking monthly audits.

40. The contractor will maintain and keep all administrative and environmental records which would include a log of complaints together with records of any measures taken to mitigate the cause of the complaints.

41. The contractor will be responsible for the day to day compliance of the ESMF and MP.

42. MNRE will be the implementing agency and will be responsible for the implementation and compliance with the ESMF and MP via the contractor. The ESMF and MP will be part of any tender documentation.

43. The Supervising Engineer/Project Manager will supervise the contractor, while the MNRE will be responsible for environment and social issues.

Site Supervisor

44. The site supervisor is responsible for ensuring compliance with the ESMF and MP. The site supervisor will provide advice on effective environmental management of the project to the UNDP Staff, MNRE and engineers and all construction site personnel. The site supervisor is to also ensure the environmental awareness of project personnel is maintained through appropriate training. A compliance report on mitigation measures will be submitted by the UNDP to MNRE for the civil contractor. An independent review of the compliance may be undertaken during construction and post construction where deemed necessary.

Environmental Procedures and Site and Activity-Specific Work Plans/Instructions

45. Environmental procedures provide a written method describing how the management objectives for a particular environmental element are to be obtained. They contain the necessary detail to be site or activity-specific and are required to be followed for all construction works. Site and activity-specific work plans and instructions are to be issued and will follow the previously successful work undertaking similar projects.

Environmental Incident Reporting

46. Any incidents, including non-conformances to the procedures of the ESMF and MP are to be recorded using an Incident Record and the details entered into a register. For any incident that causes or has the potential to cause material or serious environmental harm, the site supervisor shall notify MNRE as soon as possible. The contractor must cease work until remediation has been completed as per the approval of MNRE.
Daily and Weekly Environmental Inspection Checklists

47. A daily environmental checklist is to be completed at each work site by the relevant site supervisor and maintained within a register. The completed checklist is forwarded to MNRE for review and follow-up if any issues are identified. A weekly environmental checklist is to be completed and will include reference to any issues identified in the daily checklists completed by the Site Supervisors.

Corrective Actions

48. Any non-conformances to the ESMF and MP are to be noted in weekly environmental inspections and logged into the register. Depending on the severity of the non-conformance, the site supervisor may specify a corrective action on the weekly site inspection report. The progress of all corrective actions will be tracked using the register. Any non-conformances and the issue of corrective actions are to be advised to MNRE.

Review and Auditing

49. The ESMF and MP and its procedures are to be reviewed at least every two months by UNDP staff and MNRE. The objective of the review is to update the document to reflect knowledge gained during the course of construction operations and to reflect new knowledge and changed community standards (values). Any changes are to be developed and implemented in consultation with UNDP Staff and MNRE. When an update is made, all site personnel are to be made aware of the revision immediately through a tool box meeting.

Training of Contractors

50. The main contractor has the responsibility for ensuring systems are in place so that relevant employees, contractors and sub-contractors are aware of the environmental and social requirements for construction, including the ESMF and MP.

51. All construction personnel will attend an induction that covers health, safety, environment and cultural requirements.

52. All staff and contractors engaged in any activity with the potential to cause serious environmental harm (e.g. handling of hazardous materials) will receive task specific environmental training.

Public Consultation and Environmental and Social Disclosure

53. The ESMF and MP includes public consultation as part of their stakeholder engagement plan. The project was discussed with MNRE staff and approved by Government. On-ground consultations have been undertaken including with civil society in the design of the project and it is expected that consultation with any affected communities will continue. It is anticipated that based on the communities' needs, the projects will be fully accepted.

54. The UNDP and MNRE will develop and release Community Flyers on a regular basis to provide interested stakeholders with an update on the construction status of the projects. A publicised telephone number will be maintained throughout the construction of all projects to serve as a point of contact for enquiries, concerns and complaints. All enquiries, concerns and complaints will be recorded on a register and the appropriate manager will be informed. All material will be published in English as the official language of Samoa.

55. Where there is a community issue raised, the following information will be recorded:
   a. time, date and nature of enquiry, complaint or concern;
   b. type of communication (eg telephone, letter, personal contact);
   c. name, contact address and contact number;
   d. response and investigation undertaken as a result of the enquiry, complaint or concern; and
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56. Some enquiries, complaints and concerns may require an extended period to address. The complainant(s) will be kept informed of progress towards rectifying the concern. All enquiries, complaints and concerns will be investigated and a response given to the complainant in a timely manner. A Grievance Redress Mechanism has been included in the ESMF and MP to address any complaints that may not be able to resolved quickly.

57. A nominated contractor staff will be responsible for undertaking a review of all enquiries, complaints and concerns and ensuring progress toward resolution of each matter.

58. Details of consultations that have been undertaken as part of the preparation of the project are attached as Annexure One to the ESMF and MP.

Complaints Register and Grievance Redress Mechanism

59. During the planning, construction and implementation phases of any project, a person or group of people can be adversely affected, directly or indirectly due to the project activities. The grievances that may arise can be related to social issues such as eligibility criteria and entitlements, disruption of services, temporary or permanent loss of livelihoods and other social and cultural issues. Grievances may also be related to environmental issues such as excessive dust generation, damages to infrastructure due to construction related vibrations or transportation of construction material and/or for example, river sediment, noise, traffic congestions, decrease in quality or quantity of private/public surface/ground water resources during river works etc.

60. Should such a situation arise, there must be a mechanism through which affected parties can resolve such issues in a cordial manner with the project personnel in an efficient, unbiased, transparent, timely and cost-effective manner. To achieve this objective, a grievance redress mechanism has been included in ESMF and MP for this project.

61. The project allows those that have a compliant or that feel aggrieved by the project to be able to communicate their concerns and/or grievances through an appropriate process. The Complaints Register and Grievance Redress Mechanism set out in this ESMF and MP allows simple and streamlined access to the Complaints Register and Grievance Redress Mechanism for all stakeholders and provides adequate assistance for those that may have faced barriers in the past to be able to raise their concerns.

62. While recognizing that many complaints may be resolved immediately, the Complaints Register and Grievance Redress Mechanism set out in this ESMF and MP encourages mutually acceptable resolution of issues as they arise. The Complaints Register and Grievance Redress Mechanism set out in this ESMF and MP has been designed to:

a. be a legitimate process that allows for trust to be built between stakeholder groups and assures stakeholders that their concerns will be assessed in a fair and transparent manner;

b. allow simple and streamlined access to the Complaints Register and Grievance Redress Mechanism for all stakeholders and provide adequate assistance for those that may have faced barriers in the past to be able to raise their concerns;

c. provide clear and known procedures for each stage of the Grievance Redress Mechanism process, and provides clarity on the types of outcomes available to individuals and groups;

d. ensure equitable treatment to all concerned and aggrieved individuals and groups through a consistent, formal approach that, is fair, informed and respectful to a complaint and/or concern;

e. to provide a transparent approach, by keeping any aggrieved individual/group informed of the progress of their complaint, the information that was used when assessing their complaint and information about the mechanisms that will be used to address it; and

f. enable continuous learning and improvements to the Grievance Redress Mechanism. Through continued assessment, the learnings may reduce potential complaints and grievances.
63. In order to ensure that any grievance that may arise is resolved in a manner that will accrue maximum benefits to both the project and affected parties, the following aspects were taken into consideration in developing the grievance redress mechanism:
   a. special attention to cultural norms in Samoa;
   b. will building on existing national mechanisms in Samoa;
   c. ensure that community have information about the project activities, selection criteria and possible impact on them;
   d. to build up productive relationships among the stakeholders including any affected parties;
   e. provide a mechanism for the affected parties to negotiate and influence the decisions and policies of the project which might adversely affect them;
   f. mitigate or prevent adverse impacts of the project on the environment and produce appropriate corrective or preventive action;
   g. to harmonise project activities with the activities of potentially affected parties to avoid grievances or disputes if possible before they arise; and
   h. should a grievance or dispute arise, provide a forum for addressing such issues at the lowest possible level so that they are resolved as and when they occur.

64. Eligibility criteria for the Grievance Redress Mechanism include:
   a. Perceived negative economic, social or environmental impact on an individual and/or group, or concern about the potential to cause an impact;
   b. clearly specified kind of impact that has occurred or has the potential to occur; and explanation of how the project caused or may cause such impact; and
   c. individual and/or group filing of a complaint and/or grievance is impacted, or at risk of being impacted; or the individual and/or group filing a complaint and/or grievance demonstrates that it has authority from an individual and or group that have been or may potentially be impacted on to represent their interest.

65. The Grievance Redress Mechanism has been designed to be problem-solving mechanism with voluntary good-faith efforts. The Grievance Redress Mechanism is not a substitute for the legal process. The Grievance Redress Mechanism will as far as practicable, try to resolve complaints and/or grievances on terms that are mutually acceptable to all parties. When making a complaint and/or grievance, all parties must act at all times, in good faith and should not attempt to delay and or hinder any mutually acceptable resolution.

66. A complaints register will be established to record any concerns raised by the community during construction. Any complaint will be advised to the UNDP and MNRE within 24 hours of receiving the complaint. The complaint will be screened. Following the screening, complaints regarding corrupt practices will be referred to the UNDP for commentary and/or advice along with the Government of Samoa’s Office of the Attorney General.

67. A summary list of complaints received and their disposition must be published in a report produced every six months in English.

68. In order to ensure smooth implementation of the Project and timely and effectively addressing of problems that may be encountered during implementation, a robust Grievance Redress Mechanism, which will enable MOF and MNRE to address the grievances of the stakeholders of the project has been established.

69. All complaints regarding social and environmental issues can be received either orally (to the field staff), by phone, in complaints box or in writing to the UNDP, MNRE or the Construction Contractor. A key part of the grievance redress mechanism is the requirement for the project proponent and construction contractor to maintain a register of complaints received at the respective project site offices. All complainants shall be treated respectfully, politely and with sensitivity. Every possible effort should be made by the project proponent and construction contractor to resolve the issues referred to
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in the complaint within their purview. However, there may be certain problems that are more complex and cannot be solved through project-level mechanisms. Such grievances will be referred to the Grievance Redress Committee. It would be responsibility of the MNRE to solve these issues through a sound/robust process.

70. The Grievance Redress Mechanism has been designed to ensure that an individual and/or group are not financially impacted by the process of making a complaint. The Grievance Redress Mechanism will cover any reasonable costs in engaging a suitably qualified person to assist in the preparation of a legitimate complaint and/or grievance. Where a complaint and/or grievance is seen to be ineligible, the Grievance Redress Mechanism will not cover these costs.

71. Information about the Grievance Redress Mechanism and how to make a complaint must be placed at prominent places for the information of the key stakeholders.

72. The Safeguards officer in the PMU will be designated as the key officer in charge of the Grievance Redress Mechanism. The Terms of Reference for these positions (as amended from time to time) will have the following key responsibilities:

a. PMU – Safeguards Officer
   (i) coordinate formation of Grievance Redress Committees before the commencement of constructions to resolve issues;
   (ii) act as the focal point at the PMU on Grievance Redress issues and facilitate the resolution of issues within the PMU;
   (iii) create awareness of the Grievance Redress Mechanism amongst all the stakeholders through public awareness campaigns;
   (iv) assist in redress of all grievances by coordinating with the concerned parties;
   (v) maintain information on grievances and redress;
   (vi) monitor the activities of MNRE on grievances issues; and
   (vii) prepare the progress for monthly/quarterly reports.

73. A two-tier Grievance Redress Mechanism structure has been developed to address all complaints in the project. The first-tier redress mechanism involves the receipt of a complaint at the local/village and/or Divisional Secretariat level. The stakeholders are informed of various points of making complaints (if any) and the PMU collect the complaints from these points on a regular basis and record them. This is followed by coordinating with the concerned people to redress the grievances. The Safeguards Officer of the PMU will coordinate the activities at the respective Provincial level to address the grievances and would act as the focal point in this regard. The Community Development Officer of the Local Authority or in the absence of the Community Development Officer, any officer given the responsibility of this would coordinate with the Safeguards and Gender Manager of the PMU and MNRE in redressing the grievances. The designated officer of the Local Authorities is provided with sufficient training in the procedure of redress to continue such systems in future.

74. Following the receipt of a complaint, the following entities would be informed:

a. Pulenu‘u of the Fono (village) under the Village Fono Act 1990;

b. Concerned High Chief (Tapa‘au);

c. Sui ole Malo (women’ representative);

d. A representative of the aumaga or untitled men; and

e. Safeguards Officer PMU.

75. The complaints can be made orally (to the field staff), by phone, in complaints box or in writing to the UNDP, MNRE or the Construction Contractor. Complainants may specifically contact the Safeguards Officer and request confidentiality if they have concerns about retaliation. In cases where confidentiality is requested (i.e. not revealing the complainant’s identity to UNDP, MNRE and/or the
Construction Contractor). In these cases, the Safeguards Officer will review the complaint, discuss it with the complainant, and determine how best to engage project executing entities while preserving confidentiality for the complainant.

76. As soon as a complaint is received, the Safeguards Officer would issue an acknowledgement. The Community Development Officer receiving the complaint should try to obtain relevant basic information regarding the grievance and the complainant and will immediately inform the Safeguards Officer in the PMU.

77. The PMU will maintain a Complaint / Grievance Redress register at the Provincial Level. Keeping records collected from relevant bodies is the responsibility of PMU.

78. After registering the complaint, the Safeguards Officer will study the complaint made in detail and forward the complaint to the concerned officer with specific dates for replying and redressing the same. The Safeguards Officer will hold meetings with the affected persons / complainant and then attempt to find a solution to the complaint received. If necessary, meetings will be held with the concerned affected persons / complainant and the concerned officer to find a solution to the problem and develop plans to redress the grievance. The deliberations of the meetings and decisions taken are recorded. All meetings in connection with the Grievance Redress Mechanism, including the meetings of the Grievance Redress Committee, must be recorded. The Safeguards Officer for the Grievance Redress Mechanism will be actively involved in all activities.

79. The resolution at the first tier will be normally be completed within 15 working days and the complaint will be notified of the proposed response through a disclosure form. The resolution process should comply with the requirements of the Grievance Redress Mechanism in that it should, as far as practicable, be informal with all parties acting in good faith. Further, the Grievance Redress Mechanism should, as far as practicable, achieve mutually acceptable outcomes for all parties.

80. Should the grievance be not resolved within this period to the satisfaction of the complainant, the grievance will be referred to the next level of Grievance Redress Mechanism. If the social safeguard and gender officer feels that adequate solutions can be established within the next five working days, the officer can decide on retaining the issue at the first level by informing the complainant accordingly. However, if the complainant requests for an immediate transfer to the next level, the matter must be referred to the next tier. In any case, where the issue is not addressed within 20 working days, the matter is referred to the next level.

81. Any grievance related to corruption or any unethical practice should be referred immediately to the Government of Samoa’s Office of the Attorney General and the Office of Audit and Investigation within the UNDP in New York.

82. Should the grievance not be resolved at the first tier, the aggrieved person can take the matter to court under the Planning and Urban Management Act 2004. All costs of the aggrieved person will be covered by the PMU. MNRE will closely liaise with the Ministry of Justice and Court Administration to ensure grievance are heard and resolved quickly.

83. The Social Safeguard and Gender Officer from the PMU will coordinate with the respective Commissioner of Local Government in getting these Committees constituted for each Province and get the necessary circulars issued in this regard so that they can be convened whenever required.

84. The Terms of Reference for the Grievance Redress Committee are:
   a. providing support to the affected persons in solving their problems;
   b. prioritise grievances and resolve them at the earliest;
   c. provide information to the PMU and MNRE on serious cases at the earliest opportunity;
   d. Coordinate with the aggrieved person/group and obtain proper and timely information on the solution worked out for his/her grievance; and
   e. study the normally occurring grievances and advise PMU, National and Local Steering Committee on remedial actions to avoid further occurrences.
85. The Grievance Redress Committee will hold the necessary meetings with the aggrieved party/complainant and the concerned officer and attempt to find a solution acceptable at all levels. The Grievance Redress Committee would record the minutes of the meeting.

86. The Grievance Redress Committee will communicate proposed responses to the complainant formally. If the proposed response satisfies the complainant, the response will be implemented and the complaint closed. In cases where a proposed response is unsatisfactory to the complainant, the Grievance Redress Committee may choose to revise the proposed response to meet the complainant’s remaining concerns, or to indicate to the complainant that no other response appears feasible to the GRC. The complainant may decide to take a legal or any other recourse if s/he is not satisfied with the resolutions due to the deliberations of the three tiers of the grievance redress mechanism.

87. In addition to the project-level grievance redress mechanism, complainants have the option to access UNDP’s Accountability Mechanism, with both compliance and grievance functions. The Social and Environmental Compliance Unit investigates allegations that UNDP’s Standards, screening procedure or other UNDP social and environmental commitments are not being implemented adequately, and that harm may result to people or the environment. The Social and Environmental Compliance Unit is housed in the Office of Audit and Investigations, and managed by a Lead Compliance Officer. A compliance review is available to any community or individual with concerns about the impacts of a UNDP programme or project. The Social and Environmental Compliance Unit is mandated to independently and impartially investigate valid requests from locally impacted people, and to report its findings and recommendations publicly.

88. The Stakeholder Response Mechanism offers locally affected people an opportunity to work with other stakeholders to resolve concerns about the social and environmental impacts of a UNDP project. Stakeholder Response Mechanism is intended to supplement the proactive stakeholder engagement that is required of UNDP and its Implementing Partners throughout the project cycle. Communities and individuals may request an Stakeholder Response Mechanism process when they have used standard channels for project management and quality assurance, and are not satisfied with the response (in this case the project level grievance redress mechanism). When a valid Stakeholder Response Mechanism request is submitted, UNDP focal points at country, regional and headquarters levels will work with concerned stakeholders and Implementing Partners to address and resolve the concerns. Visit [www.undp.org/secu-srm](http://www.undp.org/secu-srm) for more details. The relevant form is attached at the end of the ESMF and MP.

89. The Safeguard Officer of the PMU will prepare the Quarterly Report on the Grievance Redressal issues of the Project for addition into the quarterly report.
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Key Environmental and Social Indicators

90. This section identifies the Key Environmental and Social Indicators identified for the project and outlines respective management objectives, potential impacts, control activities and the environmental performance criteria against which these indicators will be judged (i.e. auditable). This section further addresses the need for monitoring and reporting of environmental performance with the aim of communicating the success and failures of control procedures, distinguish issues which require rectification and identify measures which will provide continuous improvement in the processes by which the projects are managed.

Water Quality

91. The Vaisigano River flows north through Apia and drains an area of around 34 km². The river is the largest river on Upolu. The Vaisigano River is one of the main sources of water in Apia, and also feeds two hydroelectric stations, which supply the bulk of the city's electricity. The floodplain comprises a mixture of businesses and nine village communities. The area is prone to flooding whenever there is an overflow in Vaisigano River as a result of intense rainfall and as such, is a disturbed environment. Further, the coastal parts of the area were originally wetland and coastal marshlands that have been reclaimed. Approximately 80 per cent of the region is residential, although it also comprises a number of small hydro-electric dam, hotels, schools and businesses.

92. Samoa’s climate is characterised by high rainfall and humidity, near-uniform temperatures throughout the year, the dominance of south-easterly trade winds and the occurrence of tropical cyclones. Samoa has a wet tropical climate with temperatures ranging between 17°C and 34°C and an average temperature of 26.5°C. Samoa’s climate is normally driven by the South Pacific Convergence Zone and El Nino Southern Oscillation (ENSO). ENSO is a natural phenomenon that occurs on a global scale but mainly affects countries in the Pacific Ocean. ENSO has two phases - La Nina and El Nino - but also a neutral phase between the two. During a La Nina year, Samoa experiences flooding in downtown Apia as a result of extreme rainfall. Samoa is also vulnerable to anomalously long dry spells that coincide with El Niño years. Drought and forest fires are most prevalent during the dry season in the northwest division of Savaii, due to the coinciding effects of El Nino such as low rainfall and a prolonged dry season.

93. Specific water quality issues in the Apia catchments have been identified in the Watershed Management Plans made in 2012 under the Water Resources Management Act 2008 for each of the catchments. They include

a. Soil erosion resulting from heavy rain exacerbated by removal of forest cover;
b. Mass movements – landslides on unstable slopes;
c. Degradation of forest cover for farming, and subsequent invasive plants;
d. Waste dumping;
e. Farm effluents (cattle);
f. Agricultural chemicals;
g. Hospital waste discharge;
h. Septic leachate;
i. Upland urbanisation increasing pressure on water resource catchments; and
j. Community behaviour and land tenure

94. By undertaking some of the works proposed as part of this project, the project will actually improve water quality in the Vaisigano River.

95. No baseline data has been collected at the site; however, prior to the commencement of works, baseline data will be collected to develop a suitable monitoring regime.
Performance Criteria

96. The following performance criteria are set for the construction of the projects:
   a. no significant decrease in water quality as a result of construction and operational activities;
   b. no significant decrease in the quality and quantity of surface and/or groundwater as a result of construction and operational activities in proximity to the projects;
   c. water quality shall conform to any approval conditions stipulated by UNDP, MNRE and/or other government departments, or in the absence of such conditions follow a ‘no worsening’ methodology;
   d. no offsite impact will occur other than through the release of brine into the environment; and
   e. effective implementation of site-specific Erosion, Drainage and Sediment Control Plan (EDSCP).

97. By following the management measures set out in the ESMF and MP, the construction of river works, bridges and drainage and revegetation upstream will not have a significant impact on water quality across the broader area.

Monitoring

98. A standardised water quality monitoring program has been developed for the project. The program is subject to review and update at least every two months from the date of issue. The site supervisor will be required to conduct a visual inspection and take water samples as appropriate for nitrates, phosphates, faecal coliforms, heavy metals, turbidity and oil/grease within or adjacent to their work area as a part of the daily site inspection checklist.

Reporting

99. All water quality monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF and MP. The MNRE must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to water quality is exceeded.
Table 1: Water Quality Management Measures

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control Activity (and Source)</th>
<th>Action Timing</th>
<th>Responsibility</th>
<th>Monitoring and Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>W1: Elevated suspended solids, nitrates, phosphates, faecal coliforms, heavy metals, silt content and turbidity in surface/ground water systems.</td>
<td>W1.1: Develop and implement a site specific Erosion, Drainage and Sediment Control Plan (EDSCP) to address drainage control, sediment and erosion controls and stockpiling of materials including soil during construction of all components of the projects. EDSCP measures to be inspected regularly to ensure all devices are functioning effectively.</td>
<td>Pre Earthworks</td>
<td>Site Supervisor</td>
<td>Initial set up and then as required with reporting to MNRE and UNDP</td>
</tr>
<tr>
<td></td>
<td>W1.2: Designated areas for storage of fuels, oils, chemicals or other hazardous liquids should have compacted impermeable bases and be surrounded by a bund to contain any spillage. Refuelling to be undertaken in areas away from aquatic systems.</td>
<td>Entire construction and operation phase</td>
<td>All Personnel</td>
<td>Weekly with reporting to MNRE and UNDP</td>
</tr>
<tr>
<td></td>
<td>W1.3: Conduct regular surface and groundwater quality monitoring in location where the groundwater is likely to be impacted including assessing the changes to groundwater quality. Parameters to be monitored could include E.coli, pH, total suspended solids, Residual Chlorine, Nitrate, Nitrite, Ammonia, potassium, surfactants, conductivity, soap, oils and grease and waxes, Phenolic compounds as phenol, heavy metals and acute toxicity</td>
<td>Entire construction and operation phase</td>
<td>Site Supervisor</td>
<td>Weekly and as required with reporting to MNRE and UNDP</td>
</tr>
<tr>
<td></td>
<td>W1.4: Schedule works in stages to ensure that disturbed areas are revegetated and stabilised progressively and as soon as practicable after completion of works.</td>
<td>Pre Earthworks - Works not be undertaken during wet season</td>
<td>Site Supervisor and MNRE</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>W1.5: Construction materials will not be stockpiled in proximity to aquatic environment that may allow for release into the environment. Construction equipment will be removed from in proximity to the aquatic environment at the end of each working day or if heavy rainfall is predicted</td>
<td>Entire construction and operation phase</td>
<td>Site Supervisor</td>
<td>Maintain daily records</td>
</tr>
</tbody>
</table>
## Annex VI (b) – Environmental and Social Management Plan

### GREEN CLIMATE FUND FUNDING PROPOSAL

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control Activity (and Source)</th>
<th>Action Timing</th>
<th>Responsibility</th>
<th>Monitoring and Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>W2:</td>
<td>Eutrophication of surrounding aquatic environments and impacts from elevated nutrient levels.</td>
<td>W2.1 Minimise the release of clays and very fine silts into the aquatic environment through the installation of sediment basins, rock checks and sediment fences in appropriate places as outlined in the EDSCPs. Sediment control structures to be inspected regularly.</td>
<td>Entire construction phase</td>
<td>All Personnel</td>
</tr>
<tr>
<td></td>
<td>W2.2 Disturbance of vegetation and drainage lines to be limited to that required for construction works.</td>
<td></td>
<td>Entire construction phase</td>
<td>All Personnel</td>
</tr>
<tr>
<td></td>
<td>W2.3 Manage the application of fertilisers and other chemicals (if required during rehabilitation/revegetation of any site) to ensure that over application does not occur.</td>
<td>Post Construction</td>
<td>Site Supervisor</td>
<td>Maintain records</td>
</tr>
<tr>
<td>W3:</td>
<td>Increase of gross pollutants, hydrocarbons, metals and other chemical pollutants including residue from the construction works into the groundwater and/or surface water environment.</td>
<td>W3.1: Reuse suitable water runoff from site to supplement construction water supply.</td>
<td>All phases</td>
<td>All Personnel</td>
</tr>
<tr>
<td></td>
<td>W3.2: Designated areas for storage of fuels, oils, chemicals or other hazardous liquids should:</td>
<td></td>
<td>All phases</td>
<td>All Personnel</td>
</tr>
<tr>
<td></td>
<td>1. Have compacted impermeable bases; and</td>
<td></td>
<td>All phases</td>
<td>All Personnel</td>
</tr>
<tr>
<td></td>
<td>2. Surrounded by a bund to contain any spillage.</td>
<td></td>
<td>All phases</td>
<td>All Personnel</td>
</tr>
<tr>
<td></td>
<td>W3.3: Check all vehicles, equipment and material storage areas daily for possible fuel, oil and chemical leaks. Undertake refuelling at designated places away from water systems.</td>
<td></td>
<td>All phases</td>
<td>All Personnel</td>
</tr>
<tr>
<td></td>
<td>W3.4: Rubbish and waste materials to be placed in suitable facilities to ensure that they do not enter aquatic environments. Ensure all absorbent material is placed in contaminant bags prior to removal.</td>
<td></td>
<td>All phases</td>
<td>All Personnel</td>
</tr>
<tr>
<td></td>
<td>W3.5: Minimise the use of herbicides and use only biodegradable herbicides that have minimal impact on water quality and fauna. Use only as per directions.</td>
<td></td>
<td>All phases</td>
<td>All Personnel</td>
</tr>
<tr>
<td></td>
<td>W3.6: Ensure any release of waste from the drainage works is managed so as not to cause any adverse impacts</td>
<td></td>
<td>All phases</td>
<td>All Personnel</td>
</tr>
</tbody>
</table>
Section 100: Erosion, Drainage and Sediment Control

100. All of the Samoan Islands are tectonically and volcanically very active, having been formed very recently (in geological time). Further volcanic activity cannot be ruled out, but is most likely to occur well to the east of Apia, if/when it occurs. Fresh unweathered basalt is abundantly available for building stone. Otherwise there are few, if any, rock or mineral resources to develop. The islands may be thought of as barely emergent seamounts, rising some 4.5km above the surrounding abyssal plain. Upolu’s coastline is about 60% protected by fringing coral reefs. The continuing viability of these fringing reefs is under threat from climate change and other factors including land based pollution and sediment discharge.

101. Activities that could result in erosion, drainage and sediment impacts include:
   a. Excavation of the river bank in preparation for the construction of infrastructure;
   b. Soil disturbance during the revegetation activities especially if undertaken in wet periods;
   c. Clearing the river of weeds and debris; and
   d. Sediment movement during drainage works.

102. Soil erosion also depends on several other parameters such as type of soil, slope, vegetation and the nature of topography. The loss of soil stability and soil erosion can take place due to the removal of vegetation cover, and numerous construction activities. It can cause the loss of soil fertility and induce slope instability. No new access roads are proposed nor is it proposed to alter natural flow paths in the area, although temporary works could result in blockage or alteration of natural flow paths. Effective and efficient mitigation measures can not only reduce, but could improve the conditions over the existing conditions.

103. Soil productivity could decline due to erosion unless steps are taken to control it. Importantly, all sediment removed from the river and drainage work will be assessed, and where practicable, will be reused and placed on agricultural lands or other beneficial reuse options.

104. As the geotechnical surveys that have been undertaken have not assessed the substrate for the potential for acid sulfate soils (ASS) and/or potential acid sulfate soils (PASS), it is therefore assumed they may occur as would normally be observed in areas of mangrove (mangroves were observed in the overflow drainage line of the Vaisigano River). Deposits of ASS are commonly found less than five metres ASL, particularly in low-lying coastal areas which is where all the projects will occur. Mangroves, salt marshes, floodplains, swamps, wetlands, estuaries and brackish or tidal lakes are ideal areas for ASS formation and therefore there is the potential for it to observe in the project locations.

105. Any sediment movement may also expose ASS. Deposits of ASS are commonly found less than five meters above sea level, particularly in low-lying coastal areas which is where a number of the project’s activities will occur. Mangroves, salt marshes, floodplains, swamps, wetlands, estuaries and brackish or tidal lakes are ideal areas for ASS formation and therefore there is the potential for it to observe in the project’s location. Mitigative controls could potentially be required for the management of ASS and/or PASS during any excavation works due to their locations close to coastal areas. ASS are naturally occurring soils, sediments or organic substrates that are formed under waterlogged conditions. Deposits of ASS are commonly found in less than five meters ASL, particularly in low-lying coastal areas. The presence of ASS may not be obvious on the soil surface as they are often buried beneath layers of more recently deposited soils and sediments of alluvial or aeolian origin. These soils contain iron sulfide minerals (predominantly as the mineral pyrite) or their oxidation products. In an undisturbed state below the water table, ASS are benign. However if the soils are drained, excavated or exposed to air by a lowering of the water table, the sulfides react with oxygen to form sulfuric acid. The release of this sulfuric acid from the soil can in turn release iron, aluminum and other heavy metals (particularly arsenic) within the soil. Once mobilised, the acid and metals can create a variety of adverse impacts including killing vegetation, seeping into and acidifying groundwater and water bodies, killing fish and other aquatic organisms and degrading concrete and steel structures to the point of failure.

106. Prior to any excavation, sediments should be tested for their presence of ASS or PASS. Sampling should be undertaken consistent with that proposed by the Queensland Acid Sulfate Soils Investigation Team as described in Ahern et al (2014) and laboratory analysis consistent with Ahern et
al (2004). If the analysis proves positive, the sediment can be treated by a range of techniques including but not limited to liming the sediment. The contractor should refer to management measures provided by for example by Dear et al (2002) to mitigate the impacts. Of critical importance for ground water quality especially as this is the source of potable water in many areas, one of the most significant impacts is via infiltration into the water table from an ASS stockpiling/treatment area. To reduce this impact, a compacted clay liner should be developed including where possible limed clay although this may reduce the efficiency of compaction and hence increase the permeability of the liner. Every effort should be made to ensure there is no direct or residual impact following treatment.

Performance Criteria

107. The following performance criteria are set for the construction of the projects:
   a. no build-up of sediment in the aquatic environments and/or surface and/or groundwater as a result of construction and operation activities;
   b. no degradation of water quality on or off site of all projects;
   c. all water exiting the project site and/or into groundwater systems is to have passed through best practice erosion, drainage and sediment controls;
   d. preferably no disturbance of ASS or PASS; however if there is disturbance, compliance with the management measures discussed above; and
   e. effective implementation of site-specific EDSCP.

108. By following the management measures set out in the ESMF and MP, construction and operation activities of the projects will not have a significant impact as a result of sedimentation across the broader area.

Monitoring

109. A standardised sediment control monitoring program has been developed for the projects. The program is subject to review and update at least every two months from the date of issue. The site supervisor will be required to:
   a. conduct site inspections on a weekly basis or after rainfall events exceeding 20mm in a 24 hour period;
   b. develop a site-specific checklist to document non-conformances to this ESMF and MP or any applicable EDSCPs; and
   c. communicate the results of inspections and/or water quality testing to the Site Supervisor and ensure that any issues associated with control failures are rapidly rectified and processes are put in place to ensure that similar failures are not repeated.

110. It is the responsibility of the site supervisor to:
   a. conduct daily inspections of EDS control measures as part of the Daily Check Procedure; and
   b. consult MNRE and UNDP staff when a non-conformance is suspected and amend accordingly.

Reporting

111. All sediment and erosion control monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF and MP. The MNRE must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to erosion and sediment control is exceeded.
Table 2: Erosion, Drainage, Sediment Control Measures

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control Activity (and Source)</th>
<th>Action Timing</th>
<th>Responsibility</th>
<th>Monitoring and Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1: Loss of soil material and sedimentation to the surface and/or groundwater systems from site due to earthwork activities</td>
<td>E1.1: Develop and implement an EDSCP for any surface works, embankments and excavation work, water crossings and stormwater pathways.</td>
<td>Entire construction phase</td>
<td>All Personnel</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.2: Ensure that erosion and sediment control devices are installed, inspected and maintained as required.</td>
<td>Entire construction phase</td>
<td>All Personnel</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.3: Schedule/stage works to minimise cleared areas and exposed soils at all times.</td>
<td>Pre and during construction</td>
<td>Site Supervisor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.4: Incorporate the design and location of temporary and permanent EDSC measures for all exposed areas and drainage lines. These shall be implemented prior to pre-construction activities and shall remain onsite during work</td>
<td>Pre and during construction</td>
<td>Site Supervisor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.5: Schedule/stage proposed works to ensure that major vegetation disturbance and earthworks are carried out during periods of lower rainfall and wind speeds.</td>
<td>Pre and during construction</td>
<td>Site Supervisor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.6: Strip and stockpile topsoil for use during revegetation and/or place removed soils back on to agricultural lands or other beneficial reuse options.</td>
<td>Pre and during construction</td>
<td>Site Supervisor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.7: Schedule/stage works to minimise the duration of stockpiling topsoil material. Vegetate stockpiles if storage required for long periods.</td>
<td>During construction</td>
<td>All Personnel</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.8: Locate stockpile areas away from drainage pathways, waterways and sensitive locations.</td>
<td>Pre and during construction</td>
<td>Site Supervisor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.9: Design stormwater management measures to reduce flow velocities and avoid concentrating runoff.</td>
<td>Pre and during construction</td>
<td>Site Supervisor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.10: Include check dams in drainage lines where necessary to reduce flow velocities and provide some filtration of sediment. Regularly inspect and maintain check dams.</td>
<td>Pre and during construction</td>
<td>Site Supervisor</td>
<td>Maintain records</td>
</tr>
</tbody>
</table>
### E1: Loss of soil material and sedimentation

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control Activity (and Source)</th>
<th>Action Timing</th>
<th>Responsibility</th>
<th>Monitoring and Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1.11</td>
<td>Mulching shall be used as a form of erosion and sediment control and where used on any slopes (dependent on site selection), include extra sediment fencing during high rainfall.</td>
<td>During construction</td>
<td>All Personnel</td>
<td>Maintain records</td>
</tr>
<tr>
<td>E1.12</td>
<td>Bunding shall be used either within watercourses or around sensitive/dangerous goods as necessary.</td>
<td>During construction</td>
<td>All Personnel</td>
<td>Maintain records</td>
</tr>
<tr>
<td>E1.13</td>
<td>Grassed buffer strips shall be incorporated where necessary during construction to reduce water velocity.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Maintain records</td>
</tr>
<tr>
<td>E1.14</td>
<td>Silt curtain to be installed to protect from increased sediment loads.</td>
<td>During construction</td>
<td>Contractors</td>
<td>Maintain records</td>
</tr>
<tr>
<td>E1.15</td>
<td>Excess sediment in all erosion and sediment control structures (eg. sediment basins, check dams) shall be removed when necessary to allow for adequate holding capacity.</td>
<td>During construction</td>
<td>Contractors</td>
<td>Maintain records</td>
</tr>
</tbody>
</table>

### E2: Soil contamination

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control Activity (and Source)</th>
<th>Action Timing</th>
<th>Responsibility</th>
<th>Monitoring and Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>E2.1</td>
<td>If contamination is uncovered or suspected (outside of the project footprints), undertake a Stage 1 preliminary site contamination investigation. The contractor should cease work if previously unidentified contamination is encountered and activate management procedures and obtain advice/permits/approval (as required).</td>
<td>Entire construction phase</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td>E2.2</td>
<td>Adherence to best practice for the removal and disposal of contaminated soil/ material from site (if required), including contaminated soil within the project footprints.</td>
<td>Entire construction phase</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td>E2.3</td>
<td>Drainage control measures to ensure runoff does not contact contaminated areas (including contaminated material within the project footprints) and is directed/diverted to stable areas for release.</td>
<td>Entire construction phase</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td>E2.4</td>
<td>Avoid importing fill that may result in site contamination and lacks accompanying certification/documentation. Where fill is not available through on site cut, it must be tested in accordance with geotechnical specifications.</td>
<td>Entire construction phase</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td>E2.5</td>
<td>Ensure no impact of ASS/PASS on water quality and groundwater systems. Where observed, ensure compliance with best practice for the sampling, analysis and handing of all ASS/PASS.</td>
<td>Entire construction phase</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
</tbody>
</table>
Noise and Vibration

112. All construction and operation activities have the potential to cause noise nuisance. Vibration disturbance to nearby residents and sensitive habitats is likely to be caused through the use of vibrating equipment. Blasting is not required to be undertaken as part of this project.

113. While there is no specific noise and vibration data for Apia, it would be expected that it would have low to medium levels of noise pollution being a larger urban centre in the Pacific.

114. It is assumed that there are no sensitive receptors in proximity to the projects although it is noted that there are a number of properties in close proximity to the river bank construction, bridge upgrade and drainage works that may be impacted by noise and vibration.

115. Contractors involved in construction and rehabilitation activities should be familiar with methods of controlling noisy machines and alternative construction procedures as contained within specific Samoan legislation or in its absence, international good practice may be used if the legislation has not been enacted.

116. The detail, typical equipment sound power levels, provides advice on project supervision and gives guidance noise reduction. Potential noise sources during construction may include:
   a. excavation equipment for the removal of sediment and re-design of the river banks for construction;
   b. excavation and other equipment involved in the construction of the bridge;
   c. excavation and other equipment involved in the drainage works;
   d. delivery vehicles;
   e. pumps; and
   f. power tools and compressors.

Performance Criteria

117. The following performance criteria are set for the construction of the projects:
   a. noise from construction and operational activities must not cause an environmental nuisance at any noise sensitive place eg be undertaken between 7am and 5pm Monday to Friday and 7am-3pm on a Saturday (no work to be undertaken on a Sunday);
   b. undertake measures at all times to assist in minimising the noise associated with construction activities;
   c. no damage to off-site property caused by vibration from construction and operation activities; and
   d. corrective action to respond to complaints is to occur within 48 hours.

Monitoring

118. A standardised noise monitoring program has been developed for the projects. The program is subject to review and update at least every two months from the date of issue. Importantly, the site supervisor will:
   a. ensure equipment and machinery is regularly maintained and appropriately operated
   b. carry out potentially noisy construction activities during daylight hours only; eg 7am and 5pm; and 7am-3pm on a Saturday.

Reporting

119. All noise monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF and MP. The MNRE must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to noise is exceeded.
### Table 3: Noise and Vibration Management Measures

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control Activity (and Source)</th>
<th>Action Timing</th>
<th>Responsibility</th>
<th>Monitoring and Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>N1: Increased noise levels</strong></td>
<td>N1.1: Select plant and equipment and specific design work practices to ensure that noise emissions are minimised during construction and operation including all pumping equipment.</td>
<td>All phases</td>
<td>Contractor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>N1.2: Specific noise reduction devices such as silencers, mufflers and/or acoustic rock breaking heads shall be installed as appropriate to site plant and equipment.</td>
<td>Pre and during construction</td>
<td>Contractor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>N1.3 Minimise the need for and limit the emissions as far as practicable if noise generating construction works are to be carried out outside of the hours: 7am-5pm (Mon - Fri).</td>
<td>Construction phase</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>N1.4: Consultation with nearby residents in advance of construction activities particularly if noise generating construction activities are to be carried out outside of the hours: 7am-5pm (Mon - Fri) and 7am-3pm (Saturday).</td>
<td>Construction phase</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>N1.5 The use of substitution control strategies shall be implemented, whereby excessive noise generating equipment items onsite are replaced with other alternatives.</td>
<td>Construction phase</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>N1.6 Provide temporary construction noise barriers in the form of solid hoardings where there may be an impact on specific residents.</td>
<td>Construction phase</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>N1.7 All incidents complaints and non-compliances related to noise shall be reported in accordance with the site incident reporting procedures and summarised in the register.</td>
<td>Construction phase</td>
<td>Site Supervisor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>N1.8 The contractor should conduct employee and operator training to improve awareness of the need to minimise excessive noise in work practices through implementation of measures.</td>
<td>Pre and during construction</td>
<td>Contractor</td>
<td>Maintain records</td>
</tr>
<tr>
<td><strong>N2: Vibration due to construction</strong></td>
<td>N2.1: Identify properties, structures and habitat locations that will be sensitive to vibration impacts resulting from construction and operation of the project.</td>
<td>Pre and during construction</td>
<td>Contractor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>N2.2: Design to give due regard to temporary and permanent mitigation measures for noise and vibration from construction and operational vibration impacts.</td>
<td>Pre-construction</td>
<td>Contractor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>N2.3: All incidents, complaints and con-compliances related to vibration shall be reported in accordance with the site incident reporting procedures and summarised in the register.</td>
<td>Construction phase</td>
<td>Site Supervisor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>N2.4: During construction, standard measure shall be taken to locate and protect underground services from construction and operational vibration impacts.</td>
<td>Construction phase</td>
<td>Site Supervisor</td>
<td>Maintain records</td>
</tr>
</tbody>
</table>
Air Quality

120. While there is no specific air quality data for Apia, it would be expected that it would have low to medium levels of air pollution being a larger urban centre in the Pacific.

121. All construction and rehabilitation activities have the potential to cause air quality nuisance.

122. Vibration disturbance to nearby residents is likely to be caused through the use of construction traffic and excavators etc. Blasting is not required to be undertaken as part of this project.

123. Contractors involved in construction and operation activities should be familiar with methods minimising the impacts of deleterious air quality and alternative construction procedures as contained in Samoa legislation.

Performance Criteria

124. The following performance criteria are set for the construction of the projects:
   a. release of dust/particle matter must not cause an environmental nuisance;
   b. undertake measures at all times to assist in minimising the air quality impacts associated with construction and operation activities; and
   c. corrective action to respond to complaints is to occur within 48 hours.

Monitoring

125. A standardised air monitoring program has been developed for the projects. The program is subject to review and update at least every two months from the date of issue. Importantly, the site supervisor will:
   a. ensure all stockpiles are covered so as to not allow dust to generate; and
   b. the requirement for dust suppression will be visually observed by all personnel daily and by MNRE and UNDP staff when undertaking routine site inspections (minimum frequency of once per week).

Reporting

126. All air quality monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF and MP. The MNRE must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to air quality is exceeded.
# Table 4: Air Quality Management Measures

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control Activity (and Source)</th>
<th>Action Timing</th>
<th>Responsibility</th>
<th>Monitoring and Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1: Increase in dust levels at sensitive locations</td>
<td>A1.1: Implement effective dust management measures in all areas during design, construction and operation.</td>
<td>Pre and during construction</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
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<tr>
<td></td>
<td>A1.2: Install dust gauges at locations identified for construction lay down and stockpiling within the project footprints.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and Weekly Reports</td>
</tr>
<tr>
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<tr>
<td></td>
<td>A1.3: Manage dust/particulate matter generating activities to ensure that emissions do not cause an environmental nuisance at any sensitive locations</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
<td>A1.4: Construction activities should minimising risks associated with climatic events.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>A1.5: Implement scheduling/staging of proposed works to ensure major vegetation disturbance and earthworks are minimised.</td>
<td>During construction</td>
<td>Contractor</td>
<td>Daily and maintain records</td>
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<td></td>
<td>A1.6: Ensure that materials to be stockpiled onsite are not ordered and/or purchased until they are required for works.</td>
<td>During construction</td>
<td>Contractor</td>
<td>Daily and maintain records</td>
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<td></td>
<td>A1.7: Locate material stockpile areas as far as practicable from sensitive receptors.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
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<td>A1.8: Source sufficient water of a suitable quality for dust suppression activities complying with any water restrictions.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
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<td></td>
<td>A1.9: Schedule revegetation activities to ensure optimum survival of vegetation species.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Maintain records</td>
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<td></td>
<td>A1.10: Ensure an air quality management plan is developed and implemented.</td>
<td>Pre and during construction</td>
<td>Contractor</td>
<td>Maintain records</td>
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<tr>
<td></td>
<td>A1.11: Rubbish skips and receptacles should be covered and located as far as practicable from sensitive locations.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Maintain records</td>
</tr>
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<td></td>
<td>A1.12: Restrict speeds on haul roads and access tracks.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
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<tr>
<td></td>
<td>A1.13: Cover loads of haul trucks and equipment and plant when not in use and in transit.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td>Issue</td>
<td>Control Activity (and Source)</td>
<td>Action Timing</td>
<td>Responsibility</td>
<td>Monitoring and Reporting</td>
</tr>
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</tr>
<tr>
<td>A2. Increase in vehicle emissions (including odor and fumes)</td>
<td>A2.1 Ensure construction vehicles are switched off when not in use.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>A2.2 Ensure only vehicles required to undertake works are operated onsite.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>A2.3 Ensure all construction vehicles, plant and machinery are maintained and operated in accordance with design standards and specifications.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>A2.4 Develop and implement an induction program for all site personnel, which includes as a minimum an outline of the minimum requirements for environmental management relating to the site.</td>
<td>Pre and during construction</td>
<td>Contractor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>A2.5 Locate construction car park and vehicle/plant/equipment storage areas as far as practicable from sensitive locations.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>A2.6 Direct exhaust emissions of mobile plant away from the ground.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>A2.7 Rubbish skips and receptacles should be covered and located as far as practicable from sensitive locations.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
</tbody>
</table>
Flora and Fauna

127. It is known that the majority of the project areas have been previously disturbed although vegetation still exist in the upper catchment. Further, it is known that the project works will be located in areas that do not contain important terrestrial habitats.

128. The landscape of the Greater Apia Catchment generally consists of a narrow coastal plain, with rocky, rugged, volcanic terrains making up the inner parts of the islands. The vegetation in these areas is primarily composed of lowland and montane rain forests, with small areas of riverine, swamp, mangrove, and beach forest. The islands have undergone extensive deforestation, as a consequence of timber operations and clearance of land for agriculture. A large proportion of the lowland forest around Apia has been cleared or highly modified, but the montane forests are less disturbed and have a rich variety of endemic flora and fauna. The coastal plains of the City have historically accommodated urban development, however over the last 15 yrs there is a tendency to see urban drift through the mid-slopes and up into the elevated steep areas.

129. While no specific flora and fauna surveys have been undertaken of the project area, the literature suggests that there is a high diversity of flora specific that are natural and/or human plants. There

130. The avifauna of Samoa include a total of 82 species, of which ten are endemic, five exotic and 23 are rare or accidental. Seven species are globally threatened. There is anecdotal evidence to suggest that one of the rare species may occur in the catchment. There are nine mammal species of which 1 is endangered and 2 are vulnerable. The project is unlikely to have direct impacts on these species.

131. There are two national parks Mt Vaea and Lake Lanotoo and two reserves Malololelei reserve and Palolo deep reserve. The Mt Vaea Nature Reserve is located approximately 4km inland (south) of central Apia, on the south and east facing slopes of Mt Vaea, an ancient volcano from the Fagaloa volcanics. The total area of the reserve is approximately 79.6ha (196.6 acres). It should be noted that the boundaries of the Mt Vaea Nature Reserve shown in the Operational Plan are only approximate and are soon to be re-surveyed. Notwithstanding, the project will not impact on these locations.

132. With respect to aquatic fauna, a 2008 study reported observing 30 species of fish and 17 species of macro- crustaceans. Three of the fish species observed and eight species of crustaceans were new records for Samoa. Up to six fish species observed are endemic, and one endemic crustacean; however these remain to be confirmed. Result from the study suggested that there were approximately 86 species of fresh and estuarine fish species; and an aggregated total of 22 crustaceans. Further, there are 16 species in two genera of freshwater snails, these being twelve species of Neritidae and four of Neritiididae. Freshwater flora remains unstudied.

133. There is one introduced species of freshwater prawn (*Macrobrachium rosenbergii*), while there are numerous fish species including two Tilapia species (*Oreochromis mossambicus* and *O. Niloticus*), a goldfish species (*Carassius auratus auratus*), the mosquito fish (*Gambusia affinis*) and one species of shortfin molly (*Poecilia reticulate*).

Performance Criteria

134. The following performance criteria are set for the construction of the projects:
   a. no clearance of vegetation outside of the designated clearing boundaries;
   b. no death to native fauna as a result of clearing activities;
   c. no deleterious impacts on aquatic environments and terrestrial habitats;
   d. no introduction of new weed species as a result of construction activities;
   e. no increase in existing weed proliferation within or outside of the corridor as a result of construction activities; and
   f. successful establishment of rehabilitation works incorporating species native to the local area.
Monitoring

135. A flora and fauna monitoring program has been developed for the projects. The program is subject to review and update at least every two months from the date of issue. Importantly, the site supervisor will when undertaking clearing works, will compile a weekly report to MNRE and UNDP staff outlining:
   a. any non-conformances to this ESMF and MP;
   b. the areas that have been rehabilitated during the preceding week; and
   c. details of the corrective action undertaken.

Reporting

136. All flora and fauna monitoring results and/or incidents will be tabulated and reported as outlined in the ESMF and MP. The MNRE must be notified immediately in the event of any suspected instances of death to fauna and where vegetation if detrimental impacted.
# Annex VI (b) – Environmental and Social Management Plan

## Table 5: Flora and Fauna Management Measures

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control Activity (and Source)</th>
<th>Action Timing</th>
<th>Responsibility</th>
<th>Monitoring and Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>FF1. Habitat loss and disturbance of fauna</td>
<td>FF1.1 Limit vegetation clearing and minimise habitat disturbance through adequate protection and management of retained vegetation.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>FF1.2: Minimise noise levels and lighting intrusion throughout construction and operation in the vicinity of any sensitive locations.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>FF1.3: Ensure that all site personnel are made aware of sensitive fauna/habitat areas and the requirements for the protection of these areas.</td>
<td>During construction</td>
<td>Contractor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>FF1.4 Minimise disturbance to onsite fauna and recover and rescue any injured or orphaned fauna during construction and operation.</td>
<td>During construction</td>
<td>Contractor</td>
<td>Daily and maintain records, report to MNRE</td>
</tr>
<tr>
<td>FF2. Introduced flora and weed species</td>
<td>FF2.1: Implement an EDSCP to reduce the spread of weeds through erosion and sediment entering any waterways and therefore spreading.</td>
<td>Pre and during construction</td>
<td>Contractor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>FF2.2: Revegetate disturbed areas using native and locally endemic species that have high habitat value.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>As required and maintain records</td>
</tr>
<tr>
<td></td>
<td>FF2.3: Minimise disturbance to mature remnant vegetation, particularly canopy trees.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>FF2.4: The removal of regrowth native trees should be minimised particularly where the width of a forest is narrow.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>FF2.5: Small trees and shrubs shall be removed in preference to large trees.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>FF2.6: Vegetation to be removed shall be clearly marked using paint or flagging tape.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td>FF2. Introduced flora and weed species</td>
<td>FF2.7: Environmental weeds and noxious weeds within the project footprints shall be controlled.</td>
<td>During and post construction</td>
<td>Site Supervisor</td>
<td>Weekly and maintain records</td>
</tr>
</tbody>
</table>
Waste Management

137. The MNRE advocates good waste management practice. The preferred waste management hierarchy and principles for achieving good waste management is as follows:
   a. waste avoidance (avoid using unnecessary material on the projects);
   b. waste re-use (re-use material and reduce disposing);
   c. waste recycling (recycle material such as cans, bottles, etc.); and
   d. waste disposal (all petrascible and used sterilisation and purification filters to be dumped at approved landfills).

138. The key waste streams generated during construction are likely to include residual sediment from both the river and drainage works, vegetation, construction materials and materials from the replacement of the Lelota Bridge. This will include, but not limited to, shrubs/trees, pavements, power poles etc. The wastes to be generated will mostly be vegetation-based and also include:
   a. the excavation wastes unsuitable for reuse during earthworks;
   b. wastes from construction equipment maintenance. Various heavy vehicles and construction equipment will be utilised for the duration of the construction phase. Liquid hazardous wastes from cleaning, repairing and maintenance of this equipment may be generated. Likewise leakage or spillage of fuels/oils within the site needs to be managed and disposed of appropriately;
   c. non-hazardous liquid wastes will be generated through the use of workers’ facilities such as toilets; and
   d. general wastes including scrap materials and biodegradable wastes

139. Contractors involved in construction and operational activities should be familiar with methods minimising the impacts of clearing vegetation to minimise the footprint to that essential for the works and rehabilitate disturbed areas. By doing these activities, the projects should minimise the impact of waste generated by the project.

Performance Criteria

140. The following performance criteria are set for the construction of the projects:
   a. waste generation is minimised through the implementation of the waste hierarchy (avoidance, reduce, reuse, recycle);
   b. no litter will be observed within the project corridor or surrounds as a result of activities by site personnel;
   c. no complaints received regarding waste generation and management;
   d. any waste from on-site portable sanitary facilities will be sent off site for disposal by a waste licensed contractor; and
   e. waste oils obtained from the oil separator will be collected and disposed or recycled off-site, local oil companies or shipped for recycling.

Monitoring

141. A waste management monitoring program has been developed for the projects. The program is subject to review and update at least every two months from the date of issue.
Reporting

142. The MNRE must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level with respect to waste is exceeded.
# Annex VI (b) – Environmental and Social Management Plan

## Table 6: Waste Management Measures

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control Activity (and Source)</th>
<th>Action Timing</th>
<th>Responsibility</th>
<th>Monitoring and Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>WT1: Production of wastes and excessive use of resources</td>
<td>WT1.1: Preference shall be given to materials that can be used to construct the project that would reduce the direct and indirect waste generated.</td>
<td>Pre and during construction</td>
<td>Contractor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>WT1.2: Consideration shall be given to the use of recycled aggregates and fly-ash cement mixes for construction of the river works and bridge.</td>
<td>Pre and during construction</td>
<td>Contractor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>WT1.3: Daily waste practices shall be carried out unless these are delegated to the activities of external waste management bodies.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>WT1.4: The use of construction materials shall be optimised and where possible a recycling policy adopted.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Weekly and maintain records</td>
</tr>
<tr>
<td></td>
<td>WT1.5: Separate waste streams shall be maintained at all times i.e. general domestic waste, construction waste and contaminated waste. Specific areas on site shall be designated for the temporary management of the various waste streams. Adequate signage and colour coded bins will be used for each waste streams.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Weekly and maintain records</td>
</tr>
<tr>
<td></td>
<td>WT1.6: Any contaminated waste shall be disposed of at an approved landfill.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Weekly and maintain records</td>
</tr>
<tr>
<td></td>
<td>WT1.7: Recyclable waste (including oil and some construction waste) shall be collected separately and disposed of correctly.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Weekly and maintain records</td>
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<tr>
<td></td>
<td>WT1.8: Waste sites shall be sufficiently covered daily to ensure that wildlife does not have access.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily</td>
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<td></td>
<td>WT1.9: Disposal of waste including all filters shall be carried out in accordance with the Government of Samoan requirements.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Weekly and maintain records</td>
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<tr>
<td></td>
<td>WT1.10: Fuel and lubricant leakages from vehicles and plant shall be immediately rectified.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
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<td></td>
<td>WT1.11: Where possible, concrete batching plants shall be centrally located to minimise the occurrence of concrete batching at individual construction locations.</td>
<td>Pre and during construction</td>
<td>Contractor</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>WT1.12: Major maintenance and repairs shall be carried out off-site whenever practicable.</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Weekly and maintain records</td>
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<tr>
<td></td>
<td>WT1.13: Remnants of concrete shall not be left at any location along the corridor.</td>
<td>During Construction</td>
<td>Site Supervisor</td>
<td>Weekly and maintain records</td>
</tr>
<tr>
<td>Issue</td>
<td>Control Activity (and Source)</td>
<td>Action Timing</td>
<td>Responsibility</td>
<td>Monitoring and Reporting</td>
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<tr>
<td>WT1: Production of wastes and excessive use of resources</td>
<td>WT1.14: Disposal of trees shall be undertaken in accordance with one or more of the following methods: &lt;br&gt; a. Left in place; &lt;br&gt; b. Chipped and mulched; and &lt;br&gt; c. Large trunk sections may be sold/passed on to a commercial mill.</td>
<td>During Construction</td>
<td>Site Supervisor</td>
<td>Weekly and maintain records</td>
</tr>
<tr>
<td>WT1.15: Hydrocarbon wastes shall be stored in colour coded and labelled drums placed around fuelling depots.</td>
<td>During Construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
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</tr>
<tr>
<td>WT1.16: Where possible, fuel and chemical storage and handling shall be undertaken at central fuel and chemical storage facilities, such as petrol stations.</td>
<td>During Construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
<td></td>
</tr>
<tr>
<td>WT1.17: On-site storage of fuel and chemicals shall be kept to a minimum.</td>
<td>During Construction</td>
<td>Contractor</td>
<td>Daily, maintain records and report any incidents</td>
<td></td>
</tr>
<tr>
<td>WT1.18: Any waste oils and lubricants are to be collected and transported to recyclers or designated disposal sites as soon as possible.</td>
<td>During Construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
<td></td>
</tr>
<tr>
<td>WT1.19: Any dangerous goods stored on site shall be stored in accordance with Samoan regulations.</td>
<td>During Construction</td>
<td>Contractor</td>
<td>Daily and maintain records</td>
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</tbody>
</table>
Chemical and Fuel Management

143. The key types of chemicals and fuels likely to be stored on-site during construction include but are not limited to:
   a. diesel and unleaded petrol for the refuelling of plant equipment and generators;
   b. grease etc used during construction; and
   c. chemicals used in the construction process, although this is expected, based on the technology to be used, as extremely minimal if any.

144. If not handled, stored or used appropriately, contamination of land and the surface water and groundwater systems could occur. The accidental discharge of hazardous materials during construction and operation activities is a potential risk to the local environment. Accordingly, all oil, grease, diesel, petrol and chemicals should be stored off site within a bunded area.

145. Potential activities which could result in spills are:
   a. use of machinery and vehicles – potential for fuels, oils and lubricant spills;
   b. transport, storage and handling of fuels, machinery oils, grease;
   c. transport, storage and handling of cement/asphalt(bitumen) and other construction materials; and
   d. impacts associated with hazardous materials will primarily be associated with the storage and handling during the construction and operation phase.

Performance Criteria

146. The following performance criteria are set for the construction of the projects:
   a. ensure a Material Safety Data Sheet (MSDS) Register should be developed for all chemicals and fuels retained on site;
   b. handling and storage of hazardous material is in accordance with the relevant legislation and best management practices;
   c. all spills are reported to MNRE within one hour of occurrence; and
   d. no spills enter the local aquatic environments; and
   e. prevent the uncontrolled release of oil, grease and diesel to the environment;
   f. no spills of hazardous materials;
   g. no chemical spills into the groundwater aquifers; and
   h. no contamination of land due to spills of hazardous materials.

Monitoring

147. A chemical and fuel management program has been developed for the projects. The program is subject to review and update at least every two months from the date of issue. Importantly, the site supervisor should:
   a. conducted daily chemical and fuel assessments as part of their daily check procedure;
   b. manage the selection, purchase, storage, handling and disposal of chemicals to ensure minimal environmental impact;
   c. regularly inspect equipment that uses fuel, lubricants and/or hydraulic fluid;
   d. develop procedures and install equipment to contain, minimise and recover spills; and
   e. provide staff with procedures and training in spill prevention and clean up.
Reporting

148. The MNRE must be notified immediately in the event of any suspected instances of material or serious environmental harm, or if a determined level as a result of a chemical or fuel leak or spill.
<table>
<thead>
<tr>
<th>Issue</th>
<th>Control Activity (and Source)</th>
<th>Action Timing</th>
<th>Responsibility</th>
<th>Monitoring and Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>Poor management of chemicals and fuels</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1.1</td>
<td>Prepare spill management plan addressing measures</td>
<td>Pre-construction</td>
<td>Contractor</td>
<td>Maintain records and weekly reporting</td>
</tr>
<tr>
<td>C1.2</td>
<td>Store and handle all chemicals, fuels, oils and potentially hazardous materials as specified in relevant standards and guidelines. All hazardous materials to be approved for use onsite. All hazardous materials and construction fuel will be stored in appropriate storage facilities (e.g. fuel and chemicals will be stored in a bunded area).</td>
<td>During Construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td>C1.3</td>
<td>Hydrocarbon wastes shall be stored in colour coded and labelled drums placed around fuelling depots and disposed of.</td>
<td>During Construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td>C1.4</td>
<td>Where possible, fuel and chemical storage and handling shall be undertaken at central fuel and chemical storage facilities, such as petrol stations/site depot.</td>
<td>During Construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td>C1.5</td>
<td>Onsite storage of fuel and chemicals shall be kept to a minimum.</td>
<td>During Construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td>C1.6</td>
<td>Emergency clean up kits for oil and chemical spills will be available onsite and in all large vehicles.</td>
<td>During Construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td>C1.7</td>
<td>Refuelling activities to preferentially occur off site however if required onsite ensure refuelling activities occur in designated areas of the site where appropriate temporary protection measures have been designed/located and are no less than 20 metres from surface waters and drainage lines.</td>
<td>During Construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
</tbody>
</table>
Social Management

149. The project has been designed with the assistance of stakeholders and aims to provide benefits to the broader community. Notwithstanding, as with any project that involves construction, some dissatisfaction can occur and conflicts may arise. It is important that potential areas of tension are recognised early and appropriate actions taken to avoid or minimise conflict.

150. The project and its sub-projects do not require involuntary resettlement or acquisition of land although they may impact on land during construction activities which will be temporary in nature.

Performance Criteria

151. The following performance criteria have been set for the project:
   a. the community has been consulted and project elements have been designed with their informed consultation and participation throughout the project;
   b. all stakeholders are appropriately represented;
   c. avoid adverse impacts to local community during construction and operations and where not possible, minimise, restore or compensate for these impacts;
   d. cultural heritage is not adversely impacted;
   e. community health and safety is protected and overall well-being benefits derived from the project;
   f. complaint and grievance mechanisms are put in place and proactively managed; and
   g. long-term social benefits are achieved.

Monitoring

152. Local stakeholders and community members have a key role to play in the implementation and monitoring of the project.

153. Consultation with stakeholders will continue. This will help ensure that stakeholders continue to be aware of the project, its progress and any changes in the project. It will also assist in identifying any issues as they arise.

154. MNRE will be responsible for advisory support and extensions services to local beneficiaries along with being responsible for distributing material inputs and providing technical training and backstopping in the implementation of programme activities.

Reporting

155. Records of all consultations are to be kept and reported on monthly basis.

156. The MNRE must be notified in the event of any individual or community complaint or dissatisfaction and ensure the Grievance Redress Mechanism is complied with.
### Table 8: Social Management Measures

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control Activity (and Source)</th>
<th>Action Timing</th>
<th>Responsibility</th>
<th>Monitoring and Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM1: Changes in riverbanks and loss of access</td>
<td>SM 1.1: Carry out community consultation on the purpose and benefits of making changes to land use</td>
<td>Pre-construction</td>
<td>MNRE</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>SM 1.2: Get community buy-in on any change of land use</td>
<td>Pre-construction</td>
<td>MNRE</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>SM 1.3: Ensure compliance with the Grievance Redress Mechanism process</td>
<td>Entire construction and operation phase</td>
<td>MNRE</td>
<td>Maintain records</td>
</tr>
<tr>
<td>SM42: Public nuisance caused by construction/operation activities (eg noise, dust etc)</td>
<td>SM 4.1: Carry out community consultation prior to undertaking activities</td>
<td>Pre-construction</td>
<td>MNRE</td>
<td>Maintain records</td>
</tr>
<tr>
<td></td>
<td>SM 4.2: Implement appropriate management plans (refer to Noise, Air, ESCP, and Waste sections of ESMF and MP)</td>
<td>Construction and operation</td>
<td>Site supervisor and MNRE</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>SM 4.3: Ensure compliance with the Grievance Redress Mechanism process</td>
<td>All phases</td>
<td>MNRE</td>
<td>Maintain records</td>
</tr>
</tbody>
</table>
Archaeological, Indigenous and Cultural Heritage

157. Cultural history, folklore, assets and places are important matters for future planning. There is a need to understand the implications of cultural heritage assets on affecting future urban structure and land uses. Cultural heritage sites, areas, places and practices should be protected and celebrated via subsequent planning tools as an important feature of local identity and sense of place.

158. There are a number of key known cultural heritage places, buildings and monuments within Apia more broadly. For many of the urban villages there is a mix of modern development and traditional ‘fale’ areas within the one village. There is little mapping of these important areas at this time and it is unlikely that this information can be distilled at the City wide scale.

159. While no cultural heritage places, buildings and monuments are known to exist in areas where the project will be undertaken, further investigation of places and practices of cultural and historic heritage significance should be undertaken as part of the preparation process.

Performance Criteria

160. The following performance criteria are set for the project:

   a. There will be no impact on any important Archaeological, Indigenous and/or Cultural Heritage sites;
   b. Manage any specific sites of important Archaeological, Indigenous and/or Cultural significance (significant sites);
   c. Where there is a mix of modern development and traditional ‘fale’ areas within villages use community engagement to confirm options of enabling future development as nominated by the participants and protecting culturally significant traditional areas and
   d. Work with the village communities to differentiate between traditional village areas of cultural significance (uses and physical form) within each of the Village fono boundary areas during the construction phase of the project.

Monitoring

161. An important Archaeological, Indigenous and Cultural Heritage monitoring program has been developed for the projects. The program is subject to review and update at least every two months from the date of issue. Importantly, the plan should:

   (a) provide cultural heritage awareness training to all construction site personnel (including contractors);
   (b) identify and collect any cultural heritage items worthy of protection;
   (c) consult with the relevant Museums about any important Archaeological, Indigenous and/or Cultural Heritage material discovered during construction; and
   (d) cease work in the area where any human remains are discovered and consult with the UNDP, MNRE and relevant Museum.

Reporting

162. The UNDP and MNRE must be notified immediately in the event of any suspected find related to important Archaeological, Indigenous and/or Cultural Heritage.
<table>
<thead>
<tr>
<th>Issue</th>
<th>Control Activity (and Source)</th>
<th>Action Timing</th>
<th>Responsibility</th>
<th>Monitoring and Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH1: Damage or disturbance to significant important Archaeological, Indigenous and/or Cultural Heritage during the earth disturbances and land clearing activities</td>
<td>CH1.1: Should any important Archaeological, Indigenous and/or Cultural Heritage sites, immediately cease work within the area that the site has been observed and consult with the relevant Museum/traditional owner groups, UNDP, MNRE and archaeologist available for implementation during construction.</td>
<td>Pre and during construction</td>
<td>Contractor</td>
<td>Daily, maintain records and immediately notify UNDP and MNRE of any find</td>
</tr>
</tbody>
</table>
Emergency Response Plan

163. In the event of actions occurring, which may result in serious health, safety and environmental (catastrophic) damage, emergency response or contingency actions will be implemented as soon as possible to limit the extent of environmental damage.

164. It is known that there are residences located close to the majority of the infrastructure components of the project although less so for the revegetation activities.

165. The contractor will need to incorporate construction emergency responses into the project complying with the requirements under the Occupational, Health and Safety Policy of the contractor or the work related Government of the Samoa legislation.

Performance Criteria

166. The following performance criteria are set for the construction of the projects:
   a. no incident of fire outbreak during construction;
   b. reduce the risk of fire by undertaking hot works as necessary within cleared locations (it is unlikely any hot works will be necessary; however the issue has been included as a matter of caution);
   c. provide an immediate and effective response to incidents that represent a risk to public health, safety or the environment; and
   d. minimise environmental harm due to unforeseen incidents.

Monitoring

167. An emergency response monitoring program has been developed for the projects. The program is subject to review and update at least every two months from the date of issue. Importantly, visual inspections will be conducted by site supervisor daily with reporting to MNRE and UNDP staff on a weekly basis (minimum) noting any non-conformances to this ESMF and MP.

Reporting

168. The MNRE and UNDP staff must be notified immediately in the event of any emergency, including fire or health related matter including those that have resulted in serious environmental harm.
### Table 10: Emergency Management Measures

<table>
<thead>
<tr>
<th>Issue</th>
<th>Control Activity (and Source)</th>
<th>Action Timing</th>
<th>Responsibility</th>
<th>Monitoring and Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1. Fire and Emergency management and prevention strategies implemented</td>
<td>E1.1: Flammable and combustible liquids bunding/storage areas to be designed in accordance with appropriate international standards</td>
<td>Pre and during construction</td>
<td>Contractor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.2: Fire extinguishers are to be available within all site vehicle</td>
<td>During construction</td>
<td>Contractor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.3: No open fires are permitted within the project area</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.4: No cigarette butts are to be disposed of onto the ground throughout the project area, all smokers must carry a portable disposal bin to reduce the risk of a spot fire starting and general litter</td>
<td>During construction</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.5: Stockpiles of mulch are not to exceed two meters in height and width and must be turned regularly.</td>
<td>During construction</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.6: Train all staff in emergency preparedness and response (cover health and safety at the work site)</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.7: Check and replenish First Aid Kits</td>
<td>During construction</td>
<td>Site Supervisor</td>
<td>Daily and maintain records</td>
</tr>
<tr>
<td></td>
<td>E1.8: Use of Personal Protection Equipment</td>
<td>During construction</td>
<td>All Personnel</td>
<td>Daily and maintain records</td>
</tr>
</tbody>
</table>
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Acronyms and Abbreviations

GoS  Government of Samoa
MNRE  Ministry of Natural Resources and Environment
SOPAC  South Pacific Geoscience Commission
AEP  Annual Exceedance Probability
ASL  Above Sea Level
EPC  Electric Power Corporation
LTA  Land Transport Authority
IWRM  Integrated Water Resources Management
WMP  Water Management Plan
AUA  Apia Urban Area
MWTI  Ministry of Works Transport and Infrastructure
GEF-LDCF  Global Environment Facility’s Least Developed Countries Fund
ADRA  Adventist Development & Relief Agency
1. SUMMARY

The project is called the Vaisigano River Protection Wall and involves the construction of a river protection system at the Vaisigano River. The project is located in the Vaimauga West District on the northern side of the island of Upolu.

The river protection system will extend from the Vaisigano Bridge up to the Bridgehouse residence at Lelata. The length of the river protection system is about 2 km and will provide flood protection for the local community and infrastructure.

The unavoidable significant impacts of the project are:

- Living with flood risks in vulnerable areas and river banks
- Vulnerability to climate change and variability

The revised flood model for detailed design of the river protection system has not been completed at the time of the report. This means land and properties affected by construction works are yet to be determined. Landowners directly affected by construction works will need to be consulted once the detailed design are completed, and before construction phase commence.

The rehabilitation of the Samasoni Hydroelectric Power Plant including penstock may conflict with the detailed design and construction works. This needs to be resolved by the Task Team for the construction of the Vaisigano River Protection Wall.

Community consultations used to prepare the report include:

- Report on the Inception Community Consultation for Vaisigano Catchment conducted by MNRE on 21st January 2015,
- Report on the Second Community Consultation for the Vaisigano Catchment conducted by MNRE on 18th September 2015,
- Minutes – 1st Consultation with villages for the Rehabilitation Project for Alaoa, Samasoni and Fale ole Fee conducted by EPC on the 6th February 2015, and
- Minutes – Consultation with Magiagi Village for the Rehabilitation Project for Alaoa, Samasoni and Fale ole Fee conducted by EPC on 4th March 2015.

Overall, the local community showed support for the project and are well aware of the flood damages and losses from Cyclone Evans. However, people are still concern about their safety and remain vulnerable to climate change.

The effectiveness of the river protection system to reduce climate vulnerability needs the use of non-structural adaptation measures. Reasonable non-structural alternatives are discussed in the report and preferred alternatives are used to mitigate unavoidable significant impacts of the project.

The Vaisigano River Protection Wall will provide immediate socio-economic benefits as well as long-term adaptation to climate change. Without the river protection system, the vulnerability of the local community and infrastructures remains high.

In summary, the Vaisigano River Protection Wall clearly outweighs its capital value when compared to the flood damages and losses as a result of climate change.
2. PURPOSE OF THE PROJECT

2.1 BACKGROUND

The Vaisigano River Protection Wall (project) is funded by the GEF – LDCF and is carried out to support the (GoS, 2015) “Economy-wide integration of climate change adaptation and disaster risk management to reduce climate vulnerability of communities in Samoa” Project. It will be (UNDP, n.d.) aligned with LDCF Objective CCA-1Outcome 1.2 (“Reduce vulnerability in development sectors”), and Output 1.2.1 (“Vulnerable physical, natural and social assets strengthened in response to climate change impacts”).

This means supporting the reconstruction of infrastructure according to “build back better” standards (UNDP, n.d.) by (GoS, 2015) compiling a detailed design and conducting investigations and assessments for the construction of a river protection system.

2.2 OBJECTIVES

According to (Kramer Ausenco, 2015), the Samoa Government approved a river protection system to be constructed on the left and right banks of the Vaisigano River (river) to protect the local community from inundation during flood events up to 1 in 50 year Annual Exceedance Probability (AEP) event.

With this in mind, the main objective of the project is to reduce the climate vulnerability of the local community and infrastructure. In other words, the aim is to increase adaptive capacity to respond to (UNDP, n.d.) increase frequency and severity of extreme rainfall events and increase frequency of extreme wind events such as gusts and cyclones.

2.3 PROJECT SITE LOCATION

The river protection system will be located in the (GoS, 2007) Vaimauga West District on the northern side of the island of Upolu. The project site is the lower catchment of the Vaisigano River. Flooding in this river was particularly evident during Cyclone Evans, necessitating evacuation of local communities and resulting in considerable damage to assets and infrastructure (GoS, 2015). The project site is shown in Figure 1.

2.4 DESIGN BASIS

The detailed design is prepared by Kramer Ausenco and the design basis report is provided in Appendix 5. Generally, the design comprises a concrete protection wall and a rock armour levee aligned to maintain a minimum channel width of 20 m and offset by 2 m from the edge of the bank (Kramer Ausenco, 2015).

The reduced level (RL) of the wall will be about +3.0 m MSL to +6.2 m MSL, and the rock size of the levee will be in accordance with the Engineering Manual 1110-2-1601 by US Army corps of Engineers with a slope of 1 vertical in 2 horizontal (1:2) to improve armour stability conditions (Kramer Ausenco, 2015).
(Kramer Ausenco, 2015) reported that the design life of the river protection system is 50 years, and the design flood event is ‘2100 scenario’. This includes a mean sea level of +1.74 m MSL and an increase in rainfall intensity of 10% (Kramer Ausenco, 2015).

The detailed design also adopts a flood study of the Vaisigano Catchment conducted by Water Technology which provides estimated water levels and velocities for both the 1 in 20 AEP and 1 in 50 AEP events for the ‘2100 year scenario’ (Kramer Ausenco, 2015).

### 2.4.1 Specific Concrete Wall Design

The project site at some areas has been developed up to the edge of the river bank and some buildings and homes are highly vulnerable to flooding. As a result, it would be costly to maintain an offset of 2 m from the edge of the river bank for construction requirements.

Hence, developments at the edge of the river bank areas would need a specific concrete wall design for flood protection (Lober, K 2015, pers. comm., 05 October). The specific concrete wall design will be discussed with affected landowners once it is completed.

### 2.4.2 Original River Protection System

The original river protection system was (GoS, 2015) divided into four segments and they are as follows:

- Segment 1 – from the Vaisigano Bridge to the Leone Bride on both sides;
- Segment 2 – from the Leone Bridge to Lelata Bridge on both sides;
- Segment 3 – from the Lelata Bridge to the Western side up to the source on both sides; and
- Segment 4 – from the Lelata Bridge to the Eastern side up to the source on both sides.

The four segments are shown in Figure 2.1.
According to (Lober, K 2015, pers. Comm., 16 September), further discussions and new advice from MNRE are as follows:

1. There will be no levee works from the Lelata Bridge to the Western side up to the south on both sides (Segment 3). This section or the West Branch of the river is a floodplain area that naturally floods.

2. Levee works proposed from the Lelata Bridge to the Eastern side up to the source on both sides (Segment 4) is modified to one side only up to behind Bridgehouse residence.

### 2.5 KEY CONSTRUCTION ACTIVITIES

#### 2.5.1 Proposed River Protection System

The proposed river protection system is divided into three segments and they are as follows:

- Segment 1 – from the Vaisigano Bridge to the Leone Bride on both sides;
- Segment 2 – from the Leone Bridge to Lelata Bridge on both sides;
- Segment 3 – from the Lelata Bridge to the Eastern side up to the Bridgehouse residence on one side.
The concept design and site plan of the river protection system is shown in Figure 2.2. There is a break at the central part of Segment 2. This is because the river gradient at this area is generally steep and includes a natural gorge that acts as flood control.

![Concept Design and Site Plan of the River Protection System](image)

**Figure2.2: Concept Design and Site Plan of the River Protection System (Kramer Ausenco, 2015)**

### 2.5.2 Construction Schedule

The construction activities for the river protection system will consist of the following:

- site clearance and preparation works
- wall and levee works
- site specific works i.e. parking areas and access to the site

(Lober, K 2015, pers. Comm., 11 August) stated that all three segments will be constructed simultaneously to minimize impacts of construction activities. Furthermore, public procurement of
The selection of contractors will be followed by the construction phase, and is anticipated to commence on November 2015 depending on weather conditions.

Contractors were not known at the time of the report, but environmentally responsible procurement guidelines should be adhered to in the selection process. Generally, selected contractors should have some form of environmental commitment such as:

- a life cycle savings in mind,
- they should be supportive of tools and techniques for sustainable development, and
- they should comply with applicable standards for the safe construction works.

The construction schedule is summarized in Table 2.1.

<table>
<thead>
<tr>
<th>Location</th>
<th>Length (m)</th>
<th>Wall Structural Design</th>
<th>Detailed Design Timeline</th>
<th>Construction Duration</th>
<th>Planned Commencement Timeline</th>
<th>Maximum Construction Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Segment 1</td>
<td>~600</td>
<td>Concrete</td>
<td>Two weeks from receipt of revised flood model</td>
<td>4-6 months</td>
<td>November 2015</td>
<td>May 2016</td>
</tr>
<tr>
<td>Segment 2</td>
<td>~1,000</td>
<td>Rock Armour</td>
<td>Five weeks from receipt of revised flood model</td>
<td>4 months</td>
<td>November 2015</td>
<td>March 2016</td>
</tr>
<tr>
<td>Segment 3</td>
<td>~400</td>
<td>Rock Armour</td>
<td>Five weeks from receipt of revised flood model</td>
<td>4 months</td>
<td>November 2015</td>
<td>March 2016</td>
</tr>
</tbody>
</table>

Table 2.1 Construction Phase Schedule

2.6 INFRASTRUCTURE AND UTILITIES

2.6.1 Access & roads

Access to the project site will be via main roads of the Upolu Road Network. Access to the river will be via connecting access road. The main roads are paved while most connecting access roads are unsurfaced.

Parking near the river bank will be arranged between the contractors and landowners providing access to the river. Generally, LTA is responsible for road maintenance works of the Upolu Road Network although some access roads to private properties are maintained by landowners.
2.6.2 Water demand, supply & conservation

The main water demand for the construction phase is to minimize windblown dust and consumption. Water trucks will be used to control dust and water bottles will be used for consumption.

There are two options available to source water to control dust. One option is to source from the mains supply network which is water delivered to the project site. Another option is to abstract water from the river which is locally available water.

While the selection of water source to control dust is the responsibility of the contractor, abstracting water from the river is a feasible option because it is easily-obtained and locally available. If the contractor opts to use the river, a Water Abstraction License shall be obtained from MNRE.

A conservation strategy in the use of the river is to avoid abstraction during low flow. This is to ensure water is maintained for other services of the river. Another strategy is to adhere to good operational practices such as avoid construction during windy conditions and maintain travelling speeds along unsurfaced roads.

2.6.3 Energy demand, supply & conservation

The main energy demand for construction phase is fuel to operate machinery and run transportation vehicles. Petroleum products are imported and are available from petrol stations around Upolu. A conservation strategy is to explore and use energy efficient construction machinery and transportation vehicles.

2.7 OTHER DEVELOPMENTS

Apart from the river protection system, two other developments are proposed at the project site and include:

- Samasoni Hydroelectric Power Plant and penstock Rehabilitation Project, and
- Leone Bridge Re-construction Project.

Both projects are a result of flood damage during Cyclone Evans. The Samasoni Hydroelectric Power Plant and penstock Rehabilitation Project will affect part of Segment 2 and is carried out by EPC. The Leone Bridge Re-construction Project is carried out by LTA and will affect the boundary of Segment 1 and 2. The implications of other developments will be the impacts of construction activities. Thus, the river protection system should be well planned and coordinated with other developments.

2.8 JUSTIFICATION OF THE PROJECT

2.8.1 Environmental Benefits

The project site will undergo changes to its environment during construction phase. However, the climate vulnerability of the local community and infrastructure justifies the need for the project.
A regulating service of the river is flood regulation which stores water during the wet period and release it during dry periods. The river is the source for the mains supply network to AUA and flood regulation contribute to the availability of freshwater. The river is also the source of water for the Samasoni Hydroelectric Power Plant and flood regulation enhance the sustainability of hydroelectric power generation.

River bed and banks erosion increases levels of nutrients in rainwater and is exacerbated by flooding. This directly affects provisioning and supporting services of the river. For instance, it reduces soil formation, photosynthesis that directly affects primary production via crops and fisheries. Crops such as bananas, yams and taro are particularly important to the local community for consumption and marketing.

The river protection system will stabilize river bed and banks that benefits ecosystem services of the river. This enhances the ecosystem services of the river that benefits people through housing, work, communication, education, recreational etc.

### 2.8.2 Socio-economic Benefits

According to (GoS, 2013), Cyclone Evans cause immense damage and the estimated value of destroyed physical assets represents 109 percent of the normal value of construction activities in Samoa. The most affected sectors were transport, agriculture, the environment, electricity, and tourism (GoS, 2013). Cyclone Evans also disrupted communication services resulting in loss connectivity which required considerable repair and maintenance costs.

Assets and infrastructure represents a lifeline for the economic and social benefits of the local community. The functioning of assets and infrastructure is also necessary to maintain other indirect socio-economic benefits i.e. access to other services such as health, education, communication, tourism.

The river protection system will safeguard development sectors from flooding enhancing economic and social benefits to the local community. Access to other indirect services such as health, education, communication, tourism will also be secured (GoS, 2015).

The cost of flood damage and losses can be mitigated by the river protection system at less cost if compared to the (GoS, 2013) estimated SAT 235.7 million damage by Cyclone Evans and the estimated SAT 470 million needed to rebuild destroyed assets.
River flooding destroyed buildings and infrastructure during Cyclone Evans looking east of Lelata Bridge.
3. COSTS AND BENEFITS OF ADAPTATION MEASURES

3.1 COSTS OF NO ADAPTATION MEASURES

Costs of no adaptation measures can be understood by assessing the impacts of climate change on the river, reflecting on the vulnerability of the local community. Although the cost of no adaptation measures to the local community itself seems different, (Hoggart et al, 2014) they have similarities in that both are vulnerable to climate change.

According to (Jenkinsa et al, 2011), climate change will change flow regime, rising water temperature and water quality. This will have huge implications on ecosystem services of the river. For instance, it affects functioning of supporting, provisioning, regulating, and cultural services of the river to maintain good health and well-being of the local community.

Climate change cause reductions in flow directly affecting provision services such as food production, wood and fiber, and electricity generation. Reductions in flow also affect flood regulation that affects the availability of fresh water.

Flooding also reduce personal safety and secured access to assets and infrastructure. This further reduces access to goods, adequate livelihood, and sufficient nutritious food. It can also leads to social conflicts within the local community. This indicates the vulnerability of both the river’s ecosystem and the local community to climate change.

On the other hand, development of vulnerable areas and river banks is evident at the project site. Development puts demand on the river for the provision of fresh water. This alters river hydrology as a result less water is maintained for other ecosystem services to function. Furthermore development also generates waste polluting the river and impacts on water quality.

Development is also fueled by population growth and this means the need for land resources which leads to deforestation of watershed areas. This increases sedimentation effect downstream that endangered infrastructure such as the Vaisigano Bridge and the Apia Harbour. These are some of the non-climatic factors that increase climate vulnerability of the local community, infrastructure, and the river ecosystem.

The cost of no adaption measures exacerbates vulnerability to climate change and at some point in time the river ecosystem will not be able to function and support the socioeconomic needs of the local community.

3.2 BENEFITS OF ADAPTATION MEASURES

The socioeconomic importance of the project site to AUA is widely understood however (Nocholls, cited in Jenkinsa et al, 2011), the benefits of adaptation measures are more likely to be realized if they offer socio-economic benefits as well as long-term adaptation measures.

Regulating and controlling non-climatic factors is an important long-term adaptation measure to mitigate impacts on water quality and protects watershed, vulnerable areas and river banks. It also protects functioning of the river ecosystem services that are necessary for socio-economic benefits.
The river protection system presents a long-term structural adaptation measure to reduce flooding of the project site, and avoid flood damages and losses. This strengthened security of homes and infrastructure from disasters.

Another long-term adaptation measure is the (GoS, 2015) GEF-LDCF funded project to develop an integrated watershed management plan that will address up and downstream causes and effects of climate vulnerability within all the five watersheds in the Greater Apia area. According to (GoS, 2015), the integrated WMP will outline climate risks posed to the communities living in Faleata West, Faleata East and Vaimauga West following the “Ridge-to-Reef” principle. This will include aspects such as water, land and coastal management that enhance socioeconomic benefits such as access to clean water, goods, and food production.

Long-term adaptation measures are necessary to enhance socioeconomic benefits in the short-term. This reiterates the benefits of adaptation measures and reaffirms its absolute necessity to adapt to climate change.
4. ANALYSIS OF NON-STRUCTURAL ALTERNATIVES

This section discussed reasonable alternatives for the project, with a specific focus on non-structural measures. According to (Rasid & Haider, 2002), an alternative to relying solely on structural adaptation measures is by advocating a combination of structural and non-structural approaches.

4.1 DISASTER PREPAREDNESS - PREFERRED ALTERNATIVE

Flood safety cannot be reached in most vulnerable areas with the help of structural means only and further flood risk reduction via non-structural measures is usually indispensable (Kundzewicz, 2002). Flooding of the river has had significant and adverse impact on development (MNRE & GHD Ltd, 2013), hence, the need for disaster preparedness is essential as (Kundzewicz, 2002) floods are natural events and will continue to occur in the future – one can never achieve complete safety.

4.1.1 Resilience: Information and knowledge about floods and flood protection

According to (Kundzewicz, 2002), improving information about floods is badly needed. Only informed stakeholders can make rational decisions about flood protection. For the sake of uninformed stakeholders, it is a must to rectify and dispel common misconceptions about floods and flood protections.

A misconception is that, a flood protection system that costs a lot of money warrant absolute safety and must withstand greatest floods (Kundzewicz, 2002). Another misconception is that floods do not happen at all rivers and frequently happen in wet areas.

One misconception is the interpretation of the notion of “50-year flood” where many believe that once a 50-year flood has occurred recently, the next deluge will not come in a human lifetime (Kundzewicz, 2002). Another misconception is a deep belief that one can reliably estimate what a 50-year flood would be (Kundzewicz, 2002).

4.1.2 Resilience: Information and knowledge about flood monitoring and flood forecasting-warning

Cyclone Evan appears to have been the most damaging cyclone to hit Samoa since the 1990s (MNRE & GHD Ltd, 2013). (Rasid & Haider, 2002) suggested that monitoring these events and forecasting the impending flood peaks would prepare the people and all emergency management organizations for catastrophic flood.

Monitoring and forecasting consist of a first flood outlook and a second flood estimation (Rasid & Haider, 2002). The first flood outlook is based on average future weather in terms of favorable and unfavorable weather condition, while second flood estimation is an operational forecast (Rasid & Haider, 2002).
4.1.3 Resilience: Information and knowledge about flood risks and flood management

While structural measures may mitigate flood damage, its limitations must be recognized (Katsuhama & Grigg, 2010) so that the local community does not over-rely on the river protection system. Hence, the need to address capacity building couple with the urgency to cope with impacts of climate change (Katsuhama & Grigg, 2010).

(Katsuhama & Grigg, 2010) stated that local capacity to implement the spirit of the laws and regulations is essential. Since daily lives of the local community were disrupted by river flooding of Cyclone Evans, the need to be aware of flood risks and flood management will increase their climate resilience.

(Katsuhama & Grigg, 2010) stated that awareness can be raised through local disaster prevention plan to reflect lessons learned from past events which should include general specifications. In addition, emergency management plans should include detailed actions plans and annual updating (Katsuhama & Grigg, 2010).

On the other hand, public information should be much more extensive, accurate and accessible in terms of quality and quantity of available information, channel for information disclosure, and community access to the information (Katsuhama & Grigg, 2010). Furthermore, information about flood risks would (Katsuhama & Grigg, 2010) inspire more community participation in flood management processes.

The degree of awareness of flood risks and management, and participation can be showed (Katsuhama & Grigg, 2010) by how the local community is influenced by flooding and influences the processes of flood management.

4.2 Emergency Response - Preferred Alternative

4.2.1 Institutional change: responsibility for emergency response

(Clayton, 1999 cited in Rasid & Haider, 2002) stated that emergency response system is based on the principle that the responsibility for emergency remains with those closest to the emergency, meaning a flood-affected individual bears the initial responsibility for coping with the flood disaster. However as magnitude of the emergency increases and the individual’s capacity to cope with it diminishes, this responsibility shits successively from the individual to the national level (Clayton, 1999 cited in Rasid & Haider, 2002).

This implies that community individuals should have the legislative authority to declare an emergency for the local community (Rasid & Haider, 2002). Relevant agencies and bodies i.e. DMO assume major responsibilities for administering emergency measures as flood magnitude accelerate Rasid & Haider (2002).

However relevant agencies and bodies would need to provide an important link in the implementation of local emergency plans. Community individuals coordinate with relevant authorities and ensure that community plans are current, and to arrange for public meetings to disseminate flood information (Rasid & Haider, 2002).
4.2.2 Institutional change: responsibility for floodproofing or relocation

The extent of damage from Cyclone Evans (Rasid & Haider, 2002) demonstrated that the design standards i.e. damaged homes were inadequate for handling a flood of this magnitude. To enable the local community to cope more effectively with a future flood of similar or greater magnitude to Cyclone Evans, they (Rasid & Haider, 2002) should be offer an option to either floodproofing their homes or relocating to a flood-free zone.

Floodproofing may include (1) raising a home or building on an elevated structures, (2) constructing a retaining structures around buildings, and (3) building a properly-engineered structural (Canada-Manitoba, nd cited in Rasid & Haider, 2002).

In addition, financial incentive for floodproofing should include reimbursement from the government where the owner pays less of the floodproofing cost (Rasid & Haider, 2002). The incentive for relocation to a flood-free zone may include buying out the existing home at the assessed market price with an additional relocation allowance, and the homeowner still holds the title to his/her vacated property (Rasid & Haider, 2002).

4.2.3 Institutional change: living with floods

Precautionary measures such as zoning and regulation of floodplain development are advantageous however, if vulnerable areas and river banks have already been developed, a remedy is that humans and infrastructure move out of harms’ way (Kundzewicz, 2002).

According to (Kundzewicz, 2002), permanent relocation of floodplains is unthinkable in other areas and therefore one must live with floods even if flood embankment are affordable and take much of highly demanded land. This means reinforcing structural defenses and enhancing non-structural measures such as forecast-waming system and awareness raising are reasonable options (Kundzewicz, 2002).

4.2.4 Institutional change: watershed management

This should include land and soil conservation to minimize surface runoff, erosion, and sediment transport. This is implemented by such measures as enhancing infiltration, reducing impermeable area, and enhancing storage by ponds or artificial storages (Kundzewicz & Takeuchi, 1999 cited in Kundzewicz, 2002). This should also include increase of storage in the river system (Kundzewicz, 2002).
5. **AFFECTED ENVIRONMENT**

5.1 **BIOPHYSICAL COMPONENT**

5.1.1 **Climate**

Samoa’s climate is normally driven by the South Pacific Convergence Zone (SPCZ) and El Nino Southern Oscillation (ENSO) (UN-Habitat, 2014). This means SPCZ adds to the intensification of rainfall, especially during the wet season and is almost non-existent during the dry season, resulting in very dry rainfall conditions (UN-Habitat, 2014).

As a result, Samoa receives more than three times the amount of rainfall in the wet season than it does in the dry season (UN-Habitat, 2014). During the La Nina years of the ENSO, Samoa experiences flooding in downtown Apia as a result of extreme rainfall and the opposite occurs in an El Nino year (UN-Habitat, 2014).

5.1.1.1 **Temperature**

Samoa’s temperature ranges from 24 to 32°C and are generally uniform throughout the year, with little seasonal variation due to Samoa’s near-equatorial location (UN-Habitat, 2014). Positive trends are evident in both annual and seasonal mean air temperatures at Apia, and air temperature is projected to continue to increase over the course of the twenty-first century (UN-Habitat, 2014).

Maximum air temperature trends are considerably greater than minimum air temperatures trends and warming is physically consistent with rising greenhouse gas concentrations (UN-Habitat, 2014). There is significant variability in the maximum annual sea temperature for Apia, and sea temperature increases lead to effects such as higher intensity storm events and prolonged periods of drought (UN-Habitat, 2014).

5.1.1.2 **Rainfall**

Average annual rainfall for Samoa is about 3,000 mm with about 75 per cent occurring during the wet seasons, and varying from 2,500 mm in the northwest parts of Upolu (UN-Habitat, 2014). On average, about 75 per cent of Samoa’s yearly rainfall occurs in the wet season, between October and April, and this is accompanied with warmer air temperatures (UN-Habitat, 2014).

By contrast, in the dry season (May - September), Samoa experiences low rainfall (only about 25 per cent of the annual volume and cooler air temperatures (UN-Habitat, 2014). The Climate Risk Profile developed for Samoa in 2007 noted that (UN-Habitat 2014) daily rainfall of more than 300 mm was becoming more common.

During Cyclone Evans (MNRE & GHD Ltd, 2013) reported from initial assessment that rainfall intensity over a two hour period resulted in 206 mm an amount considered to generate flooding, and the rainfall event is at least equivalent to a 1 in 20 year event. (UN-Habitat 2014) stated that six-hourly rainfall of 200 mm was a 30 year event in 2007 and is likely to become a 20 year event by 2050.
5.1.1.3 Wind

Samoa experiences southeast trade winds for most of the year, and severe tropical cyclones occur from December to February (UN-Habitat, 2014). Samoa is also subject to anomalously long dry spells that coincide with the El Nino southern Oscillation (ENSO) phenomenon and several of these dry periods have occurred over the last decade, together with several damaging tropical cyclones which is consistent with expected increase in variability due to climate change (UN-Habitat, 2014).

(UN-Habitat 2014) also reported a 75 year return period for extreme gusts of 70 knots and this will likely reduce to about 40 years by 2050. Furthermore, tropical cyclones have historically occurred about once every 1.8 years but cyclone frequency has increased between 1830 and 2000 and this trend may continue and possibly accelerated under climate change scenarios (UN-Habitat 2014).

5.1.2 Project Site

5.1.2.1 Segment 1 - from the Vaisigano Bridge to the Leone Bridge on both sides

(MNRE & GHD Ltd, 2013) reported that approximately 500 m from the river mouth is influenced by tidal effects and that tidal zone extends some distance upstream. The river gradient of Segment 1 is low and water quality is generally clear MNRE (2015). The mouth of the Vaisigano River is (MNRE, 2015) quite wide with significant sediment deposits.

There are two major bends in Segment 1 and some areas appear to have been reclaimed while other areas show inadequate retention structures (MNRE, 2015). LTA is proposing the reconstruction of the Leone Bridge which was damaged by Cyclone Evans.

5.1.2.2 Segment 2 - from the Leone Bridge to the Lelata Bridge on both sides

According to (MNRE, 2015), the river gradient steepens and becomes narrow and constricted at Segment 2. A waterfall and a natural gorge exist through the central part of the river with evidence of bedrock exposed in river bed and banks (MNRE, 2015).

The Samasoni Hydroelectric Power Plant is located towards the lower part of Segment 2 and the penstock is visible immediately downstream of the Lelata Bridge (MNRE, 2015). A bed elevation of about 10 meters is located near the hydroelectric power discharge midway between the bridge at Leone and Vailele Street (MNRE & GHD Ltd, 2013).

5.1.2.3 Segment 3 – from the Lelata Bridge to Bridgehouse residence on one side only

Segment 3 extend along the eastern channel on one side only and is generally wide and locally flat, and there are some flood retention structures at the lower part near Lelata Bridge (MNRE, 2015).
5.1.3 Geology and Soils

(MNRE & GHD Ltd, 2013) stated that the surface geology of the upper Vaisigano catchment comprises Pleistocene Salani Volcanics resting on highly weathered early Pleistocene or Pliocene Fagaloa Volcanics that are low in permeability. Soils developed on the bedrock are clays with volcanic boulders (MNRE & GHD Ltd, 2013).

According to (MNRE & GHD Ltd, 2013), rainforest is the predominant vegetation in the upper part of the catchment. Sixty eight percent of the Vaisigano catchment is forestry and the lower flanks of the catchment are a mixture of plantations, scrub, grazing lands and settlement (MNRE & GHD Ltd, 2013).

5.1.4 Topography & Drainage

According to (UN-Habitat 2014), Samoa’s topography, physically its mountains influences rainfall distribution and wet areas are generally located in the southeast. Relatively drier areas such as AUA are located in the north-west (UN-Habitat 2014). The Vaisigano Catchment area consists of 3 main tributaries that meet at Alaoa and are contained by the Mulivai and Vaivase catchments (MNRE & GHD Ltd, 2013).

According to (MNRE & GHD Ltd, 2013), limited storm-water drainage systems have been developed at the project site. The main drainage channel for this area runs along the Matafagatele Road and conveys stormwater into the river, immediately upstream of the Vaisigano Bridge (MNRE & GHD Ltd, 2013).

The existing conditions of the drainage canals and pipes are generally poor resulting from partial siltation and impacts from frequent channel encroachments and under-sized culverts which have been installed when access paths to properties have been constructed (MNRE & GHD Ltd, 2013). Due to the continuous buildup of new roads, properties, residences and office buildings, the drainage system has suffered in that most of the flooding is the result of either blocked drains or natural waterways being reclaimed (UN-Habitat, 2014).

5.1.5 Hazard Vulnerability

According to (Jenkinsa et al, 2011), the greater intensity of extreme events are likely to cause more flooding and drought, as well as more Category 4 and 5 cyclones are projected for Pacific Islands. Furthermore, accelerated climate change is pervasive through Pacific Islands (IPCC, 2007a, cited in Jenkinsa et al, 2011).

5.1.5.1 Tropical Cyclones and Storm Surge

AUA including the project site is vulnerable to tropical cyclones and is also exposed to the sea (UN-Habitat, 2014). Although Cyclone Evans was not accompanied by any tidal surges caused by a barometric lift, rather the wind direction appeared to drive water out of the bay (MNRE & GHD Ltd, 2013).
5.1.5.2 Extreme Rainfall and Increased Precipitation

According to (UN-Habitat, 2014), the 2012 flooding associated with tropical Cyclone Evans inundated much of central Apia, and the river overflow recorded inundation levels of greater than one metre from the ground, reaching a maximum of two metres at site specific locations in under an hour.

For instance during Cyclone Evans, the depths of inundation at ground level exceeded a 1.0 m at some sites near the river banks and the highest flooding was noted at these locations (MNRE & GHD Ltd, 2013) Lelata recorded a maximum height of flood levels at 2.35 m, Faatoia was 1.786 m and 2.0 m at specific locations, and Vaisigano river mouth 2.30 m. (MNRE & GHD Ltd, 2013) reported daily rainfall record alone on the December 13 2012 flood was not an unusual event with a return period of around 20 years. What may have contributed to this flood event was the rainfall over the two previous days (up to 174 mm) that would have saturated the catchment and contributed to the rapid runoff and landsliding (MNRE & GHD Ltd, 2013).

Increase in precipitation and extreme rainfall would also mean increase soil erosion, landslides, and surface flooding for vulnerable communities within the project site (UN-Habitat, 2014).

5.1.5.3 Exposure to Flooding

According to (MNRE & GHD Ltd, 2013), flooding is a historical issue that continues to challenge vulnerable communities within the project site during the wet season. Moreover, Vaisigano catchment repeatedly floods (e.g. 1939, 1974, 1990, 2001, 2006 and 2012) and the negative impacts associated with the floods have relatively increased in magnitude (MNRE & GHD Ltd, 2013).

Based on previous incidents of flash flooding, vulnerable communities within the project site are also exposed when the river overflows (UN-Habitat, 2014). To date, flooding has had a significant impact on the development of Apia as urban development has in-filled the lower reaches of the Vaisigano River flood plain (MNRE & GHD Ltd, 2013).

5.2 SOCIO-ECONOMIC COMPONENT

5.2.1 Vaimauga West District Setting

The district of Vaimauga West is part of AUA (the city), where the city is home to at least 21 per cent of the total population with a total land area of 61 sq. km (UN-Habitat, 2014). The river flows through central Apia and is of key importance providing both water supply and power generation (MNRE & GHD Ltd, 2013).

5.2.1.1 Population

Around 60 per cent of the AUA populations are of working age (15-59) while the other 27 per cent make up the under-14 age group (UN-Habitat, 2014). A particular significance in this
population breakdown is that the working age group, around 54 per cent is employed while the remainder are at school or unemployed (UN-Habitat, 2014).

The project site comprises a mixture of businesses and nine communities with a total population of around 6,000 people and includes the villages of Matautu, Apia, Vaiala, Vaipuna and Moataa, with Lelata, Maluafou, Faatoia, Vini Fou and Levili further inland (UN-Habitat, 2014).

5.2.1.2 Land Use & Tenure

AUA is the only area of Samoa where freehold land ownership is a significant feature where only 29 per cent of AUA households live of the customary lands (UN-Habitat, 2014). There is a complete range of urban land uses in each village area as families are granted the right to start businesses on their land (UN-Habitat, 2014).

For instance, the project site contains wholesale businesses, services and industrial activities, restaurants, tourism ventures as well as schools (UN-Habitat, 2014). The coastal parts of the river were originally wetland and coastal marshlands have been reclaimed (UN-Habitat, 2014). Approximately 80 per cent is residential and includes the Samasoni Hydroelectric Power Plant, hotels, schools and businesses (UN-Habitat, 2014).

According to (MNRE & GHD Ltd, 2013), land use development has increased dramatically over the last ten years, both in low-lying flood-prone and middle catchment areas. Previous reports all recognize that many commercial and residential properties have been constructed within floodplain areas. Land use and development has increased and localized flooding becomes more frequent particularly at the project site where the river passes through built-up area along several villages and settlements (MNRE & GHD Ltd, 2013).
5.2.1.3 Infrastructure

Significant water, power and transport infrastructure exists within the project site, and the river is the main source of water supply and hydroelectric power (MNRE & GHD Ltd, 2013). The key routes are the West Coast road, East Coast road and the Cross-Island road and all major urban road networks are sealed (MNRE & GHD Ltd, 2013).

Several key infrastructure elements such as footpaths and drainage systems need to be installed (MNRE & GHD Ltd, 2013). River flows are seasonal (e.g. channels are typically dry during the dry season) when take-off for Hydro Electric Generation and water supply takes most of the water (MNRE & GHD Ltd, 2013).

According to (UN-Habitat, 2014), a key element of preparedness of infrastructure for the effects of climate change is a quality review of existing infrastructure. Public infrastructure in Apia and linkage systems will be susceptible to the projected increase in climate stresses in the coming decades, including cyclones, extreme flooding and storm surges (UN-Habitat, 2014).

5.3 Project Consistency

The project is developed under the guidance of the Task Team for the construction of Vaisigano River Protection Wall approved by the Cabinet as per Cabinet Directive (15) 02 issued on the 15th of January 2015. In addition, (Nelson, F 2015, pers. Comm., 11 August) stated that Ministers and Chief Executive Officers of all relevant authorities’ especial utilities are part of the Task Team to ensure that the river protection system is implemented consistently with other developments planned at the project site.

Moreover, non-structural alternatives discussed in the previous section are consistent with the main objectives of the project, and are also relevant to improve/enhance existing non-structural mechanisms, i.e. VDCRM Plans implemented at the local level.
6. ENVIRONMENTAL CONSEQUENCES

The actual and potential environmental consequences of the river protection system are evaluated against the baseline information of the project site. The assessment is divided in terms of project phases (construction and operation), and then further divided into specific environmental and socio-economic components.

The decommissioning phase was not considered since Stage 1 of the river protection system will be constructed (Kramer Ausenco, 2015), with provision to extend in the future to cater for the 1 in 50 year AEP event as Stage 2. In addition, the indirect off-site environmental consequences of the river protection system (source of rock) were not considered as the assessment is limited to the baseline information of the project site.

6.1 IMPACTS IDENTIFICATION AND CLASSIFICATION

<table>
<thead>
<tr>
<th>#</th>
<th>Impacts</th>
<th>Project Phase</th>
<th>Direction</th>
<th>Duration</th>
<th>Magnitude</th>
<th>Extent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sedimentation downstream</td>
<td>Construction</td>
<td>Negative</td>
<td>Short-term</td>
<td>Minor</td>
<td>Local/National</td>
</tr>
<tr>
<td>2</td>
<td>Loss of habitat for fish production</td>
<td>Construction</td>
<td>Negative</td>
<td>Short-term</td>
<td>Minor</td>
<td>Local</td>
</tr>
<tr>
<td>3</td>
<td>River bed and banks erosion</td>
<td>Construction</td>
<td>Negative</td>
<td>Short-term</td>
<td>Minor</td>
<td>Local</td>
</tr>
<tr>
<td>4</td>
<td>Pollution to surface water quality</td>
<td>Construction</td>
<td>Negative</td>
<td>Short-term</td>
<td>Minor</td>
<td>Local/National</td>
</tr>
<tr>
<td>5</td>
<td>Construction machinery oil spills and leakage</td>
<td>Construction</td>
<td>Negative</td>
<td>Short-term</td>
<td>Minor</td>
<td>Local</td>
</tr>
<tr>
<td>6</td>
<td>Solid waste generation</td>
<td>Construction</td>
<td>Negative</td>
<td>Short-term</td>
<td>Minor</td>
<td>Local</td>
</tr>
<tr>
<td>7</td>
<td>Loss of riparian and terrestrial areas</td>
<td>Construction</td>
<td>Negative</td>
<td>Short-term</td>
<td>Minor</td>
<td>Local</td>
</tr>
<tr>
<td>8</td>
<td>Site access and parking</td>
<td>Construction</td>
<td>Negative</td>
<td>Short-term</td>
<td>Minor</td>
<td>Local</td>
</tr>
<tr>
<td>9</td>
<td>Energy demand and greenhouse gas emission</td>
<td>Construction</td>
<td>Negative</td>
<td>Short-term</td>
<td>Minor</td>
<td>Local</td>
</tr>
<tr>
<td>10</td>
<td>Water demand and abstraction from the river</td>
<td>Construction</td>
<td>Negative</td>
<td>Short-term</td>
<td>Minor</td>
<td>Local</td>
</tr>
<tr>
<td>11</td>
<td>Climate Vulnerability</td>
<td>Operation</td>
<td>Negative</td>
<td>Long-term</td>
<td>Major</td>
<td>Local/National</td>
</tr>
<tr>
<td>12</td>
<td>Improved hydraulic conditions</td>
<td>Operation</td>
<td>Positive</td>
<td>Long-term</td>
<td>Major</td>
<td>Local</td>
</tr>
<tr>
<td>13</td>
<td>Improved river</td>
<td>Operation</td>
<td>Positive</td>
<td>Long-term</td>
<td>Major</td>
<td>Local</td>
</tr>
</tbody>
</table>
Table 6.1: Impacts Classification Summary

<table>
<thead>
<tr>
<th>Table 6.1: Impacts Classification Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1.1 Biophysical and socio-economic Impacts</td>
</tr>
<tr>
<td>6.1.1.1 Sedimentation downstream</td>
</tr>
<tr>
<td>Sedimentation downstream at the Vaisigano Bridge is an on-going issue after heavy rainfall and river flooding. As such, any sedimentation from construction activities would have little difference on the existing sedimentation conditions of the Vaisigano Bridge.</td>
</tr>
<tr>
<td>6.1.1.2 Loss of habitat for fish production</td>
</tr>
<tr>
<td>There is no baseline information available on local fish production. While there may be less important fisheries available, a minority group of the local community would rely on them. Thus, construction activities would have minor effect on fisheries production to support the local community.</td>
</tr>
<tr>
<td>6.1.1.3 River bed and banks erosion, Pollution to surface water quality</td>
</tr>
<tr>
<td>Construction activities can initiate river bed and banks erosion. Construction activities are proposed for the dry season to reduce the levels of nutrients in rainwater. Any erosion would result in localized pollution to surface water quality and have minor effect on the functioning of ecosystem services to support the project site and AUA.</td>
</tr>
</tbody>
</table>
6.1.1.4 Construction machinery oil spills and leakage

The presence of construction machinery within the river channel may cause oil spills and leakage. Construction machinery used will be properly maintained to avoid any oil spills and leakage thus any pollution to surface water quality would be minor.

6.1.1.5 Solid waste generation

Site clearance and preparation works can initiate solid waste generation and increase rubbish disposal. Works would be limited to areas identified for the construction of the concrete wall and rock armour. However, the specific concrete wall design of the river protection system will minimize site clearance on existing buildings/homes.

6.1.1.6 Loss of riparian and terrestrial areas

Site clearance and preparation works can also result in loss of riparian and terrestrial areas. The processes most commonly associated with this effect are large-scale river widening and river deepening. River widening is limited to 2 m from the edge of the banks and areas where the river is naturally wide which limits loss of riparian and terrestrial areas.

6.1.1.7 Site access and parking

Access to the river and parking of construction machinery and transportation vehicle would initiate soil/land disturbance. This would lead to localized loss of soil fertility but is unlikely to affect project site suitability.

6.1.1.8 Energy demand and GHG emission

Energy demand for the short-term operation of construction machinery and transportation vehicle is neither a major source of energy consumption nor a major source of GHG emission. On the other hand, any GHG emission as a result in the production of energy to support the project is minor to the existing levels of atmospheric pollution.

6.1.1.9 Water demand and abstraction from the river

The abstraction of water from the river to control dust is not a major source of water consumption. Construction activities would take into account weather conditions to minimize the generation of windblown dust and reduce demand on water. Some of the major sources of energy and water consumption are industrial and commercial developments.

6.1.1.10 Reduction in air quality

Windblown dust can be introduced from the movement of construction machinery and transportation vehicles causing reduction in air quality and health problems. This is exacerbated when in close contact with source of dust. Other impacts include coating of properties and vegetation. Construction works would take into account weather consideration to control dust generation in order to minimize reduction in air quality and health problems.

6.1.1.11 Increase in current noise levels

The main source of noise would be from the use of construction machinery and transportation vehicles which may cause nuisance and lead to frustration and hearing problems. Construction
works would take into account sensitive noise receivers and sensitive timelines to minimize any nuisance and complains from the local community as a result of increased noise levels.

### 6.1.1.12 Risks to human health and safety

Construction activities can introduce risks to the health and safety of construction workers including nearby residents. Sufficient protective gear (boots, hats, masks, ear muffs) would protect construction workers. On the other hand, warning signs would be erected at construction areas to inform nearby residents of the risks involved.

Existing utilities and infrastructure within 2m from the river bank will be affected by construction works and need to be relocated. The relocation of utilities and infrastructure may affect daily activities of the local community. In addition, the use of access roads by transportation vehicles may increase traffic and directly affect other road users.

### 6.2 IMPACTS MITIGATION

#### 6.2.1 Biophysical Impacts

The biophysical impacts identified for the project are specific to construction activities. The magnitude of the impacts is considered minor due to the short-term duration of the construction phase.

The following mitigation measures are proposed to further mitigate impacts, so that construction works are carried out with minimal changes to the environment.

- Site clearance and preparation activities is only allowed within 2 m of the river bank
- Concrete and rock armour protection works should not be more than 2 m from the river bank
- Measure 2 m from the river bank and use flag to mark construction area
- Riparian and terrestrial should not be cleared except at marked construction area
- Construction machinery and transportation vehicles entering and leaving the construction area should always be clean and free of oil spill and leakage
- Construction machinery and transportation vehicles are to be properly maintained to avoid any oil spill or leakage
- Any oil spill or leakage should be contained for storage and proper disposal
- No discharge of oil is allowed on the ground and within the river channel
- Construction activities should be avoided during and immediately after heavy rain, low flow, dry and windy conditions, after working hours and night times, and Sundays and public holidays
- Access to the river channel should be limited to temporary access points only
- Temporary access points and parking areas should be restored to near original conditions
- Transportation vehicles should take the most environmentally suitable route between the source of raw material and the project site
- Apply principle of waste prevention, minimization, reduction for waste generated
- Effort to re-use/recycle solid waste as much as possible
- Waste disposed is allowed only at Tafaigata Landfill
- Plant trees to enhance aesthetics and facilitate species presence at the construction site
- Use energy efficient machinery and transportation vehicles
6.2.2 Socio-economic Impacts

The following mitigation measures are proposed to further mitigate socio-economic impacts so that construction works can be implemented with minimal effects on the socio-economic aspects of the environment.

- Construction area must be progressively re-vegetated to minimize expose surfaces and windblown dust
- Use a water tanker to spay water on access roads during dry and windy conditions
- Reduce travelling speed for transportation vehicles when approaching properties
- Ensure construction machinery and transportation vehicles have adequate air filtration systems
- Limit site clearance and preparation activities to designated construction area
- Minimize site clearance and preparation activities during high wind speed and adverse weather conditions
- Informed surrounding residents of potential windblown dust generation ahead of construction phase
- Contractor to ensure that the transportation of earth material are covered to minimize dust particles
- Care taken in the loading/unloading of construction material to prevent spillage
- Contractor to clean-up spill if it occurs
- Construction workers at the construction site to use adequate protective gear
- Contractor to repair and improvement access road use to access the construction area
- Use silenced machinery to reduce the impact of noise
- Schedule noise related activities when least number of adjoining residents are expected to be affected i.e. working/school hours
- Movement of transportation vehicles should be restricted
- Contractor to properly maintain machinery and vehicles
- First aid equipment to be made available at the construction area at all times
- Designated personnel at the construction site to have skills to use/apply first aid
- Insurance for construction workers working at the construction site during construction phase
- Construction workers to be trained in safety measures and procedures to reduce risk to health and safety
- Use of traffic signs when crossing the main road within the project site
- Infrastructure and utility providers should ensure the relocation of services is done quickly to reduce disruption to daily activities of the local community
- Drainage along access roads should be improve by contractor
- The use of main roads and access roads within the project site should be limited to working hours
7. **MITIGATION AND CONDITIONS**

7.1 **SIGNIFICANT IMPACTS IDENTIFICATION**

<table>
<thead>
<tr>
<th>#</th>
<th>Impacts</th>
<th>Project Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Living with flood risk on vulnerable areas and river banks</td>
<td>Operation</td>
</tr>
<tr>
<td>2</td>
<td>Climate Vulnerability</td>
<td>Operation</td>
</tr>
</tbody>
</table>

Table 7.1 Summary of Unavoidable Significant Impacts

7.2 **IMPACTS MITIGATION**

Non-structural alternatives discussed earlier will be used to mitigate unavoidable significant impacts of the project.

7.2.1.1 **Information and knowledge about floods and flood protection**

Common misconceptions about floods and flood protections that needs to be dispel (Kundzewicz, 2002):

- A flood protection system that costs a lot of money warrant absolute safety and must withstand greatest floods;
- Floods do not happen at all rivers and frequently happen in wet areas;
- Many believe that once a 50-year flood has occurred recently, the next deluge will not come in a human lifetime
- A deep belief that one can reliably estimate what a 50-year flood would be.

7.2.1.2 **Information and knowledge about flood monitoring and flood forecasting-warning**

Monitoring flood events and forecasting the impending flood peaks should consists of (Rasid & Haider, 2002):

- first flood outlook based on average future weather in terms of favorable and unfavorable weather condition
- second flood estimation which is an operational forecast

7.2.1.3 **Information and knowledge about flood risks and flood management**

Conditions for flood risks and flood management are (Katsuhama & Grigg, 2010):

- local disaster prevention plan must reflect lessons learned from past events and should include general specifications
- local emergency management plans should include detailed actions plans and annual updating,
- public information should be much more extensive, accurate and accessible
- quality and quantity of available information inspire more community participation in flood management processes
7.2.1.4 Responsibility for emergency response

Conditions for emergency response (Rasid & Haider, 2002):

- community individuals should have the legislative authority to declare an emergency;
- ensure link in the implementation of local emergency plans and national emergency plans;
- community plans must remain current;
- arrange for public meetings to disseminate flood information;

7.2.1.5 Responsibility for floodproofing or relocation

Conditions for floodproofing or relocation (Rasid & Haider, 2002):

- Local community should be offer an option to either floodproofing their homes or relocating to a flood-free zone.
- Floodproofing should include:
  - raising a home or building on an elevated structures,
  - constructing a retaining structures around buildings, and
  - building a properly-engineered structural (Canada-Manitoba, nd cited in Rasid & Haider, 2002).
- Financial incentive for floodproofing should include:
  - reimbursement from the government where the owner pays less of the floodproofing cost
- Incentive for relocation to a flood-free zone may include:
  - buying out the existing home at the assessed market price with an additional relocation allowance,
  - homeowner still holds the title to his/her vacated property

7.2.1.6 Living with floods

Conditions for living with floods (Kundzewicz, 2002):

- zoning and regulation of floodplain development
- reinforcing structural defenses
- enhancing non-structural measures

7.2.1.7 Watershed management

Conditions for watershed management (Kundzewicz, 2002):

- land and soil conservation to minimize surface runoff, erosion, and sediment transport
- enhancing infiltration
- reducing impermeable area
- enhancing storage by ponds or artificial storages
- increase of storage in the river system
8. **BASELINE DATA AND COMPLIANCE MONITORING**

8.1 **BASELINE DATA**

<table>
<thead>
<tr>
<th>ENVIRONMENTAL COMPONENT</th>
<th>CURRENT STATUS</th>
<th>FUTURE (PROJECTED) STATUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>- 24 to 32°C</td>
<td>- Increase in air temperature and prolonged periods of drought</td>
</tr>
<tr>
<td></td>
<td>- Variability in the maximum annual sea temperature</td>
<td>- Higher intensity storm events</td>
</tr>
<tr>
<td>Rainfall</td>
<td>Ave annual Rainfall: 3,000 mm Wet Period</td>
<td>Six-hourly rainfall of 200 mm is likely to become a 20 year event by 2050</td>
</tr>
<tr>
<td></td>
<td>- October - April</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 75% rainfall</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 2,500 mm northwest Upolu</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dry Period</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- May - September</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 25% rainfall</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- cooler air temperatures</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- daily rainfall - 300 mm (common)</td>
<td></td>
</tr>
<tr>
<td>Wind</td>
<td>Predominant - southeast Trade winds</td>
<td>Increase in climate variability and accelerated increase of cyclone frequency</td>
</tr>
<tr>
<td></td>
<td>- Tropical Cyclone Period - December - February</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Long dry spells with ENSO</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Damaging Tropical Cyclones</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Increase of cyclone frequency</td>
<td></td>
</tr>
<tr>
<td>Vulnerable areas and</td>
<td>Part of AUA</td>
<td>Increase urbanization</td>
</tr>
<tr>
<td>river banks</td>
<td>- Residential and commercial development</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Population growth</td>
</tr>
<tr>
<td></td>
<td></td>
<td>More development</td>
</tr>
</tbody>
</table>

Table 8.1 Baseline Data Programme

8.2 **COMPLIANCE MONITORING PROGRAMME**

<table>
<thead>
<tr>
<th>SIGNIFICANT IMPACT</th>
<th>MONITORING INDICATOR</th>
<th>MONITORING ACTIVITY</th>
<th>MITIGATION AND PROPOSED CONDITIONS</th>
<th>COMPLIANCE MONITORING AGENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Living with flood risks</td>
<td>Operation Phase</td>
<td>• New developments</td>
<td>Refer Section 7</td>
<td>MNRE or approved monitoring agent</td>
</tr>
<tr>
<td>in vulnerable areas and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>river banks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Climate Vulnerability</td>
<td>Operation Phase</td>
<td>• Changing climate</td>
<td>Refer Section 7</td>
<td>MNRE or approved monitoring agent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Flooding</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8.2 Compliance Monitoring Programme
9. CONSULTATIONS

9.1 COMMUNITY CONSULTATIONS

Numerous community consultations have been conducted by MNRE for the river protection system. This raised awareness on the river protection system and gather feedback to inform detailed designs. It also promoted the implementation of the river protection system in a consultative approach with the local community and key national stakeholders.

Representatives from EPC and LTA were involved in community consultations given they implement other developments planned at the project site. This improved the degree of information that is delivered to the local community about national scale adaptation projects in the project site.

On 16th July 2015, Ms Filomena Nelson, MNRE contact for the river protection system approved the use of the following community consultations in preparing the EIA Report:

- Report on the Inception Community Consultation for Vaisigano Catchment conducted by MNRE on 21st January 2015,
- Report on the Second Community Consultation for the Vaisigano Catchment conducted by MNRE on 18th September 2015,
- Minutes – 1st Consultation with villages for the Rehabilitation Project for Alaoa, Samasoni and Fale ole Fee conducted by EPC on 6th February 2015, and
- Minutes – Consultation with Magiagi Village for the Rehabilitation Project for Alaoa, Samasoni and Fale ole Fee conducted by EPC on 4th March 2015.

Community Consultation Reports are provided in Appendix 1 - 4

9.1.1 General feedback from the local community

Most of the consultation participants were the elderly heads of households and business people, including young people, and Sui o Nuu and Sui ole Malo. The attendance implies a broad coverage of local community.

Generally, the feedback on the river protection system was positive and there was an overall consensus that the project is a much welcomed relief for the local community. This is showed in participant response to move ahead with the construction of the river protection system.

Participants recognize flood impacts from past flood events and acknowledge the need for the river protection system. This implies that the local community is well aware of flood risks and seems to particularly rely on the river protection system to provide flood protection.

9.1.2 Concerns Identified by the Local Community

9.1.2.1 Social Issues

The local community raised concerns on potential social issues from the river protection system and integrating a multi-purpose design for recreational needs. This involves the provision of footpaths and proper access to the river for bathing.
Basically it encourages people from outside into the project site. For instance, footpaths may easily provide access to adjoining properties causing personal insecurity. Moreover, bathing at the river is associated with noise causing social disturbance for the location community. One participant reported the use of the river for drinking and partying by other members of the local community creating a social nuisance for his family.

Maintaining or improving cultural services of the river as part of the river protection system is necessary to provide recreational use that benefits the local community. If this hinders the social cohesion and mutual respect within the local community, then integrating a multi-purpose design for recreational use should priorities a design that directly benefits the local community and enhances good social relations.

### 9.1.2.2 Access to the floodplain area

The community consultation conducted by EPC on the 6th February 2015 reported that the penstock has blocked access to the floodplain area located west of Bridgehouse residence. This is an alternative access use by people (mainly children) residing at the floodplain area to access other key services such as education and transportation. This alternative access should be restored and improve in the construction of Segment 3, so that people are not further disadvantage from the river protection system.

### 9.1.2.3 River Protection System

There is some confusion about the river protection system in comparison to an existing revetment that was damage by Cyclone Evans. This created uncertainty among the local community about the level protection provided by the river protection system.

While the purpose and structure of the existing revetment is unknown, it must be understood that the river protection system is a flood system and its design basis is discussed in previous section of this report. Nonetheless, it seems there is a need to raise awareness specifically on the design basis of the river protection system to improve understanding and knowledge of the local community.

### 9.1.2.4 Other developments

Participants raised concerns on linkages between the river protection system, the existing Vaisigano Bridge, the planned Leone Bridge, and rehabilitation of the Samasoni Hydroelectric Power Plant and penstock. The local community raised concern that flooding problems may be exacerbated if all these developments are not planned, design, and align to complement each other.

All developments planned at the project site are implemented by different development partners and ministries. The main challenging is keeping all relevant ministries and partners current with information to inform different planning processes.

The Task Team that involved all relevant ministries and partners set up to guide the construction of the Vaisigano River Protection Wall is an effective strategy to improve coordination and properly manage the implementation of adaptation development projects. This would ensure
information sharing and developments are properly align and to avoid surprises during construction.

9.1.2.5 Land and properties affected by construction

Land and properties affected by construction of the river protection system can only be confirmed once detailed design and survey is completed. There was concern whether the government would compensate land and properties affected. The specific concrete design of the river protection system would be applied at specific areas to minimized impact on land and properties.

9.2 RELEVANT STAKEHOLDER CONSULTATIONS

9.2.1 Summary of issues raised

People consulted were well informed of the project and some were representatives in the Task Team established for the construction of the Vaisigano River Protection Wall Project. This indicated that relevant authorities have good knowledge of the project. Key issues raised in the consultations are provided in the table below:

<table>
<thead>
<tr>
<th>RELEVANT AUTHORITY</th>
<th>NAME</th>
<th>PERSPECTIVE ABOUT THE BENEFITS AND DRAWBACKS OF THE PROJECT</th>
<th>HOW ISSUES WERE ADDRESSED</th>
</tr>
</thead>
</table>
| EPC                | Fonoti Perelini (Project Manager) | • The river protection system provides protection for the penstock and Samasoni Hydroelectric Power Plant which is beneficial for EPC  
• The location of the wall in Segment 2 (downstream Lelata Bridge on the east side) is also affected by rehabilitation works for the penstock  
• Drawback is the differences in construction timeframes  
• It was suggested that a single contractor should carry out construction of the wall and rehabilitation of the penstock  
• The existing location of the penstock would remain the same  
• Relocating the penstock underground is an option | The Task Team for the Vaisigano River Protection Wall is established to resolve conflicts between other developments and the river protection system |
| SWA                | Tauiliili Faulu (Urban Division Manager) | • Construction of Segment 3 affects the main pipeline that feeds the hospital  
• Drawback is no alternative supply to the hospital  
• Part of the pipeline is underground and crosses the channel close to the Lelata Bridge  
• The pipeline can be relocated to fit detailed design | Cost of installing a new pipeline should be part of the project where it is affected by construction works |
| LTA                | Eseta Faalogo | • Heavy trucks are not allowed to cross the Vaisigano Bridge so other access to | Detailed design for Segment 1 should be |
| (Senior Engineer) | the river mouth of Segment 1 should be arranged  
- The construction of the Leone Bridge is schedule for next year (2016) and construction is unlikely to coincide with the project  
- The design of the wall at Segment 1 incorporates design of the Leone Bridge  
- JICA has agreed to fund a new bridge to replace the existing Vaisigano Bridge and funding proposal are in the early stages | shared with LTA to inform design of the new Vaisigano Bridge |
| MWTI | Anne G Milbank (ACEO Building Division) | The National Building Code is currently under review and will reference specific guidelines of NZ and AS that are relevant to Samoa  
- Climate Change impacts is one of the key considerations of the National Building Code Review | MWTI should be included in the coordination of the IWMP Project to effectively coordinate regulation and controlling buildings |
| MNRE | Muliga F Nelson (ACEO DMO) | Utilities will be informed of the need to relocate overhead lines or pipes that would be affected from the construction works  
- Aggies Grey’s Hotel has been informed of the project and the implication of construction works on current developments on the river bank | Landowners affected by construction works should be informed once detailed design is available, and before the construction phase |
| MNRE | Malaki Iakopo (ACEO WRD) | Water pollution from domestic waste that end up in the river is an on-going concern for the Ministry  
- The project is part of the IWMP that looks into other non-climatic issues that affects the health of the river | EIA discuss various strategies that can improve the IWMP project |

Table 9.1 Summary of Relevant Stakeholders Consultation
10. CONCLUSION AND RECOMMENDATIONS

Majority of the impacts identified as a result of the project is anticipated during the construction phase which is anticipated up to six months and is short-term. Mitigation measures are proposed to ensure that impacts identified are mitigated, and the existing condition of the environment including the ecosystem services of the river are maintained or improved beyond the construction phase.

Regardless of the short-term duration of the construction phase, the baseline data and compliance section of the report is important to ensure that the existing condition of the environment will not result in detrimental effects. In addition, unavoidable significant impacts of the project are also identified and non-structural alternatives are proposed for impacts mitigation.

In conclusion, the nature of the project is improved with the use of non-structural measures to enhance its socioeconomic benefits and reduce vulnerability of the local community and infrastructure in the long-run. Therefore, the project is recommended for implementation.
BIBLIOGRAPHY


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UNDP, n.d, Economy-wide integration of climate change and disaster risk management to reduce climate vulnerability of communities in Samoa, UNDP

APPENDIX 1 - Report on the Inception Community Consultation for Vaisigano Catchment conducted by MNRE on 21st January 2015
APPENDIX 2 - Report on the Second Community Consultation for the Vaisigano Catchment conducted by MNRE on 18th September 2015,
APPENDIX 3 - Minutes - 1st Consultation with villages for the Rehabilitation Project for Alaoa, Samasoni and Fale Ole Fee conducted by EPC on the 6th February 2015, and
APPENDIX 4 - Minutes – Consultation with Magiagi Village for the Rehabilitation Project for Alaoa, Samasoni and Fale ole Fee conducted by EPC on 4th March 2015
A) Gender Assessment and Proposed Gender Action Plan

Integrated Flood Management to Enhance Climate Resilience of the Vaisigano Catchment in Samoa

I. Introduction

The proposed project is designed to support the Government of Samoa’s efforts to reduce the immediate and secondary impacts of recurrent flood in the Vaisigano river catchment that is part of the greater Apia catchment area. The key issue to be addressed by the proposed project is expected to be the increased resilience of infrastructure and the built environment to climate change. The direct beneficiaries will be approximately 26,000 people in the Vaisigano river catchment who will benefit from activities conducted in the area, as well as an additional 37,000 people who are expected to benefit from the learning generated from this project.

The Samoan economy was severely impacted by the global economic and financial crisis in 2008; by a 2009 tsunami and Cyclone Evan in 2012. While the economy has shown signs of recovery since 2012, real economic growth has been modest over the last five years. An analysis of three successive household income and expenditure surveys (HIES) carried out over twelve years indicate a return to pre-crisis patterns of economic growth and production, consumption as well as poverty. The economy of Samoa has traditionally been dependent on agriculture, fishing, remittances and development assistance. The agriculture and fisheries sectors employ two thirds of the labor force and contribute to 90% of exports, however they only constitute around 10-11% of GDP. The remaining 34% of the labor force is engaged in industry, construction and services. Services comprise over 70% of GDP. In 2012, the overall labor force participation rate was 58%, which disaggregated to 74% for men and 38% for women.

It is recognized that extreme poverty as defined in the Millennium Development Goals (people living on an income of less than US$1.25 per day in purchasing parity terms), is not present in Samoa. However, in order to measure relative hardship, the MDG1 and SDG1 goals have been localized through the development of national basic-needs poverty (hardship) indicators. The basic needs poverty lines are indicators of the relative level of hardship or well-being experienced by households in Samoa in the context of meeting a family’s basic-needs or a minimum standard of living. The proportion of the population of Samoa below the basic needs poverty line was 18.8% in 2014, a significant improvement over the figure in 2008 when 26.9% of the population was considered to fall below the basic needs poverty line. However, in geographic terms, the incidence of basic needs poverty is greater in the Apia Urban Area at 24%, and the nearby North West Upolu region at 23.7%. By contrast, the incidence of basic needs poverty is now lower in rural Samoa (13.6% and 12.5% in the Rest of Upolu and Savai’i respectively) than in urban areas. This is usually ascribed to the strength of Samoa’s village systems and traditional social safety nets, and the ability of rural households to grow much of their own food.

In addition to the higher incidence of poverty in urban areas, it is clear from successive disasters (Cyclones Ofa (1990), Val (1991) and Evan (2012)) that the Apia Urban Area is particularly vulnerable, a view confirmed in assessments carried out on the effectiveness of a range of national initiatives for climate change adaptation related to flood management. For example, the post disaster needs assessment (PDNA) survey following Cyclone Evan in 2012, noted that the urban areas of Apia were particularly vulnerable to the effects of flooding. This assessment suggested that since a flood in 2001, little had been done to mitigate this area’s vulnerability, and concluded that a range of factors were at play in the Vaisigano catchment in 2012: intense rainfall within a saturated catchment; intermittent blocking of river channels at several locations.

1 Beneficiaries were calculated based on the number of people in exposed area [26,528 people] according to the RiskScape platform. RiskScape is a collaboration between New Zealand’s GNS Science and the National Institute of Water & Atmospheric Research (NIWA). RiskScape provides a modular framework to estimate impacts and losses for assets exposed to natural hazards, including floodings. The software combines hazard, asset and vulnerability modules through a data selection process to quantify a range of economic and social consequences. NIWA’s generous contribution is here acknowledged.


3 ibid


5 The Basic Needs Poverty Line is made up of two components: the cost of a minimum food basket; and an amount of expenditure for essential non-food basic items.


7 Project Concept Note: Integrated Flood Management to Enhance Climate Resilience of the Vaisigano Catchment in Samoa, 2016
This proposed project will support the Government of Samoa to reduce the impact of recurrent flooding in the Vaisigano river catchment, and in particular in the greater Apia Urban Area. In conjunction with government co-financing, GCF resources will be used to address key technical, capacity and information based barriers to designing and implementing an effective flood management system. The proposal has three interlinked project outputs:

1. Capacities and information base strengthened for GoS to pursue integrated approach to reduce flood-related risks in place
2. Key infrastructure in the Vaisigano Catchment are flood-proofed to increase resilience to negative effects of excessive water
3. Drainage in downstream areas upgraded for increased regulation of water flows.

This gender assessment provides an overview of the situation in Samoa, identifying gender issues and other vulnerabilities relevant to the project, and gender-mainstreaming opportunities. It is based on:

- A desk review of relevant national policy documents, the Strategy for Development of Samoa 2016-2020 and relevant sector plans or draft sector plans, including the Community Sector Plan to ensure congruence with Samoa’s expressed national priorities;
- Lessons learned and recommendations from past assessments and studies on gender equality undertaken by the Government of Samoa, UN agencies, development partners, civil society organizations and academic organizations, and information available from programs and projects currently being implemented;
- Stakeholder consultation, recognizing that detailed community consultations on particular activities are expected to be carried out in the implementation phases of the project; and
- Integrating gender and other vulnerability considerations to the proposed indicators, targets and activities, and identifying opportunities for greater leadership and participation in decision making by these particular groups in Samoa.

II. Resilience of vulnerable communities in the Vaisigano Catchment

A common denominator in all of the assessments done in the context of climate change in Samoa is the vulnerability of the Apia Urban Area in the Greater Apia Catchment.9 The Post Disaster Needs Assessment for Tropical Cyclone Evan noted that flooding is a particular risk for the urban areas of Apia, with impact after the cyclone visible from the upper catchment to the lower catchment. The assessment recommended an integrated flood management approach for the Vaisigano River, given the interactions between the natural and the built physical environment, and the gamut of development activities within the catchment.10

The 2007 Samoa Flood Management Action Plan notes that prior to 2007, while detailed historical records were limited, severe flooding of the Vaisigano River was reported in 1939, 1974, 1982, 1990, 1991, 2001 and 2006. The 18 villages of this proposal are part of the Vaimauga West District which has an overall population of 24,105 in 51 villages in 2011. The total population for the 18 target villages was 8,651 with 4,318 females roughly 50% of the population according to the 2011 population census. The 2014 School to Work Transition Survey listed 2,392 youths defined as those between the 18 and 35 years age bracket for these villages.

While the Vaisigano catchment is regarded as physically vulnerable to floods, the communities and families within this area have a varied ability to withstand and bounce back from disasters, depending on a range of vulnerability and resilience factors. Family and community structures are a significant source of resilience in Samoa, with evidence of strong levels of social cohesion, with communities supporting their members and extended families in disaster times. For example, following Cyclone Evan in 2012, many families were hosted by extended family and/or host families, especially in rural areas which had no formal evacuation.

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9 Feasibility Study
centers. This type of assistance was found in both urban and rural settings, however the sense of solidarity and collective was relatively more pronounced in rural areas, as more people in urban areas had originally lived somewhere else, and as a result had relatively less access to family and community networks.\footnote{ibid}

In Samoa, vulnerability in disasters is most often identified around women, the elderly, children and youth, and people living with disability.\footnote{Feasibility Study 2016, Post Disaster Needs Assessment for Cyclone Evan 2013, and EWACC Socio-cultural gender considerations 2014} A further category of families and individuals who have been banished from communities may also be especially vulnerable in disasters. A majority of judicial processes in Samoa still happen at the village level, and it is possible for villages to banish individuals or families as a form of punishment. Data on the prevalence of banishment is not available, however the 2013 Post Disaster Needs Assessment on Cyclone Evan noted that while it was not possible to assess how often it occurs, the existence of families and individuals who are outside of community structures is concerning if the government depends heavily on these structures to provide social assistance, both in normal and post-disaster contexts.\footnote{Government of Samoa, Cyclone Evan Post Disaster Needs Assessment Report, 2013}

\section*{III. Gender equality and social inclusion in Samoa}

Samoan traditional culture, \textit{fa'asamoa}, including the social structure at the village level, plays a central role in the Samoan way of life. Regardless of modernization influences, the strength of the \textit{fa'asamoa} remains through the extended family, headed by a matai or chief who is appointed by family consensus. Villages are governed by \textit{matais} through the village council and hierarchy of committees. The \textit{fa'asamoa} provides for the distinct and different roles of men, women and children in society, including the role of Village Women’s Committees in providing advice to the village council. This stratification of Samoan society provides both significant strengths and challenges in relation to gender equality in Samoa.\footnote{Samoan Women Shaping Development Country Plan Summary – Samoa, 2013}

The Government of Samoa is committed to gender equality through the enactment of national legislation, specific policies and programme implementation. Samoa is a signatory to a range of international and regional commitments, including the Convention on the Elimination of all forms of Discrimination against Women (CEDAW), the Beijing Platform for Action, the Commonwealth Plan of Action for Gender Equality, the revised Pacific Platform on the Advancement of Women and Gender Equality, and the Sustainable Development Goals. While government support for gender equality has been demonstrated through these commitments, and through the implementation of a range of programmes such as the Samoa Women Shaping Development (SWSD) and the Samoa Disability Program, progress continues to take time. In 2012, on receipt of Samoa’s fourth and fifth periodic CEDAW reports, the Committee on the Elimination of Discrimination Against Women noted the progress made by Samoa between 2005 and 2012, including legislative reforms undertaken and policies adopted over that period. However it also expressed its concern and offered recommendations in a number of principal areas including the domestication of CEDAW into national law, and measures to prevent and address violence against women and girls. In the time since 2012, there has been further progress including in the implementation of temporary special measures aimed at increasing the number of women in parliament, and the establishment of a national human rights institution.

Under the \textit{Strategy for Development of Samoa}, the Community Sector Plan will be aimed at strengthening social, environmental and economic well-being of villages and communities, including the most vulnerable groups in Samoan society. The plan is currently being finalized, however indications are that it will take a thematic focus to its work, and continue to build on families as the organizing unit in Samoan communities.

\section*{Gender Inequality Indices}

There are several global or international indices in existence that have been developed to quantify the concept of gender inequality. The United Nations Development Programme uses the Gender Inequality Index (GII) and Gender Development Index (GDI).\footnote{United Nations Development Programme. Human Development Report. \url{http://hdr.undp.org/en/content/table-4-gender-inequality-index}.} The GII is a composite measure that shows inequality in achievement between women and men in reproductive health, empowerment and the labor market while
measuring achievement in human development in three areas: health, education, and command over economic resources. The GDI considers the gender gaps on human development between men and women. Samoa has a GII of 0.457 as of 2014 and ranks 97 out of 142 countries assessed. The GDI value as of 2014 is 0.956, which places Samoa in Group 2, which comprises countries with medium to high equality in Human Development Index achievements between women and men (absolute deviation of 2.5 – 5 per cent).\(^\text{16}\)

While the international rankings provide a snapshot of Samoa's measures in gender equality as compared with other countries, they don't always capture the complex and changing roles of women in Samoa, in an atmosphere of increasing urbanization, and the shift to monetization. Nor do they give a deep understanding of the intersections of gender inequality with a range of other dimensions of vulnerability and resilience. Some of these aspects are explored below.

**Poverty**

As noted earlier in this assessment, Samoa uses a basic needs poverty line to measure hardship. This is made up of two components – the cost of food and an amount of expenditure for essential non-food basic needs. It is intended to represent the minimum expenditure per week, month or year that is required by an individual, household or family to provide a basic low-cost, minimally nutritious diet (this component is known as the food poverty line, and is used as a measure of severe hardship), and essential non-food basic needs such as housing/shelter, clothing, utilities, school fees, health and transport, and to meet family, community or church obligations.

The latest household income and expenditure survey (HIES) of 2013/14 shows that the incidence of severe hardship as measured by the food poverty line has declined between 2002 and 2013/14, dropping from 10.6% of the population in 2002, to 4.6% in 2008 and then to 4.3% in 2013/14. However, while severe hardship declined significantly in Savai’i and the Rest of Upolu, it increased in the Apia Urban Area and North-West Upolu. This trend is repeated for the incidence of hardship (basic needs poverty), too, with the incidence now lower in rural Samoa than in the urbanized areas of Apia and North-West Upolu\(^\text{17}\).

Although there are clear disparities in hardship levels between geographic areas of Samoa, there does not appear to be a significant difference in the levels of hardship experienced by female headed households. The average wages and salaries received per capita per week tends to be lower for female-headed households across all expenditure deciles, and gender based disparity tends to be more significant in the higher expenditure deciles compared with lower expenditure deciles, likely reflecting a higher concentration of women in low-paid jobs and junior positions. Despite this, the disparities are not extreme.\(^\text{18}\)

**Health**

Non-communicable diseases (NCDs) are among the leading causes of ill health and death, along with injuries in Samoa. Over the past two decades, Samoa has witnessed almost epidemic rises in coronary heart disease, stroke, high blood pressure and mature-onset diabetes. The escalation of NCDs has been linked to changing diets, increased use of tobacco and alcohol, and limited public understanding of the associated health risks. Obesity is the single most serious threat to health in Samoa, contributing to diabetes, cardiovascular disease, hypertension, loss of mobility and premature death from one or more of these causes. The 2014 NCD Risk Factors STEPS Report indicated that 90.4% of women surveyed were overweight or obese (with a body mass index greater than 25), while 79.8% of the men surveyed were overweight or obese.\(^\text{19}\)

Occasional outbreaks of infectious diseases – including typhoid and viral infections – have been reported in recent years. MNRE noted an association between heavy rainfall and confirmed typhoid cases in 2010.\(^\text{20}\)

Samoa is experiencing a range of climate change-induced impacts, many of which are increasing the burdens on the public health system. The most significant include the increased prevalence of climate-


\(^{18}\) ibid

\(^{19}\) Government of Samoa NCD Risk Factors STEPS Report 2014

related water-borne, vector-borne and food-borne diseases, as well as traumatic injuries and deaths from extreme weather events. Increased mental health problems (from loss of land, livelihoods and population displacement as well as the mental health impact of natural disasters), are compromised food security and heat-related illnesses. It is important to note that these problems are likely to be borne disproportionately by certain vulnerable sectors of the population – the very poor, young children, the elderly, people with disabilities, people with pre-existing illnesses (e.g. NCDs) and certain occupations such as outdoors workers.21

Records kept by the Ministry of Health National Disease Surveillance & International Health Regulations Division in the weeks and months after Tropical Cyclone Evan in December 2012 showed a sharp increase in the number of diarrhea cases presenting to the Tupua Tamasese Meaole Hospital, almost double the number for the same period in previous years. The bulk of the cases were in children under the age of 5. There was a similar spike in the number of clinically diagnosed cases of typhoid at the hospital.

Between 2009 and 2013, the Integrating climate change risks into the agriculture and health sectors in Samoa (ICCRAHSS) project was implemented through a partnership between the Government of Samoa and UNDP. This focused on building the capacity of sectoral planners and policy advisors in a range of agencies including MNRE, MAF, MOH, NHS and public health and agricultural extension workers to be able to identify climate-induced risks in their fields, and to be able to prioritize, plan and implement effective adaptation measures with community involvement. The terminal evaluation of the project found it to be satisfactory or moderately satisfactory. However, the project’s impact on the incidence of people falling ill to climate change related illnesses was found to be limited owing largely to its scale, and the lack of evidence that the Government had adjusted public expenditures in the short term to enable district health care centers to cope with increased demand for disease prevention. The project did make an important contribution in demonstrating to district level health care providers the link between the incidence of disease and sickness to weather, and the involved district hospitals have used this information to adjust community outreach programs.

Education

Samoa has had the Compulsory Education Act in place since 1992, which stipulates that children between the ages of 5 and 14 must be at school. In 2009 the Government put in place the Education Act 2009, which allows for parents of children not in school to be fined.22 The Government also introduced the School Fee Grant Scheme in 2010 to cover the full payment of fees, and as a result it is expected that more than 90% of the 2008 primary school cohort would have completed school by the end of 2015. Samoa achieved a 100% net enrolment rate in 2014, and 98% literacy in 2011.23

Gender parity in education enrolment has been achieved in Samoa, however there is growing concern over the performance of boys in school, with males less likely to complete secondary and tertiary education.24 Girls are more likely to attend secondary school (71.5%) compared with boys (65.8%), and women also outnumber men in university (6.5% compared to 5.7%).25 It is notable however that the gains for girls in education outcomes is not repeated in comparable gains in employment and earning overall, although as discussed in the section below, leadership by women in professional spheres in Samoa is now almost at parity (47%).

Political Participation and decision making

Women’s political participation has historically been low in Samoa, as it is in all of the Pacific island countries. To address this, in 2013 the Samoa Parliament unanimously passed the Constitution Amendment Act (2013) that introduced a 10% quota of women representatives into the national Legislative Assembly. The system uses a “floating” five reserved seats for women. If no women are elected during the elections, the amendment is activated and five seats are added to the Assembly, bringing the total to 54 seats in Parliament. If one woman is elected then four seats are added and Parliament has 53 seats and so on. When extra seats are added, they are filled by women who have already run in open constituencies. The

23 Pacific Islands Forum Secretariat Regional MDG Tracking Report 2015, PIFS, Suva
24 Ibid
unsuccessful women candidates who receive the highest percentage of votes in the election will fill the requisite number of reserved seats26.

In the general elections of 2016, four women were elected to Parliament, and the special measures were activated to result in a total of five women MPs out of a parliament of 50 seats.

While participation in parliamentary politics by women in Samoa has been low, leadership by women in government administration and business has been significant. As far back as the 1990s, women CEOs have driven public sector reform in Samoa. The Commonwealth Secretariat notes that women have been represented at the highest levels in the public sector for decades, and although early appointments tended to be political, increasingly such appointments are merit-based and draw from a wide pool of qualified professionals.27 By June 2014 the total number of public sector employees under the Office of the Public Service Commission was 4,132. Of these, 166 were senior executive appointments, including Chief Executive Officers (CEO), Deputy CEOs and Assistant CEOs. Women held 52% of all senior appointments, although they were much better represented at the DCEO and ACEO level.28

Another measure of women’s role in decision making, is women’s share of managerial positions in the labor force more broadly. According to a joint Asian Development Bank / Secretariat of the Pacific Community publication, 47% of managerial positions, including politicians, senior government officials, and corporate and general managers, in Samoa are women.29

At the level of village governance, the Ministry of Women and Community Sector Development (MWCSD) coordinates a network of Government Women’s Representatives (GWR) who are liaison officers between government and the village. Each GWR is nominated by their own village women’s committees, and nominations are submitted to Cabinet for endorsement. GWRs play the role of village level focal points for the advancement of women, and the protection of children.

There are 326 villages both traditional and non-traditional that make up the settlements of Samoa and there are 102 GWRs serving the traditional villages of Upolu and 86 GWRs for traditional villages in Savaii. Non-traditional villages do not have Cabinet endorsed GWRs, but they do have village mayors (mostly male) who are also managed by MWCSD.30

GWRs are responsible to the Village Women’s Committees, and are expected to be at the forefront of any village based development program, particularly those targeting women and children. The responsibilities of the GWRs are set out in the Ministry of Women Affairs Act 1990, Amendment Acts 1998 and 2009, described in detail in more Section III of this document.

Labor Force Participation

The Samoa Labor Force Survey 2012, categorizes the working age population into two main groups – economically active (labor force) and non-economically active (not in labor force). The non-economically active group includes people who are engaged in subsistence agriculture exclusively or ‘mainly’ for consumption. Accordingly, the non-economically active population was reported to be 79,657 (67.8% of the total working age population) of whom 44.7% were male and 55.3% were female. Further, 83.9% of the non-economically active population was located in rural areas, while 16.3% were located in urban areas.

A total of 34,530 persons aged 15 and above were reported to be employed, of whom 63.1% were male and 36.9% female. The majority of employed people were located in North West Upolu (39.8%) and the Apia Urban Area (28.7%), and in all regions, employed males were around double the number of employed females.

Access to Resources

The matai system is integral to providing access to land, an important issue due to Samoa’s limited area, population growth and the role of subsistence agriculture. The Council of Chiefs can grant access to land

27 Commonwealth Secretariat; Status of Women’s Leadership in the Public Sector in Pacific Small Island States, 2015
28 ibid
30 Lageretabua, Ana, Economy Wide Integration of Climate Change Adaptation and Disaster Risk Management/Disaster Risk Reduction to Reduce Climate Vulnerability of Communities in Samoa: Socio-cultural gender considerations, USAID Adapt Asia-Pacific, 2014
and sea, and approximately 65% of the population derives their livelihoods from matai land. The matai also oversees land rights and titles, which follow a parental lineage\textsuperscript{31}.

Pacific Islands Forum Secretariat (PIFS) analysis notes that Samoan women generally have limited access to customary land and are largely excluded from dealings in customary land, such as customary leases. Although women have equal rights over freehold land, in practice since freehold land constitutes approximately 4% of total land, obtaining credit remains difficult for most people.\textsuperscript{32}

The villages at the heart of this proposal are located in urban or peri-urban areas, and as such there may be some variance from traditional village governance and distribution of resources. For example, the market analysis conducted for this proposal notes that the 18 communities are more likely to live on freehold land than on customary lands, with 58% of households in the Apia Urban Area located on freehold, 12.5% on leased land, and 29.2% on customary land. This is likely to give households more autonomy on what they might develop on their respective lands, compared with those on customary land.

Gender Based Violence

Gender based violence is a limiting factor on the choices available for women and girls, and on their participation in economic and leadership roles. The Samoa Family Health and Safety Survey conducted in 2000 by the Government of Samoa, SPC and UNFPA using the WHO methodology, showed that 41% of women surveyed had experienced physical violence at the hands of an intimate partner, while 20% had experienced sexual violence in their lifetime. An updated survey is planned, and the early steps to implement it were underway as at 19 September 2016.

In 2013, the Family Safety Act 2013 was passed, which is designed to provide for greater protection of families, and the handling of domestic violence and related matters. It introduced a broad definition of “domestic violence” which includes physical, sexual, emotional, verbal and psychological abuse; as well as intimidation, harassment and stalking. “Domestic relationship” was also defined to encompass a range of relationships in addition to marriage, including living together in a relationship in the nature of marriage, parents of a child, or family members related by blood, marriage or legal or customary adoption.

Gender based violence is also of particular concern in disaster and emergency situations. Global evidence shows that sexual and gender based violence increases during and after disasters. In situations of disaster, gender based violence is a pervasive factor which heightens existing vulnerabilities. Many people are displaced during and after disasters, and displacement can lead to an increase in violence, and the visibility of pre-existing violence, due to over-crowded and unsafe living conditions in evacuation centers, temporary housing and shelters. Following Cyclone Evan in 2012, there were no specific incidence of sexual or gender based violence attributed to the disaster were recorded. However, communities and service providers raised concerns about the increased risks of such violence following the disaster. The police Domestic Violence Unit responded to 53 incidents from December 21 2012 to January 16 2013, noting that the Domestic Violence Unit had been merged into general policing operations in the first week after the cyclone.

Women staying in shelters can be exposed to rape, harassment, discrimination and violence, and have limited access to reproductive health services. Government services such as police and health services may be less effective following disasters due to overworked staff and strained resources, as well as damage to critical infrastructure. Medical services already overwhelmed by the emergency do not always meet the needs of survivors of violence. The loss of homes, livelihoods, community and family protection increase vulnerability to violence, as do increased levels of poverty and scarce resources.

IV. Mechanisms to address gender inequality in Samoa – legal and administrative framework

Samoa sets out its national development plans in four year cycles, under the title of the Strategy for Development of Samoa (SDS). The eighth SDS will run from 2017 to 2020, and identifies the four priority areas of development (economic, social, infrastructure and environment) and the key outcomes to be achieved for Samoa. The SDS is aligned with the global Sustainable Development Goals, and the SIDS Accelerated Modality of Action (SAMOA) Pathway. Under the SDS, there are 14 sector coordinating groups, each of which is responsible for a key outcome. The second priority area of the SDS on social development includes actions to better include vulnerable groups (women, youth, people with disability, the elderly,

\textsuperscript{31} Amosa and Samson, 2012
\textsuperscript{32} Pacific Islands Forum Secretariat, \textit{Gender Profile Samoa}, 2013
children and disadvantaged people), in village governance, community climate and disaster resilience actions, economic empowerment and family and community safety. Further, the Community Sector will have an increased role in supporting other sectors planning and implementation actions to strengthen the inclusion of vulnerable groups.

The National Policy for Women 2010 – 2015 identifies issues related to gender equality at all levels and attempts to encompass a number of key areas where Samoa is not yet in full compliance with international norms and standards of gender equality. It is comprehensive and reflects the fact that gender mainstreaming needs to be considered not only in community development and social cohesion, but in relation to all sectors addressed under the SDS. A new policy – the Gender Equality Policy - is currently being developed, and is awaiting endorsement as of mid-September 2016.

Government Women’s Representatives

The Ministry of Women Affairs Act 1990, Amendment Acts 1998 and 2009 establishes the position of Sui Tamaitai o le Nuu (Government Women’s Representative). One of the requirements of the Sui Tamaitai o le Nuu in accordance with the act is that she be a member of the village women’s committee and may be appointed for a term of three (3) years. The duties of the Sui Tamatai o le Nuu include:

i) to promote the advancement of women in her village through the implementation, coordination and monitoring and evaluation of, and provision of assistance to, all programmes, activities and development projects for women that are economically viable, socially beneficial, culturally appropriate and environmentally sensitive;

ii) to ensure the free flow of information between the Women’s Committees of her village and the government through the Ministry;

iii) to report to the Ministry on the progress of implementation and monitoring of programmes, activities and development projects;

iv) to record and register births and deaths in her village where appropriate in accordance with the provision of the Births, Deaths and Marriages Act 2002;

v) to collaborate closely with the Village Women’s Committee and Sui o le Nuu on promoting the wellbeing and health of the village through the Aiga ma Nuu Manua programme and other relevant programmes and development projects;

vi) to promote good governance in women’s committees and all other women’s groups in her village;

vii) to provide at all times assistance that may be requested through the Ministry for the successful implementation and completion of government programmes and development projects, locally and nationally; and

viii) to perform any duties that promote and support government policy related to the work on the advancement of women in her village.33

V. Gender and social inclusion in the context of climate resilience programmes in Samoa

Climate change is a multidimensional problem that is a priority on the international development agenda, and clearly recognized in the Strategy for Development of Samoa as Key Outcome 14 – Climate and Disaster Resilience. While affecting people generally, these conditions can render certain groups in the community particularly vulnerable. As projections indicate that climate change will cause less secure means of subsistence, more vulnerability to poverty and hunger, exacerbation of social inequalities (including gender inequalities) and more environmental degradation, it is likely that the poorest and most vulnerable groups in a society will be most affected.34

In the case of Samoa, a 2012 study on social protection noted that particular vulnerabilities were emerging from the transition to a cash economy, urbanization and changing societal norms. It found that vulnerable individuals are more likely to be living below the poverty line and may not have access to basic needs and services. They are more susceptible to, and less easily able to recover from, adverse shocks and natural disasters. In Samoa vulnerability is linked to an inability to participate in income generating activities. The

34 UNDP Resource Guide on Gender and Climate Change, 2009
study identified six vulnerable groups – women, youth, children, older people, people living with disability, and households in rural areas.\(^{35}\)

It also noted that Samoa's income inequality is on par with other middle-income countries. In Samoa inequality is mitigated by traditional systems that oblige better-resourced people to share what they have with their families and communities. However, the trend towards increased monetization is widening the gap between those operating in the cash economy and those depending on subsistence activities. This, accompanied by rural-to-urban migration, is straining traditional ties to the family group (aiga) and collectivism.\(^{36}\)

The ability to participate in income generating activities by these groups, will therefore strengthen their resilience and ability to withstand and recover from disasters. It will be important to ensure that project activities firstly do not harm the income generating activities of vulnerable groups in the target villages, and secondly, wherever possible, the project should undertake to strengthen or add to these activities.

Women and men work together to fulfil the needs and contribute to the wellbeing of their families and communities; however, they often perform different activities on a day-to-day basis to meet these needs, and in order to integrate gender into climate change projects, it is necessary to recognize the different roles, priorities and needs of men and women, and the ways in which both perspectives are valuable.\(^{37}\)

While there is some analysis of the vulnerabilities of particular groups in Samoa, it is important to recognize the capabilities of these groups and individuals in addressing the risks of climate change and disasters in their own communities. It is particularly important to recognize and effectively utilize these capabilities when it comes to designing project interventions. Ensuring the participation of so called vulnerable groups is not only a matter of social justice and respect, but also of responsible and effective project design and implementation.

The \textit{Climate Resilience in Samoa: Capacity Assessment and Enhancement Report} (2012) commissioned by the Ministry of Finance as part of the Pilot Programme on Climate Resilience, noted that there had not been a comprehensive vulnerability assessment for the whole of Samoa, and that the assessments conducted to that date tended to focus on physical vulnerability rather than social or community vulnerability. The lack of ongoing in-depth engagement with communities had led to a lack of genuine ownership, which was further exacerbated by the project by project nature of climate change interventions.\(^{38}\)

Recommendations from that exercise were largely specific to the Pilot Program on Climate Resilience, however, there are two that resonate for climate and disaster resilience projects more broadly. These included building on existing community engagement approaches and capacity of CSOs and MWCSD; and taking a long-term view of programs, and building engagement accordingly. It will therefore be important to ensure that engaging with identified vulnerable groups in the project is a priority, and that as much as possible, activities to strengthen their resilience specifically in relation to climate and disaster risk and more broadly to be able to withstand and recover shocks, through improved livelihoods, should be built in.

\section*{VI. Gender analysis & recommendations}

The gender analysis undertaken at the design phase of this project acts as an entry point for gender mainstreaming throughout implementation. Consultations took place with a range of stakeholders and partners during the initial mission by the design team, and included representatives from the Ministries of Finance, Foreign Affairs, Natural Resources and Environment, and Health. In addition, there were discussions with development partners, existing climate resilience projects, the Samoa Umbrella of Non-Government Organizations (SUNGO). The analysis also drew substantially on documentation from existing climate and disaster resilience projects. The \textit{Economy Wide Integration of Climate Change and DRR/DRM to Reduce Climate Vulnerabilities of Communities in Samoa project} has thematic and geographical overlaps with this proposed project, and the stakeholder consultations for relevant villages in the Vaisigano catchment area were also reviewed as part of this analysis.

The gender analysis enabled:

\begin{itemize}
\item Amosa and Samson, 2012
\item \textit{ibid}
\item Secretariat of the Pacific Community, \textit{Pacific Gender and Climate Change Toolkit}, 2013
\item Kenny, Gavin. 2012 \textit{Climate Resilience in Samoa: Capacity Assessment and Enhancement}, Earthwise Consulting for Samoa Ministry of Finance
\end{itemize}
• Assessment of the activities that respond to the continuing threat of floods in the Vaisigano river catchment, including gender roles and responsibilities, decision making, and resource use and management raised by the project;

• Initial engagement, development and input into the design of activities;

• Demonstration of the need for gender-disaggregated data and indicators to establish a baseline in which to measure improvements and identify areas of focus; and

• Establishment of recommendations to help incorporate the Gender and Social Inclusion Plan into the implementation of the project.

Addressing gender dimensions within the project design and implementation, this proposal identifies and integrates interventions to encourage gender responsive and transformative results. As women are key players in their communities, it is integral to the success of the project that women are encompassed throughout the entirety of this project. Further, as this assessment has discussed, it is likely that gender equality concerns are not the only marker of exclusion or vulnerability, and it is therefore important to build on and leverage the Government's approach of addressing the family as the key unit in Samoan communities, in order to target the most vulnerable including women, young people and children, the elderly, and people living with disability.

It is recommended that the project design will take into consideration gender and social inclusion implications including:

• The differing needs in flood disasters faced by women and men, as well as elderly people, people living with disability and youth and children;

• Analysis of the gendered division of labor (e.g. gender-differentiated roles, responsibilities, and needs);

• Women’s access to, and control over, environmental resources and the goods and services that they provide;

• Identification of gaps in equality through the use of sex and age disaggregated data enabling development of action plans to close those gaps, devoting resources and expertise for implementing such strategies, monitoring the results of implementation, and holding individuals and institutions accountable for outcomes that promote gender equality;

• Ensure equitable participation by women, men, youth, elderly people and people living with disability at both macro and micro level climate resilience processes;

• Promote advocacy and awareness adjusted to most effectively reflect gender-specific differences. Strategies used in the project should be tailored, taking into account such differences, including on the risk of increased gender-based violence following disasters.

• Include all stakeholders involved in the project to develop awareness raising / training aimed at drawing attention to the implication of climate resilience adaptation and gender equality;

• Undertake community discussions and dialogue in relation to gender and social inclusion in climate and disaster resilience.

In addition to the recommendations listed above, it will be important to ensure that the gender and social inclusion aspects of the project are tailored specifically for a Samoan context. In order to do this, the following approaches are also strongly recommended:

• Recognize the centrality of the family unit to the organization and working of Samoan communities;

• Build on the projects, structures and initiatives being rolled out by the Government of Samoa and other development partners, in order to maximize the use of resources, and for greatest efficiency and effectiveness;

• Assess how gender is currently being mainstreamed in differing Ministries and sectors, to most effectively develop needs assessments, enable planning, and be effective in monitoring and evaluation;
Link income generating activities identified by women and youth with projects and initiatives active in the Vaisigano catchment area, such as the Small Business Incubator for example.

VII. Gender and Social Inclusion Plan

This Gender and Social Inclusion plan provides entry points for gender-responsive and socially inclusive actions to be taken under the activity areas of the project. In addition, specific indicators are also proposed to measure and track progress on these actions at the activity level. These can be incorporated into the detailed M&E plan which will be developed at the start of implementation, and provides concrete recommendations on how to ensure gender (including sex and age disaggregated data) continues to be collected and measured throughout implementation. It focuses on the activity level of the proposal log frame, and should be read in conjunction with it.

As a general principle, it is recommended that the project take into consideration gender and social inclusion implications including:

- The differing needs in flood disasters faced by women and men, as well as elderly people, people living with disability and youth and children;
- Analysis of the gendered division of labor (e.g. gender-differentiated roles, responsibilities, and needs);
- Women's access to, and control over, environmental resources and the goods and services that they provide;
- Identification of gaps in equality through the use of sex and age disaggregated data enabling development of action plans to close those gaps, devoting resources and expertise for implementing such strategies, monitoring the results of implementation, and holding individuals and institutions accountable for outcomes that promote gender equality;
- Ensure equitable participation by women, men, youth, elderly people and people living with disability at both macro and micro level climate resilience processes;
- Promote advocacy and awareness adjusted to most effectively reflect gender-specific differences. Strategies used in the project should be tailored, taking into account such differences, including on the risk of increased gender-based violence following disasters;
- Include all stakeholders involved in the project to develop awareness raising / training aimed at drawing attention to the implication of climate resilience adaptation and gender equality;
- Identify specific strategies to include or target women and young people in particular for income generation activities in the Vaisigano catchment area;
- Undertake community discussions and dialogue in relation to gender and social inclusion in climate and disaster resilience.

In addition to the recommendations listed above, it will be important to ensure that the gender and social inclusion aspects of the project are tailored specifically for a Samoan context. In order to do this, the following approaches are also strongly recommended:

- Recognize the centrality of the family unit to the organization and working of Samoan communities;
- Build on the projects, structures and initiatives being rolled out by the Government of Samoa and other development partners, in order to maximize the use of resources, and for greatest efficiency and effectiveness;
- Assess how gender is currently being mainstreamed in differing Ministries and sectors, to most effectively develop needs assessments, enable planning, and be effective in monitoring and evaluation;
- Link income generating activities identified by women and youth with projects and initiatives active in the Vaisigano catchment area, such as the Small Business Incubator for example.
## Objective

<table>
<thead>
<tr>
<th>Action</th>
<th>Indicator</th>
<th>Partner Institutions</th>
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<tbody>
<tr>
<td><strong>Output 1: Assessments and mechanisms in place for an integrated approach to reduce vulnerability towards flood related risks</strong></td>
<td></td>
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<tr>
<td><strong>Activity 1.1:</strong> Strengthen capacities and information requirements to pursue an integrated programme approach to flood management.</td>
<td>Ensure equitable participation of men and women, youth, elderly and people living with disability in community consultations during the preparation of the feasibility studies. Engage pro-actively with MWCSD in the preparation of the workshops to ensure suitable participants are identified ahead of time, and consultations are pitched in the most appropriate language Consider options to strengthen livelihoods in the formulation of the feasibility studies</td>
<td>Number of men and women participating in consultations and workshops in the preparation of the feasibility studies Gender and social inclusion concerns identified during the consultations are responded to in the studies Sex and age disaggregated data</td>
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<tr>
<td><strong>Activity 1.2:</strong> Establish health surveillance systems to track and manage flood related health issues</td>
<td>Undertake analysis of the differentiated roles and responsibilities, needs and knowledge of men and women, youth, elderly and people living with disability in responding disasters Use this to inform the training material and packages developed for health practitioners responding to flood emergencies under Activity 1.2.2 Use this to inform the training material and packages developed for village councils to prepare for evacuation flood victims under Activity 1.2.3</td>
<td>Evidence of gender and social inclusion analysis of the Vaisigano catchment communities being utilized in training material developed for health practitioners and village councils</td>
</tr>
<tr>
<td><strong>Activity 1.3:</strong> Expand EWS coverage to provide flooding alerts in Apia</td>
<td>Use the analysis conducted under Activity 1.2 to inform planning and implementation of Activity 1.3.3 on awareness raising with at risk populations</td>
<td>Evidence of gender and social inclusion analysis being utilized to tailor the EWS to at risk populations</td>
</tr>
<tr>
<td><strong>Activity 1.4:</strong> Conduct awareness raising campaigns on building practices and designs for at risk communities living along the Vaisigano river</td>
<td>Ensure that manuals developed under Activity 1.4.1 include Chapter D of the Building Code on accessibility for people living with disability. Ensure that the exhibition planned for Activity 1.4.2 reflects the diversity of needs in a community, including for women, men, people living with disability and young people. Include requirements on representation of gender equality, disability, elderly and youth access in the MOUs with SUNGO and builders associations</td>
<td>Number of manuals with the needs of people living with disability are clearly and accurately reflected Evidence of gender, disability, age and youth inclusion in model exhibitions Evidence of gender, disability, age and youth concerns included in MOUs</td>
</tr>
<tr>
<td><strong>Output 2: Infrastructures in the Vaisigano catchment are flood-proofed to increase resilience to negative effects of excessive water</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Activity 2.1:</strong> Channelization of segment 2 and</td>
<td>Ensure equitable participation of men and women, youth, elderly and people living with disability in community</td>
<td>Number of men and women participating in consultations</td>
</tr>
<tr>
<td>Activity 2.1:</td>
<td>Construction of streambed, including increased water flow and decrease flood risks</td>
<td>• Evidence for gender and social inclusion requirements and ToRs for the development and delivery of training material for maintenance workers under Activity 2.1.3, for gender and social inclusion considerations to be addressed wherever possible • Set targets for young people and women to be achieved under the contracting scheme in Activity 2.1.4</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Activity 2.2: Implement ecosystem responses upstream for decreased flows during extreme weather events</td>
<td>Ensure equitable participation of men and women, youth, elderly and people living with disability in consultations to determine options for flood management activities under Activity 2.2.1 • Ensure equitable participation of men and women, youth, elderly and people living with disability in the development of the community-based adaptation strategy for ecosystem services in Activity 2.2.4 • Set targets for women, young people, people living with disability, and older people in the income generating activities and business incubation activities identified under Activity 2.2.5 • Set targets for women, young people, people living with disability, and older people in the provision of cash-for-work activities under Activity 2.2.6</td>
<td>• Number of men and women, youth, elderly and people living with disability participating in consultations • Number of women, young people, people living with disability and elderly people participating in income generating activities • Number of women, young people, people living with disability and elderly people benefiting from the cash-for-work scheme</td>
</tr>
<tr>
<td>Activity 2.3: Construction upgrade of Lelata Bridge to accommodate increased flood waters</td>
<td>Ensure equitable participation of men and women, youth, elderly and people living with disability in any community consultations</td>
<td>• Number of men and women, youth, elderly and people living with disability participating in consultations</td>
</tr>
<tr>
<td>Activity 2.4: Extension of floodwalls at Leone Bridge to prevent damage during extreme events</td>
<td>Ensure equitable participation of men and women, youth, elderly and people living with disability in any community consultations</td>
<td>• Number of men and women, youth, elderly and people living with disability participating in consultations</td>
</tr>
<tr>
<td>Output 3: Drainage in downstream areas upgraded for increased regulation of water flows</td>
<td>Activity 3.1: Develop a climate resilient Stormwater Master Plan</td>
<td>• Number of men and women, youth, elderly and people living with disability participating in consultations • Evidence of gender and social inclusion issues being addressed in the Master Plan • Number of men, women, youth, elderly and people with disability benefiting from implementation of the Master Plan</td>
</tr>
<tr>
<td>MWTI/LTA</td>
<td>MOF MWCSD MNRE</td>
<td>MWTI MNRE/PUMA</td>
</tr>
<tr>
<td>Activity 3.2: Upgrade drainage systems and outfalls in hazard areas to accommodate flooding events</td>
<td>Ensure equitable participation of men and women, youth, elderly and people living with disability in any community consultations</td>
<td>• Number of men and women, youth, elderly and people living with disability participating in consultations</td>
</tr>
</tbody>
</table>
VIII. Demographic information on Vaisigano catchment

The Vaisigano River flows through the villages of Maagiagi Uta; Papauta; Tanugamanono; Lelata; Maluafou; Faatoia; Aai o Niue; Leone; Vinifou; Matautu Uta and Vasigano. In addition, there are 3 nearby low lying villages Vaipuna, Vaiala Uta and Levili which are directly affected when the river floods as witnessed during Cyclone Evan flooding. These 14 villages are extremely vulnerable to flooding from the Vaisigano River. In addition, the four villages of Vailima, Avele, Letava and Vaola are included in the GCF activity target group due to the important roles they play in terms of preserving the water catchment areas of the Vaisigano river. The land use practices of these four villages greatly influence what could potentially flow down-stream during heavy rain.

The eighteen villages are part of the Vaimauga West district, and according to the 2011 census, had a population of 8651, with 4318 females. According to the 2014 School to Work Transition Survey, there were 2392 youths in those villages. It is estimated that there are around 1400 households in the eighteen villages, with the largest being Vailima, Faatoialemanu and Matautu Uta.

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<tr>
<th>Source</th>
<th>School to Work Transition Survey -2014</th>
<th>2011 Population Census</th>
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<tbody>
<tr>
<td>Age</td>
<td>Youth Population</td>
<td>Total Population</td>
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<tr>
<td>Vailima</td>
<td>358</td>
<td>811</td>
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<tr>
<td>Matautu Uta</td>
<td>198</td>
<td>416</td>
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<tr>
<td>Vaipuna</td>
<td>170</td>
<td>416</td>
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<td>Vaiala Uta</td>
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<td>110</td>
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<td>Vinifou</td>
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<td>96</td>
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<tr>
<td>Levili</td>
<td>154</td>
<td>609</td>
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<td>Aai o Niue</td>
<td>98</td>
<td>176</td>
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<td>Faatoialemanu</td>
<td>125</td>
<td>1088</td>
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<td>Maluafou</td>
<td>19</td>
<td>71</td>
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<td>Lelata</td>
<td>47</td>
<td>231</td>
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<td>Tanugamanono</td>
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<td>606</td>
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<td>Papauta</td>
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<td>448</td>
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<td>Maigiagi Uta</td>
<td>56</td>
<td>251</td>
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<tr>
<td>Vailima</td>
<td>420</td>
<td>1447</td>
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<tr>
<td>Avele</td>
<td>181</td>
<td>677</td>
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<tr>
<td>Letava</td>
<td>108</td>
<td>379</td>
</tr>
<tr>
<td>Vaola</td>
<td>202</td>
<td>778</td>
</tr>
<tr>
<td>Total</td>
<td>2,392</td>
<td>8,651</td>
</tr>
</tbody>
</table>

39 Meredith, P. Meredith S, Market Analysis of a Diversified Market and Livelihoods within the Vaisigano Catchment [draft], Wiz Consult, 2016
Annex A: Bibliography


Commonwealth Secretariat; Status of Women’s Leadership in the Public Sector in Pacific Small Island States, 2015

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Pacific Islands Forum Secretariat, Gender Profile Samoa, 2013

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Secretariat of the Pacific Community & Government of Samoa, Stocktake of the gender mainstreaming capacity of Pacific Island Governments – Samoa, 2015, SPC, Noumea

UNDP Resource Guide on Gender and Climate Change, 2009


### B) Stakeholder Consultations

<table>
<thead>
<tr>
<th>Meeting</th>
<th>Date</th>
<th>Time</th>
<th>Venue</th>
<th>Objective</th>
<th>Participants</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial consultation with Vaisigano Catchment Community</td>
<td>17.02.2016</td>
<td>5:30pm</td>
<td>Maluafou College</td>
<td>To conduct consultations between the ministries and the communities along the river banks to update and engage the targeted communities, discuss the design of the river wall, collect community views on the designs of the wall and to encourage community support for the project.</td>
<td>CEO from the Ministry of Natural Resources and the Environment, representatives from the Ministry of Natural Resources and the Environment and Vaisigano Community Members</td>
<td>Refer Meeting Note 1 (A)</td>
</tr>
<tr>
<td>Public stakeholder Consultation on Integrated Watershed Management Plan</td>
<td>16.02.2016</td>
<td>10.001</td>
<td>TATTE Conference Centre</td>
<td>A stakeholder meeting was held in to present the findings of the IWMP and workplan including request for further information. This was followed by valuable input from topical group discussions, and reporting in a closing plenary session.</td>
<td>UNDP, MNRE, MoF, LTA, SUNGO, MWTI, MWCSD, EPC, SWA, MES, MAFF, EWACC IWMP Team</td>
<td>Refer Meeting Note 1 (B)</td>
</tr>
<tr>
<td>GCF mission – CO briefing meeting</td>
<td>25.07.2016 – 29.07.2016</td>
<td></td>
<td>UNDP Samoa and various Ministries</td>
<td>To introduce the GCF team of specialist and scope the GCF proposal for Samoa</td>
<td>UNDP-GCF Team; CEOs of relevant Ministries and key stakeholders from each division</td>
<td>Refer Meeting Note 2</td>
</tr>
<tr>
<td>SUNGO Board Meeting</td>
<td>26.08.2016</td>
<td>1.30pm</td>
<td>Millennia Hotel</td>
<td>To present to the SUNGO Board Members who represent civil society on the GCF Samoa project proposal and programmatic approach</td>
<td>SUNGO Board Members (170 participants) and UNDP-GCF Team</td>
<td>Refer Meeting Note 3</td>
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**Meeting Note 1 (A)**

**Meeting 1:** Community consultation for the Vaisigano catchment: Community awareness on the final designs (segment 1) and proposed designs for segment 2 and 3 of the Vaisigano river wall

**Introduction:** The attendees at the meeting, the communities that live along the river banks, were consulted as part of an awareness campaign to update and brief the communities of the development before, during and after the project and to provide community members the opportunity to raise any concerns and issues. Those invited to the consultation where the families that live along the banks (100m) of the Vaisigano River and it was attended by 90% of the total households invited (see participation list below).

**Presentation:** The presentation was delivered by the Chief Executive Officer of the Ministry of Natural Resources and the Environment (MNRE), Afioga Suluimalo Amataga Penaia to inform the communities of the developments undertaken throughout the project along the Vaisigano River. These community consultations ensure that both expert advice and community advice is used to guide the selection of measures chosen for implementation throughout the project.

As the GEF focal point for the UNDP GEF EWACC project, MNRE led the consultations. The GCF project has been scaled up from the EWACC project therefore in order to avoid consultation fatigue of the Vaisigano catchment residents, the decision was made to conduct the consultations together.

During the consultation general agreement was declared on:
- Signature of Memorandum of Understanding between government and community members to allow the river works to commence smoothly,
- Accessing the river even after construction of river walls for household purposes (laundry, bathing and leisure),
- Reconstruction of bridges, roads and infrastructure along the river,
- Need to build the wall as most families are now afraid of the water especially during the wet season.

A common concern was the accessibility of the river once the wall is completed for recreational use as well as widening and straightening of parts where relevant.

**Discussion:**

The following table is a summary of the issues raised during the discussion:

<table>
<thead>
<tr>
<th>Participant</th>
<th>Issue</th>
<th>Response</th>
</tr>
</thead>
</table>
| Seumanutafa Tiavolo                | raised the need for a signature memorandum between government and communities so that all come to agree for the construction to commence | • Thanking and noting the importance of this memo of understanding for signatures to support construction of the wall.  
• Current and existing system reflects retention ponds are the type of water storage and flood protection given the volume it currently holds, so during heavy flood, overflow overrides the current system hence the concept for constructing the wall to retain outflow to sea. Emphasize that the wall is a protection measure rather than a solution  
• Dam principles would mitigate these impacts and have been included in the pipeline of activities for the ministry which is incorporated in the proposal for financial assistance in the GCF (Green Climate Fund) |
| Seumanutafa (high chief of Apia)   | • Issue with plant operators for SWA and EPC should be conscious to release flood gates to avoid flash flood impacting on the lower settlements especially Apia. Controlling dam flood gates can increasingly improve control of floods |                                                                                                                                                                                                                                                                                                                                       |
| Galumalemana Fereti Tuiletufuga     | Is there any technical differences between the two designing options to replace backfill  
• Understand that the financial assistance is limited but is there a significance technical purpose for differentiating the two designs for the segments mentioned? | • Firstly, obvious reason is funding, secondly, backfill which is the much cheaper option would impact on existing land and residence, so the government has decided on the piling option for foot locking of wall resulting in minimal land acquisition  
• Along Maaga and Malifa, there is different hydrogeology between the two river banks, as in segment 2 there are areas where there is no wall built on it given the makeup of the rock (cliff) which provides a solid protection for these areas as development into them would impact on its current strength as a cliff whereas areas made up of rocks would eventually erode given the flow of the river at different scenarios. Areas which can overflow is where the wall is adjusted to create a barrier for the river to flow all the way to sea. |
| Vaea Ivana Eli                     | • Design at Lelata shows that the there is an indication of diverting the river to the much narrower path (eastern branch) which eventually does not flow during long dry spells whilst the main river path on the western side all the way to Lelata bridge is the main river path. Their families live on land within the two stream pathways which meet under Lelata bridge as his concern is the safety as an escape route but the wall would be built in from of them adding as an obstacle to them when a flood occurs. | • Re-emphasize flood protection wall will not stop the flooding from infiltrating lands and household but gives ample time to save lives and assets from being washed away during floods  
• Hydrological modelling was developed to base the design for the walls along segment 1, 2 and 3. From the different scenarios with the 1 in 100 AEP event such as that of cyclone Evan which was also modelled.  
• Efforts towards guiding the waterway towards the western branch which is the main path is always in the pipeline but efforts in allowing spillover towards the eastern branch will reduce pressure on the Lelata bridge as well as households |
<table>
<thead>
<tr>
<th>Name</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Vainalepa Nikolao    | - How high is the wall to be constructed?  
- Also support the MoU for signature of families along Leone to agree to the construction of the wall.                                                                                                   |
| Fiaola Fuapopo Matuu | - Ott had built the rock wall along the river banks behind Aggies and 4m had been excavated into their land pushing Aggies land boundaries 4m further inwards into the river.  
- Also, survey of their land had been conducted last year and the survey peg is located in their access road they are currently using. Does this mean the project is more protective towards tourism promotion rather than individual household protection?  
- Also Ah Liki properties have built their rock wall into the river which such businesses should be involved in this consultation. These developments have narrowed the waterways and floods their land during heavy rains  
- These concerns have been noted in the design whereby widening of the outlet allows faster drainage of flood water into sea. Contrast, if the outlet is narrow, a nozzle will allow overflow of flood waters further inland flooding nearby lands and is what the project has considered in its design before construction. The wall is designed according to the hydraulic modelling and the construction of the wall is based upon the drawings from the design. |
| Sally Delaney        | - Residences in front of Inalani around Seumanutafa land would always be flooded during heavy rains, how can this flood waters be drained when the wall is constructed  
- CEO explained the wall has drainage built into it as well and also non-return valves so that the river cannot flow back into the lands as raised but drained into the river and flushed into sea |
| Atelina              | - Why is the construction starting from Vaisigano when the Lelata area gets hit first when there is a flood  
- Why are the EPC pipes lay along the Tuiefufuga land in Lelata  
- Does this mean if all the financial assistance would be given to building the wall, then what is left will be used to build bits from Leone to Lelata  
- How can work from SWA and EPC done on this land if there is no access road built to cross the eastern branch  
- The reference point based upon the model uses Vaisigano Bridge in case Lelata would be used and at the outlet, the wall would eventually be much higher utilizing much more resources compared to the financial assistance provided. |
| Pulepule Steve Young | - Agree with the MoU for signature  
- Support the construction of the wall to commence without disturbance.  
- Thanked the support and expanded on the timeframe for the plans of work to be undertaken |
### Annex XIII Additional Background Details

**GREEN CLIMATE FUND FUNDING PROPOSAL**

<table>
<thead>
<tr>
<th>Name</th>
<th>Notes</th>
</tr>
</thead>
</table>
| Tuiletufuga Siaosi    | • Added to let the constructions begin because the tidal influence is already impacting on nearby residences along the coast of Apia  
                        | • Raised the concern with regards to EPC and to include all families that are impacted with the construction so that an agreement is reached once an access road to cross the river at Lelata is built. Relocate is like chasing their family from their rightful owned land, if there is any way, 35 acres of land can be swapped with their family land claimed to be a flood plain.  
                        | • In conclusion, commencement of the construction is well supported and to look into ways to improve livelihoods at Lelata. |
| Iva Niko              | • Agree with the MoU that is legally binding  
                        | • Also, if the development is to continue there is an MoU indicating liability on the government if household and assets are impacted as a result of the wall not being protective as initially indicated  
                        | • Thanked and recommendation well supported from the government side  
                        | • The liability does not become a responsibility to any side as the infrastructure was designed to withstand a 1:20 AEP. The intention is that there is enough retention time for people in lower grounds to move to higher grounds during floods. |

**Conclusions from presentation:**

- There is strong support from the community to the building of the protection wall with emphasis that a signature memorandum (MOU) shall be signed between the community members and the Government for the wall construction,
- There is enthusiasm from the community and strong support for the wall to commence as soon as all requirements are ready for construction,
- There is strong support for the need to address the drainage given the wall will act as a barrier to outlet flow of the water from low lying residences,
- Even if there is a change in government as a result in the coming elections, the wall will still be built as this is a project objective which needs to be achieved,
- Consideration of additional works requested by Lelata is important, some of these works are already planned but a rock wall for the other side of the river channel is a major consideration which the project team has to consider for this works or additional projects in the future,
- A benefit of the consultations is that the affected residents remain informed and that their awareness of the issues are building so that they fully understand and provide their inputs at these early stage of the project, therefore redressing any major obstructions during construction.
## Annex XIII Additional Background Details

GREEN CLIMATE FUND FUNDING PROPOSAL

### Participation list:

<table>
<thead>
<tr>
<th>SULAPA</th>
<th>AFOAGA</th>
<th>TELEFONI</th>
<th>ITUAIGA</th>
<th>SAINI</th>
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<tbody>
<tr>
<td>1</td>
<td>Saeai Talaitoa</td>
<td>7838809</td>
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<tr>
<td>2</td>
<td>Veronese T</td>
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<tr>
<td>3</td>
<td>Herbert Lee</td>
<td>7663628</td>
<td>M</td>
<td>Manua</td>
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<tr>
<td>4</td>
<td>Ana Feuaa</td>
<td>376145</td>
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<td>5</td>
<td>Leatate Samuela Leo</td>
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<td>6</td>
<td>Atutua T-M</td>
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<tr>
<td>7</td>
<td>Scolaio S.</td>
<td>7243347</td>
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<td>8</td>
<td>Foaie N.</td>
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<td>Monaele Leo</td>
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<td>Pio Leo</td>
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<td>Steve Napo</td>
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<td>19</td>
<td>Tofafofo Maligano</td>
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<td>Lunea Pile</td>
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<td>Herman Ule</td>
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<td>Rurua Rupata Leone</td>
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<td>24</td>
<td>Taimana Soa Asa</td>
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<td>25</td>
<td>Anina Asa Williams Vaisigano</td>
<td>7258381</td>
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GREEN CLIMATE FUND
### PEPA RESITALA

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## Annex XIII Additional Background Details

**GREEN CLIMATE FUND FUNDING PROPOSAL**

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### PEPA RESITALA

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Meeting Note 1(B)


Participants: UNDP, MNRE, MoF, LTA, SUNGO, MWTI, MWCSD, EPC, SWA, MESC, MAFF, EWACC IWMP Team

Introduction: The attendees at the meeting for the public stakeholder consultation include Ministries, private sector and civil society were informed on initial findings of the IWMP and proposed workplan including request for further information required for the IWMP. This was followed by valuable input from topical group discussions and reporting in a closing plenary session.

Presentation: The presentation was delivered by the Assistant Chief Executive Officer of the Ministry of Natural Resources and the Environment (MNRE), Susuga Malaki Iakopo to introduce the IWRM technical experts and roles and responsibilities as well as inform the stakeholders of workplan and way forward for the IWRM. This was followed by presentations by the IWRM expert team on work plan and way forward for finalizing the IWMP and further information requested. Following the team’s presentation feedback was solicited to determine whether any key points in our proposed IWMP had been missed. Comment was invited in respect of:

1. Are there any burning issues which we have missed, and that you feel strongly about?
2. Are the suggested directions for this WRMP correct or should something be changed?
3. Thinking about the group topic, what are the stumbling blocks to successful management or making the changes required to achieve effective IWRM outcomes.
4. What is the preferred form of technical and material support?
5. How do you see Community engagement working in this process?
6. Can you identify any innovative solutions?

The five discussion groups each had a technical representative including UNDP team and were then asked to report, with each group’s.

Group Discussion:

The following table is a summary the group discussion:

| Group 1 Sanitation | 1. Additional points for emphasis |
| | • Water borne diseases |
| | • Affordability of sewage trucks |
| | • Limited awareness on sanitation info |
| | • Incentives – community rewards, e.g. “Komiti Tumama” |
| | 2. Barriers to progress |
| | • Financial resources |
| | • Attitudes of communities |
| | • Competing initiatives between line ministries |
| | 3. Community engagement is working well – but it also depends on the financial resource |
| | • Onsite Wastewater Technologies |
| | • newly designed toilets e.g. specific designs for septic with higher water table |
| | • alternative onsite secondary treatments. |

| Group 2: Environment | 1. Burning Issues that require emphasis: |
| | • PES incentives for land use and other conservation mechanism. |
| | • Sand mining/ Reclamation activities |
| | • Land Clearance in upper catchments for agriculture |
| | • Agricultural & hazardous chemicals |
| | • Deforestation of the catchment |
| | • Stakeholder collaboration |
| | 2. Is the Scope OK? YES |
| | 3. Stumbling Blocks/ Barriers |
| | • Land Tenure/ Duplication of plans |
| | • Behavioral/ Attitudes |
| | • Lack of human & financial resources to enforce controls |
| | Innovative Solutions: |
| | • Budget support (in what way?) |
| | • Awareness Programme |
### Annex XIII Additional Background Details

**GREEN CLIMATE FUND FUNDING PROPOSAL**

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<tr>
<th>Group 3: Co-Ordination</th>
<th>1. Issues</th>
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<td>• need to agree on planning framework - who will be coordinating?</td>
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<td>• address under existing mechanisms e.g. PUMA Dev Consent</td>
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<td>• Identify areas of duplication. e.g. PUMA DC vs LAND</td>
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<td>• Clarify key roles within MNRE</td>
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<td>• Need to determine level of authority – national vs district vs village</td>
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<td>2. Scope: OK so far</td>
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<td>3. Barriers to the success of IWMP</td>
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<td>• too many un-coordinated strategies and plans</td>
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<td>• strengthen land-use planning and integrated sector plans.</td>
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<td>4. Innovative Solutions</td>
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<td>• Private Sector involvement</td>
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<td>• Strengthening capacity of Private Sector to take responsibility to enforce local code of practice</td>
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<td>• Strengthening capacity enforcement of responsible agencies/ authorized officers.</td>
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<th>Group 4: Infrastructure and Drainage</th>
<th>1. Issues and Stumbling Blocks</th>
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<tr>
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<td>• Capacity – Resourcing &amp; Finance</td>
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<td>• Gaps in legislation – Principle to Ministry of Works</td>
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<td>• Legislative Amend 2007 – Power to Regulate &amp; Implement Civil Works (conflict of Interest LTA &amp; Contractors)</td>
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<td>• MWTI – lost powers in 2007 – Need to return</td>
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<td>• Ministry Chair of Drainage Subsector – cross cutting roles of IAs’ – Public drains (LTA &amp; MNRE</td>
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<td>• Co-ordination Issues – MOU draft to IAs’ further clarify roles &amp; responsibilities of all IAs’</td>
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<td>• LTA &amp; MWTI – Public complaints – (PUMA)</td>
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<td>• Network not clearly defined (drainage) – PUMA more weight – Enforcement</td>
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<td>• Public Drains 2007 – Regulation</td>
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<td>• MWTI – Can’t Prosecute (PUMA can) Act 2004 – Can only inform community</td>
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<td>• Rising sea level/ high water table/ low drainage outlet location</td>
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<td>• Drainage Blockage/ small drainage pipes (capacity)</td>
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<td>• Information sharing (LIDAR) Access</td>
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<td>2. Solutions and WRMP</td>
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<td>• Improve Water Storage: i.e. rain water &amp; storm water</td>
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<td>• Finalize principle legislator run off.</td>
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<td>• Amendments’ – redirection of waste water into SWA’s Treatment Plants</td>
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<td>• Land Filling &amp; Pumping solutions</td>
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<td>• Drainage network</td>
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<td>• MOUs’ for information sharing</td>
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<td>• Increase water retention (dams, etc.)</td>
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<td>• Strengthen regulatory enforcements. e.g. on the spot fines for culprits on illegal dumping</td>
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<td>• Identify &amp; plug any gaps in roles and responsibilities</td>
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<td>• Strengthen Policy Environment (e.g. Flood Mitigation Policy)</td>
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<td>• Strengthen Preliminary Planning Designs for all Drainage Construction Works.</td>
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<tr>
<th>Group 5: Water Supply and Quality</th>
<th>1. Clear definition/scope who is/will be affected.</th>
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<td>2. Public Health:</td>
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<td>• Attitude of Communities: high water usage; chlorination of water</td>
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<td>• Need to upgrade laboratory work (Public Health) with quality assurance in areas of Public Health importance.</td>
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<td>• The Public Health lab will have the opportunity to focus on public health areas of concern such as water quality testing, water and food borne diseases to address high rates of diarrhea and growing cases of malnutrition and other areas. These are areas which the NHS Clinical Lab has lesser priority as they focus mainly on clinical and human pathology.</td>
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<td>• Support: high staff turnover; technical staff and resources; capacity building (overseas training)</td>
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<td>• Importance of Community Engagement: continue open consultations; multimedia campaigns</td>
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<td>• Sustainable technologies (water)</td>
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Conclusions from presentation:

- There is strong support from public stakeholder consultation for the need of the IWMP for the Vaisigano catchment as it is within the Apia Urban Area.
- Of the responses, some raised issues which had not already been considered. Two very strong recurrent themes, raised by most groups, were (a) lack of financial resources, and (b) 'need for coordinated plans and strategies'.
- Further information will be provided to the team in regards information requested to the specific ministries.
- The team will consolidate the information and provide the draft IWMP and the timeline for submission will be circulated to key ministries and stakeholders.
- The IWMP will be used for mobilizing further financial resources for implementation via GEF, GCF, WB, ADP etc.

Additional Meetings with Development Partners and Civil Society regarding GCF Samoa Proposal

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<th>Meeting with SUNGO</th>
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<tr>
<td><strong>Location</strong></td>
<td>UNDP MCO Samoa</td>
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<tr>
<td><strong>Participants</strong></td>
<td>UNDP GCF Development team and Mr. Fiu Elisara, representative of SUNGO (Civil Society Organization)</td>
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<td><strong>Key Points</strong></td>
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<td>- Emphasized that resettlement should be avoided. UNDP clarified that it is not authorized by GCF to assist countries with projects that have the need for relocation and that the current discussions with the Government did not indicate relocation would be necessary for any of the proposed activities.</td>
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<td>- Indicated the NGO community wanted more clarity on what the GCF project would focus on and requested that partnerships with NGOs and civil society be explored that will be built the project objective in addition to government involvement.</td>
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<td>- Called for an early draft of the proposal to be made available in order to ensure other key stakeholders can provide input. Also asked for the involvement of NGOs early in the project development process to avoid potential opposition</td>
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<td>- Indicated that SUNGO had a meeting scheduled for late August and it would be helpful to have a presentation of the proposal by that time</td>
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<tr>
<td><strong>Participants</strong></td>
<td>Ms. Lizbeth Cullity (UNDP RR/ UN Resident Coordinator) &amp; Mr. Leota Kosi Latu – Director General SPREP</td>
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<td><strong>Key Points</strong></td>
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<td>- Lizbeth thanked Kosi for the availability to discuss the GCF project for Samoa as informed he will be on mission during the GCF team mission from the 25th – 29th August 2016. Lizbeth provided the summary of the GCF proposal for Samoa that UNDP is working closely with MFAT under the flood management programme for Samoa.</td>
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<td>- Kosi fully understood the approach provided by the Government of Samoa to work with UNDP and MFAT and sees opportunities for SPREP in the future as discussed with Pradeep in the last GCF meeting in Fiji. He further informed Liz of other GCF proposals that SPREP is currently submitting for other pacific island countries to GCF Board.</td>
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<td>Ms. Lizbeth Cullity- UN Coordinator/ UNDP Resident Representative, Mrs. Roina Vavatau – President SUNGO, Ms. Naoko Takasu – UNDP Deputy Resident Representative, Ms. Yvette Kerslake – UNDP Programme Manager for Environment and Climate Change, Mr. Peter Papp – GCF Development Specialist, Mr. Eric Howard – GCF Development Specialist, Ms. Prudence Rain – UNDP GCF Intern</td>
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<td><strong>Key points</strong></td>
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<td>- The Samoa GCF proposal background was presented including the programmatic approach for &quot;flood management&quot; and the development of the child project for the &quot;Vaisigano catchment&quot;. GCF has a requirement to ensure that civil society has been consulted and government has informed</td>
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that consultations have taken place through the EWACC and YEP projects. The GCF specialist
team and UNDP have previously consulted with Mr. Fiu Mataese Elisara Laulu – Board Member of
SUNGO and recommended to have a separate meeting with the President of SUNGO.

- SUNGO President requested further information if the GCF proposal was a loan and was informed
  that the proposal was a grant. SUNGO further informed that it is has more than 170 members and
  some active members are within the Vaisigano catchment. SUNGO ensures an independent
  stance and voice for the benefit of the community and country. The area is a vulnerable area to
  floods and events affecting communities within the catchment. It is important to consider the land
  owners within the area including the National Council of Churches.

- There were discussions for the SUNGO meeting in Mid-August with a tentative date of the 25th
  August 2016 in which will inform members of the GCF proposal and also if possible to include an
  agenda item for presentation to the members.

- SUNGO President thanked UNDP and the GCF development specialist for the meeting and
  ensured full endorsement and blessings for the Flood Management Programme and also civil
  society will be keen to be more involved in the development of the current and future child
  projects.
Meeting Note 3:

Meeting 3: Samoa Umbrella of Non-Government Organizations (SUNGO) Board Meeting

Introduction: The Samoa Umbrella of Non-Government Organizations (SUNGO) had advised UNDP MCP Samoa of their upcoming board meeting during which time would be made in the agenda for representatives of the UNDP GCF Development team to present on the GCF Project for Samoa and gain further civil society support.

Presentation: The presentation was delivered by Ms Lizbeth Cullity, UN Resident Coordinator/ Resident Representative, on the GCF project and its programmatic approach for Samoa. After the presentation Lizbeth answered questions posed by the SUNGO Board Members and gain their full support for the GCF project.

Discussion:

- Mr. Fiu Mataese Elisara (Board Member of SUNGO) gave brief overview of GCF mission to date, explaining that the GCF team had a successful mission here in Samoa from the 25th – 29th July 2016.
- It was also explained to the board members present that the Fiu himself had met with the GCF team during the mission in Samoa on Thursday, 28th July 2016 and while providing his support, it was recommended that Lizbeth and the team have a separate meeting with the President of SUNGO.
- Board members were informed that Mrs. Roina Fa’atauva’a Vavatau (President of SUNGO) had a meeting with the GCF team in Samoa on the 5th August 2016 and advised the GCF team of the upcoming SUNGO board meeting on the 26th August 2016 during which the GCF team would be provided an agenda item and the opportunity to address the board.
- Ms Lizbeth explained that the SUNGO President thanked and ensured full endorsement and blessings for the Flood Management Programme and also civil society will be keen to be more involved in the development of the current and future child projects.
- Lizbeth presented the Samoa GCF proposal background including the programmatic approach for “flood management” and the development of the child project for the “Vaisigano catchment”. GCF has a requirement to ensure that civil society has been consulted and government has informed that consultations have taken place through the EWACC and YEP projects.
- Lizbeth briefed the Board members on the timeline of the upcoming GCF proposal, Samoa’s proposal to be submitted on the 12th of September 2016 in time for the 2 week of December 2016 GCF meeting hosted by Samoa.

Discussions from the SUNGO board:

- Several positive comments were made to Ms. Lizbeth about the members’ acceptance and excitement to see the GCF works begin and especially for work to be conducted in the Vaisigano catchment where many had felt personally the effects of flood damage in the area.
- Board member who is a social worker discussed the psychosocial and psychological support that may be required by the victims affected by floods and landslides, suggesting rehabilitation measures for the people and these issues have previously not been addressed.
- Board member from Savai’i who has also been a victim of cyclone damage, was excited to hear about the future child projects that would take place on the island of Savai’i – Lizbeth explained that the Vaisigano is the first project and that future projects will encompass more than the greater Apia area.
- Board member from the Red Cross raised the issue of people living in vulnerable areas due to being on a flood plain and in areas with limited access roads – Lizbeth explained that the government through the existing EWACC project have a memorandum of understanding (MoU) with these residents to address these issues under the current EWACC project.

Conclusion: At the end of the presentation and questions session, it was unanimously agreed that SUNGO will support the GCF project. The board members thanked Ms. Lizbeth again for her presentation and the hard work that has been put into the GCF proposal, and everyone looks forward to supporting the project in the future.
Annex XIII Additional Background Details
GREEN CLIMATE FUND FUNDING PROPOSAL

Participation list:
MS. Roina Vavatau – President, SUNGO
Mr. Fiu Mataese – Board Member, SUNGO
Rosa Maulolo – Office Manager, SUNGO

UNDP GCF Team:
Ms Lizbeth Cullity – UN Resident Coordinator/ UNDP Resident Representative
Ms Naoko Takasu – UNDP Deputy Resident Representative
Ms Prudence Raine – UNDP GCF Intern

SUNGO Participation list:

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<td>Pei</td>
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<td>Lilomaiaava</td>
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<td></td>
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<tr>
<td>Pauga</td>
<td>Ufiata</td>
<td>Poutasi</td>
<td>7728532</td>
</tr>
</tbody>
</table>
E) Stakeholder Engagement Plan

The proposal is developed with significant multi-stakeholder discussions and participation. The Ministry of Finance has led the discussions on the proposal identification and development process with the full involvement of Ministry of Natural Resources and Environment (MNRE), Ministry of Works, Transport and Infrastructure (MWIT), Land Transport Authority (LTA) and other key stakeholder ministries and agencies. Civil society organizations have also been fully engaged in the process. Initial consultations around the ongoing EWACC project has provided the basis for the conceptualization of the project which has been elaborated by specific teams and missions dedicated to this project.

A wide range of stakeholders has been involved in the project, tailored to the specific needs of the three project outputs: 1) capacities and mechanisms in place for an integrated approach to reduce vulnerability towards flood related risks, 2) Infrastructure in the Vaisigano catchment are flood proofed to increase resilience to negative effects of excessive water and 3) Drainage in downstream areas upgraded for increased regulation of water flows. The key stakeholders to be engaged include a range of government line ministries to support the project implementation, NGOs (under SUNGO, Samoa’s umbrella of NGOs) and local communities.

Effective stakeholder engagement involving local communities requires an understanding of Samoa’s traditional social culture and community traditions. The centrality of the family unit or aiga in the governance, decision making and organization of Samoan community life will inform the approach that the project/programme takes. Governance and family decision making particularly of marginalized or vulnerable groups, including women, young people, the elderly, people living with disability will be assisted utilising the WMCSD networks (the Mayor and the Women’s Representatives) into Samoan villages will help to identify appropriate target groups. The following table highlights the Stakeholder Engagement Strategy detailing out the stakeholders for the outputs and activities for the lifetime of this project.
MEMORANDUM OF UNDERSTANDING

SAMOA AGRICULTURE COMPETITIVENESS ENHANCEMENT PROJECT

MATCHING GRANT PROGRAM COMPONENT

BETWEEN: THE GOVERNMENT OF SAMOA ACTING BY AND THROUGH THE MINISTRY OF FINANCE (hereinafter referred to as MOF) AND THE MINISTRY OF AGRICULTURE AND FISHERIES (hereinafter referred to as MAF)

AND

THE SAMOA SMALL BUSINESS ENTERPRISE CENTRE a charitable trust incorporated pursuant to the Charitable Trusts Act 1965 having its registered office at Sanalei Complex, Vaea Street, Apia, Samoa trading under the Small Business Enterprise Centre (hereinafter referred to as “SBEC”);

AND:

THE DEVELOPMENT BANK OF SAMOA a statutory corporation established pursuant to the Development Bank Act 1974;

WHEREAS:

A. The Government of Samoa will be entering into a Financing Agreement with the International Development Association (IDA) in order to finance the Samoa Agriculture Competitiveness Enhancement Project (SACEP);

B. The parties to this Memorandum of Understanding have agreed to participate in the Matching Grant Program (MGP) of SACEP. ;

C. The parties therefore agree to the terms and conditions as set out in this Memorandum of Understanding.
1. TERMS OF AGREEMENT BETWEEN PARTIES

1.1 The Parties agree to participate in the Matching Grant Program Component of the Project guided by the Financing Agreement for the SACEP and the Project Implementation Manual (PIM) for this Program.

1.2 This Memorandum of Understanding, including any schedules and attachments, represents the entire agreement between the parties and replaces any previous agreements, understandings or undertakings, whether written or oral, between the parties. No modification of this Memorandum of Understanding will be effective unless written and signed by authorised representatives of all parties and with written approval from IDA.

2. OBLIGATIONS OF THE PARTIES

2.1 MAF and MOF agree to:

a) Work collaboratively with all parties and stakeholders to ensure successful implementation and management of the Project;

b) Ensure that the MGP would be well publicized during the Project Inception Workshop to ensure every farm household has fair and equal access;

c) Jointly organize a series of Farm Enterprise Investment Workshops with SBEC for farmers/agro-entrepreneurs who have registered their interest in applying for a matching grant;

d) Facilitate screening of Concept Notes by the Matching Grant Steering Committee;

e) Screen each business plan to ensure that the proposed activities are technically viable; undertake environmental and social screening in compliance with the SACEP Environmental and Social Management Framework (ESMF); and assist with identification of any mitigation measures and preparation of Environmental Management Plans, if relevant.
f) Process all grant payments in a timely manner;

g) Manage and administer all grants made under the MGP and jointly work together with SBEC and DBS in the monitoring of loans and grants provided to beneficiaries, including monitoring implementation of social and environmental mitigation measures as required in the ESMF; and

h) Comply with the business standards (implementation timeframe) for the MGP as defined in the PIM.

2.2 SBEC agrees to:

a) Work collaboratively with the Project Coordinating Group, the Matching Grant Steering Committee and the Project Steering Committee for the implementation of the MGP;

b) Organize an investor training program for potential MGP participants, focusing on marketing issues, enterprise cash flows and development of business plans;

c) Facilitate the development of business plans for trained beneficiaries;

d) Submit draft business plans to MAF for consideration under the Matching Grant Scheme;

e) Facilitate access to credit under the Small Business Loan Guarantee Scheme with the Development Bank of Samoa for beneficiaries needing to access credit;

f) Extend loan guarantee to loans under the MGP in accordance with the Small Business Loan Guarantee Scheme MOU signed with the financial institutions;

g) Closely monitor the loans and grants provided to the beneficiaries to ensure that beneficiaries undertake their projects as outlined in their business plans;

h) Comply with the business standards (implementation timeframe) for the MGP as defined in the PIM.
2.3 The Development Bank of Samoa agrees to:

a) Work collaboratively with the Project Coordinating Group, the Matching Grant Steering Committee and the Project Steering Committee for the implementation of the MGP;

b) Receive in good faith Client Loan Application Proposals from SBEC and undertaking the following process:

(i) Assess the proposal in accordance with DBS normal policy and procedures, and approve the application if it meets set terms and conditions;

(ii) Provide MAF and SBEC a written report on their assessment of the proposal within 10 working days of the date of receipt of the Client Loan Application Proposal, and:

1) If an application is declined, to provide detailed reasons for the decline to enable SBEC to report to the Client and to review its own internal processes;

2) If an application is accepted, to notify SBEC at least 10 working days prior to requiring the execution by the Small Business Loan Guarantor of any loan guarantee agreement so as to enable SBEC to set up a programme of consultation and reporting with a successful Client to provide support and guidance to the Client during the period of the loan and guarantee;

(iii) Provide the loan in the form of a line of credit; and

(iv) Prior to disbursing funds, ensure that the beneficiary has opened a separate sub-project bank account at a commercial bank for the purposes of receiving funds for implementing activities under the MGP.

c) Interest rates and fees:

(i) DBS shall apply its normal fees and charges to loans under this project and the loan terms, grace periods and repayment schedules as detailed in Schedule C of this MOU;

(ii) A grace period of up to 12 months would be granted by DBS to loans submitted specifically for this project; the grace period
would be calculated from the date of the first drawdown of a loan, during which period interest will be accrued as per the terms outlined in Schedule C of this Agreement;

(iii) Risk assessment for the applications under this project would be based on 100% security provided by SBEC.

d) Apply all other procedures and processes pertaining to loans under the SBEC Small Business Loan Guarantee Scheme currently covered under the SBLGS MOU;

e) Disburse loans to the borrower's account in line with the disbursement schedule indicated in the approved Loan Agreement;

f) Ensure that Loan Agreements with individual borrowers clearly state that the borrower must comply with the SACEP Environmental and Social Management Framework (ESMF);

g) Maintain individual loan files for all borrowers;

h) Maintain copies of electronic and paper based ledger transactions for each loan in a safe environment with appropriate data security and backup;

i) Maintain details of all recovery action including any legal recovery action on the borrower file;

j) Make loan files available for inspection by all parties and by the borrowers provided that prior written notice of not less than 5 working days is given; and

k) Provide SBEC and MAF with aggregate data on loan approvals and the quality of the outstanding loan portfolio on a monthly basis.
3. GOVERNING LAW AND JURISDICTION

3.1 This document is governed by and construed under the laws of the Independent State of Samoa.

4. ASSIGNMENT

4.1 A party must not transfer any right or liability under this document without the prior consent of each other parties and IDA, except where this document provides otherwise.

5. AMENDMENTS

5.1 Any amendment to this document has no force or effect, unless effected by a document executed by the Parties with the written approval from the IDA.

6. DISPUTE RESOLUTION

6.1 Any dispute arising out of this MOU which cannot be amicably settled between the parties shall be resolved in accordance with mediation between the parties. In the event that mediation fails, the dispute will be resolved in accordance with the Arbitration Act of Samoa 1976.

7. TERMINATION

7.1 This MOU may by notice terminate in the following cases:

(a) by mutual agreement between all parties; or
Dated: 3 February 2012

(b) if there is a breach by any party of any term or condition of this MOU and such breach has not been rectified within one (1) month of the party receiving written notice of the breach;

SIGNATORIES

SIGNED BY: 
FOR AND ON BEHALF OF 
MINISTRY OF FINANCE

Witnessed By: Name: Tupaimatuna Iulai Lavea
Occupation: CEO, MOF
Address: Apia, Samoa

SIGNED BY: 
FOR AND ON BEHALF OF 
MINISTRY OF AGRICULTURE & FISHERIES

Witnessed By: Name: Fonoiava Sealii Sesega
Occupation: CEO, MAF
Address: Apia, Samoa
Dated: 3 February 2012

SIGNED BY:
FOR AND ON BEHALF OF
SMALL BUSINESS ENTERPRISE CENTRE

Witnessed By: Name: Margaret Malua
Occupation: CEO, SBEC
Address: Apia, Samoa

SIGNED BY:
FOR AND ON BEHALF OF
DEVELOPMENT BANK OF SAMOA

Witnessed By: Name: Saumani Wongsin
Occupation: CEO, DBS
Address: Apia, Samoa

DATED at Apia this 3rd day of February 2012.
SCHEDULE A

1. SCOPE AND FOCUS OF THE PROJECT

The development objective of the 'Samoa Agriculture Competitiveness Enhancement Project' referred to as the "Project" would be to enable fruit and vegetable farmers and livestock producers to improve productivity and take greater advantage of market opportunities. This would be achieved through facilitation of industry dialogue and coordination; assisting farmers to organize themselves into marketing groups and establish direct links with buyers; enhancing farmer access to new and/or improved planting material and superior breeding stock; encouraging adoption of improved agricultural husbandry practices and technology; improving meat quality and safety through new hygienic slaughter services; and targeted investments to improve farm and livestock productivity.

The Project would be implemented over a period of five years, on both Upolu and Savaii islands. The SACEP Matching Grants Program (MGP) would support demand-led investments in improved on-farm production and marketing of livestock and fruit and vegetable products to improve the productivity, quality and efficiency in these value chains and to enable participating farmers to access identified markets. The MGP would be targeted to those households wanting to adopt a more commercial approach to fruit and vegetable and livestock production and marketing. Households who want to produce more fruits and vegetables and livestock products but at the same time prefer to remain operating at a subsistence level would also benefit from Project activities. It is anticipated that the Project would directly benefit about 1,500 commercially-oriented farmers through the MGP and at least another 500 subsistence-oriented farming households.

Key project outcome indicators would be:

a) an increase in the productivity and the value of sales of commercially-oriented farmers in the livestock and fruit & vegetable sub-sectors

b) an increase in the productivity of subsistence-oriented households in the livestock and fruit & vegetable sub-sectors

c) an increase in the share of locally produced fruits and vegetables and meat sold by domestic retail and foodservice channels
2. THE MATCHING GRANT PROGRAM COMPONENT

The SACEP Matching Grant Program (MGP) will assist subsistence/semi-subsistence farmers that are interested in becoming more commercially oriented to invest in their fruit and vegetable and livestock operations. The MGP would support investments necessary to develop and strengthen fruit and vegetable and livestock value chains with the objective of enhancing the competitiveness of these sub-sectors through increased productivity, improved produce quality and greater reliability of supply and year-round delivery of produce.

The MGP would provide matching grants equal to 50 percent of the capital investment and start-up working capital costs of eligible investments in fruit and vegetable and livestock production and marketing. Of the remaining investment and start-up working costs required, 30 percent could be financed by a commercial loan from DBS and 20 percent would come from farmer equity. Recipients of matching grants that can provide 50 percent equity would not require a DBS loan. Applicants with approved business plans would be eligible for loan guarantees under SBEC’s existing loan guarantee program. In-kind labor contributions could account for the 20 percent equity contribution.

Selection and Implementation of Proposals

**Step 1: Promotion and Registration of Interest.** The MGP would be well publicized during the Project Inception Workshop to ensure every farm household has fair and equal access. Following the Inception Workshop, a mass media campaign would be organized by the PCG to inform rural communities about the MGP. Through the mass media campaign, farmers/agro-entrepreneurs interested in applying for a matching grant would be invited to register their interest with the PCG in MAF.

**Step 2: Participation in Farm Enterprise Investment Workshops.** MAF together with SBEC would then jointly organize a series of Farm Enterprise Investment Workshops for farmers/agro-entrepreneurs who have registered their interest in applying for a matching grant. The workshops would address issues such as group formation (member selection process, group management arrangements, marketing arrangements etc); matching grant selection criteria (beneficiary eligibility); beneficiary contributions (equity requirements) and loan repayment obligations. Interested farmers/agro-entrepreneurs would be assisted by MAF and SBEC to form production/marketing groups, as relevant.
**Step 3: Preparation of Concept Notes.** Individual farmers/agro-entrepreneurs and farmer organizations interested in participating in the matching grant program would prepare and submit a short Concept Note using a standard template describing the proposed investment, marketing plan, group structure (as relevant), budget and implementation timeframe. SBEC and MAF (For organic products, WIBDI would also likely be involved) would provide some support under the Project for the development of these initial Concept Notes. It is expected that all fruit and vegetables growers would operate in marketing groups, if they are to access the MGP; while in the livestock sub-sector, farmer group formation would be facilitated for activities such as cassava production and processing, and shared access to an upgraded bull (i.e. a small group of farmers may jointly invest in an upgraded bull). Otherwise, livestock producers would be expected to operate individually.

**Step 4: Eligibility Screening.** The Concept Notes would be screened by the MGSC and eligible applicants would be invited to participate in an Investor Training Program organized by SBEC. Each Applicant would receive confirmation or acknowledgement of preliminary acceptance or rejection of their Concept Note (with reasons in writing submitted to Applicants for any rejection) from the PCG within 15 working days of receipt of the Concept Notes.

**Step 5: Business Plan Screening and Submission of Loan Applications.** MAF would screen each business plan to ensure that the proposed activities are technically viable. MAF would also undertake environmental and social screening and assist with identification of any mitigation measures and preparation of EMPs. Once the technical, environmental and social screening process is completed by MAF, SBEC would provide an offer of loan guarantee and assist Applicants to submit their loan application to DBS, either individually or jointly.

**Step 6: Business Plan Approval and Signature of Grant Agreements.** DBS would use their normal lending criteria to assess the viability of each application and make the final decision on loan approval. DBS would inform the PCG of the approval or rejection of applications. Applicants whose loans are approved by DBS would then be invited to sign a Grant Agreement with MAF. Grant recipient would be required to open a separate sub-project bank account at any commercial bank for the MGP. In cases where applicants can provide 50 percent equity and do not require a loan, the final business plan approval will be made by the MGSC. Applications whose loans are not approved will also receive prompt notification from the PCG.

**Step 7: Implementation of Approved Business Plans.** Payments would be disbursed to the recipient’s sub-project account by DBS (loan component) and
the PCG (grant component). The number of payment tranches and the milestones and reporting arrangements that need to be met in order to receive subsequent tranches would be specified in the Grant Agreement and would vary depending on the nature of the investment activity. The DBS loan component would be in the form of a line of credit which will be drawn down in line with the disbursement schedule in the Grant Agreement. A suitable grace period for commencement of loan repayments would be included in the loan terms to accommodate the anticipated revenue stream from the concerned investment. The maximum grace period would be 12 months. Interest would accrue on the amount of the loan that is drawn down, but payments would be deferred until the grace period expires. Recipients of matching grants will follow simple procurement procedures for purchase of capital items and these would be detailed in a Matching Grants Sub-Manual in the PIM. The Matching Grants Sub-Manual in the PIM would include a list of eligible expenditures.

**Step 8: Implementation Support and Monitoring.** The PCG together with SBEC and DBS will undertake monitoring and provide implementation support for MGP activities. Staff of the PCG, SBEC and DBS will make regular on-site visits. Such monitoring would be done on a random basis at the discretion of the PCG. Each project would be visited at least once every six months. Every project will be visited before the release of the second tranche payment.
### SCHEDULE B

### Definitions

<table>
<thead>
<tr>
<th><strong>Beneficiary(ies)</strong></th>
<th>Applicants that have satisfied all criteria to be eligible for a Matching Grant under the Matching Grant Project of SACEP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>&quot;Business Plan&quot;</strong></td>
<td>Means a Business Plan prepared by a Beneficiary with assistance from SBEC according to the SBEC Client Loan Application Proposal Policy and Procedures Manual.</td>
</tr>
<tr>
<td><strong>&quot;Concept Notes&quot;</strong></td>
<td>Proposal submitted by the beneficiary to the Matching Grant Committee for consideration under the MGP</td>
</tr>
<tr>
<td><strong>&quot;Farm Enterprise Investment Workshops&quot;</strong></td>
<td>Means business training provided by SBEC to approved projects under the MGP</td>
</tr>
<tr>
<td><strong>&quot;Fees and Charges&quot;</strong></td>
<td>Means the fees and charges applicable to SBEC and DBS for loans under the SBEC SLGS</td>
</tr>
<tr>
<td><strong>&quot;Grace Period&quot;</strong></td>
<td>Means the time allowed to the beneficiary to start loan repayments from the loan drawdown date</td>
</tr>
<tr>
<td><strong>&quot;Grant Agreement&quot;</strong></td>
<td>Means an Agreement signed with the Beneficiary once the matching grant is approved</td>
</tr>
<tr>
<td><strong>&quot;Loan Agreement&quot;</strong></td>
<td>Means the agreement entered into between the Participating Lending Institution and an individual Beneficiary, and where appropriate guaranteed by the Small Business Loan Guarantor.</td>
</tr>
<tr>
<td><strong>&quot;Loan Amount&quot;</strong></td>
<td>Means the initial amount advanced to the Beneficiary by the Development Bank of Samoa under the Loan Agreement.</td>
</tr>
<tr>
<td><strong>“Project”</strong></td>
<td>Means the Samoa Agriculture Competitiveness Enhancement Project.</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>“Small Business Loan Guarantee Scheme”</strong></td>
<td>Means the process whereby a Beneficiary can access small business loan funding from DBS to assist them on their approved agricultural project under SACEP where necessary supported by a guarantee provided by a Small Business Loan Guarantor.</td>
</tr>
<tr>
<td><strong>Term of the Loan</strong></td>
<td>Means the period in which the loan would be paid in full by the beneficiary</td>
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</table>
# SCHEDULE C

## Development Bank Loan Terms and Conditions

<table>
<thead>
<tr>
<th>Size of Loans</th>
<th>Interest Rates</th>
<th>Term of Loan</th>
<th>Grace Period</th>
<th>Monthly Repayment</th>
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<tbody>
<tr>
<td>SAT$1000</td>
<td>16% pa</td>
<td>12 months</td>
<td>5 month</td>
<td>SAT$100</td>
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<tr>
<td>SAT$2000</td>
<td>16% pa</td>
<td>18 months</td>
<td>5 month</td>
<td>SAT$132</td>
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<tr>
<td>SAT$3000</td>
<td>16% pa</td>
<td>24 months</td>
<td>5 month</td>
<td>SAT$155</td>
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<tr>
<td>SAT$4000</td>
<td>16% pa</td>
<td>30 months</td>
<td>5 month</td>
<td>SAT$170</td>
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<tr>
<td>SAT$5000</td>
<td>16% pa</td>
<td>36 months</td>
<td>5 month</td>
<td>SAT$186</td>
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<tr>
<td>SAT$10,000</td>
<td>14% pa</td>
<td>36 months</td>
<td>12 months</td>
<td>SAT$312</td>
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<td>SAT$20,000</td>
<td>14% pa</td>
<td>60 months</td>
<td>12 months</td>
<td>SAT$</td>
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### Fees and Charges

<table>
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<tr>
<th><strong>Loan Fees</strong></th>
<th><strong>Loan Amounts</strong></th>
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<tr>
<td>SAT$50 service fee</td>
<td>SAT$1,000 – SAT$5,000</td>
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<tr>
<td>.05% service fee + 1% of amount approved</td>
<td>SAT$5,001 – SAT$50,000</td>
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<tr>
<td><strong>Stamp Fee to sign guarantors</strong></td>
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<tr>
<td><strong>SAT$50 regardless of amount approved</strong></td>
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### Bank Fees

<table>
<thead>
<tr>
<th><strong>Bank Fees</strong></th>
<th><strong>Loan Balance</strong></th>
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<tbody>
<tr>
<td>SAT$5 per month or SAT$60 pa</td>
<td>Up to SAT$10,000</td>
</tr>
<tr>
<td>SAT$10 per month or SAT$120 pa</td>
<td>SAT$10,001 – SAT$50,000</td>
</tr>
<tr>
<td>SAT$15 per month or SAT$180 pa</td>
<td>SAT$50,001 – SAT$100,000</td>
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### Arrears Fees

<table>
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<tr>
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<th><strong>Arrears</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>SAT$7.50 per month</td>
<td>&gt; $50 and &lt; $1000</td>
</tr>
<tr>
<td>SAT$11.70 per month</td>
<td>&gt; $1000 and &lt; $5000</td>
</tr>
<tr>
<td>SAT$17.50 per month</td>
<td>&gt; $5000 and &lt; $10,000</td>
</tr>
<tr>
<td>SAT$37.50 per month</td>
<td>&gt; $10,000 and &lt; $20,000</td>
</tr>
<tr>
<td>SAT$56 per month</td>
<td>&gt; $20,000 and &lt; $50,000</td>
</tr>
<tr>
<td>SAT$75 per month</td>
<td>&gt; $50,000 and &lt; $75,000</td>
</tr>
<tr>
<td>SAT $94 per month</td>
<td>&gt; $75,000 and &lt; $100,000</td>
</tr>
</tbody>
</table>
The Government of Independent State of Samoa

Ministry of Women, Community and Social Development

Youth Employment Programme

MEMORANDUM OF UNDERSTANDING

Between

THE MINISTRY OF WOMEN, COMMUNITY AND SOCIAL DEVELOPMENT (MWCSD)

and

THE SMALL BUSINESS ENTERPRISE CENTRE (SBEC)

May 2016
MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (“MOU”) is made on this 24th day of May 2016.

BETWEEN: THE MINISTRY OF WOMEN, COMMUNITY AND SOCIAL DEVELOPMENT acting by and through the CHIEF EXECUTIVE OFFICER, FUIMAPAOA NA EA BETH ONESEMO-TUILAEPA (hereinafter referred to as ‘MWCSD’), having its principal place of business at Sogi, Apia;

AND THE SMALL BUSINESS ENTERPRISE CENTRE acting by and through the CHIEF EXECUTIVE OFFICER, ALATINA IOELU (hereinafter referred to as ‘SBEC’ having its principal place of business at Saleufi, Apia;

(together referred to as “the Parties”).

WHEREAS, the Ministry of Women, Community and Social Development (‘MWCSD’) is the principal organisation in Samoa which provides policy advice on community and social development issues, coordination of government-led village based programs and projects, delivery and monitoring of community and social development programs for target populations including village governance and leadership, advancement of women, youth and child development, and persons with disabilities. The MWCSD’s vision is: “The people of Samoa become productive citizens through their participation in sustainable community and social development”.

WHEREAS, the Small Business Enterprise Centre (‘SBEC’) is the principal organisation in Samoa which provides business management training and advisory services to small business owners, facilitating their transition from the informal to the formal sector. The mission of SBEC is to ‘lead sustainable small business growth and development’, and targets beneficiaries in the private sector, youth groups and communities.

1. PURPOSE

1.1 The Purpose of this Memorandum of Understanding (‘MOU’) is to create a formal partnership between MWCSD and SBEC to work together to establish a Small Business Incubator for Youth in Apia, Samoa.

1.2 The Small Business Incubator for Youth is a major component of Samoa’s national Youth Employment Programme. MWCSD have overall responsibility for the management of the programme. This responsibility is fulfilled in collaboration with the United Nations Multi-Country Office in Samoa.
1.3 Within the overall programme management by MWCSD, SBEC will have responsibility for delivering the programme activities, outputs and results relating to the Small Business Incubator for Youth. These activities, outputs and results include both the ‘with-walls’ and ‘without-walls’ components of the Small Business Incubator for Youth.

2. SCOPE OF THE YOUTH EMPLOYMENT PROGRAMME

2.1 The Youth Employment Programme builds on the successes and lessons learned from the TALAVOU programme, implemented by MWCSD and UNDP between 2004 and 2010.

2.2 The Youth Employment Programme is the implementing mechanism of the National Action Plan on Youth Employment, which was developed by MWCSD and UN agency ILO from March to December 2015.

2.3 MWCSD has overall management responsibility for the Youth Employment Programme. Five UN agencies have agreed to combine and coordinate their different strengths and technical capacities to support the Government of Samoa and the Youth Employment Programme through a ‘Delivering as One UN’ approach.

2.4 The Youth Employment Programme has two strategic objectives as follows:
   i. Improving the employability of youth
   ii. Youth entrepreneurship and small enterprise development

2.5 Establishing a Small Business Incubator for Youth will be the mechanism to catalyse youth entrepreneurship and provide support for small enterprise development.

2.6 Outcome 2 of the Youth Employment Programme is stated as follows:

   ‘Entrepreneurship stimulates economic development in villages and job creation for youth’.

There are three Outputs contributing to Outcome 2, as follows:

Output 2a. By December 2017, a Small Business Incubator for Youth catalyzes youth entrepreneurship and provides access to comprehensive support services for

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1 With-walls refers to services delivered to youth entrepreneurs housed within the physical structure of the Small Business Incubator for Youth.
2 Without-walls refers to a comprehensive system of outreach services to youth entrepreneurs operating in villages and communities throughout Samoa.
3 The five UN agencies partnering in the Youth Employment Programme are UNDP, UNESCO, UNV, FAO and ILO. UNDP facilitates inter-agency coordination role through the UN Resident Coordinators Office.
village-based ‘green’ micro-enterprise start-ups and community-based economic initiatives that create employment for youth.

Output 2b. By December 2017, youth have gained technical skills and enterprise development knowledge for employment in agriculture, tourism, the creative industries, environmental conservation and climate change adaptation.

Output 2c. By December 2017, a Youth Employment Fund provides community-based youth with access to grant-based financial support for actions that impact directly on youth employment and economic development in villages.

3. THE SMALL BUSINESS INCUBATOR FOR YOUTH

3.1 In April 2016, the Cabinet of the Government of Samoa gave approval for the use of a public building located at the former Ministry of Internal Affairs / FalePulenuusite to be the location of the Small Business Incubator for Youth.

3.2 The renovation of a disused public building would contribute to broader plans by Government for the beautification of the Apia waterfront, and the Small Business Incubator would be a showcase of the Government’s commitment to stimulate entrepreneurship and to create employment opportunities for youth.

3.3 The nurturing of enterprise start-ups through small business incubation processes is a model that has proved successful all over the world, including in the Pacific region in New Zealand, Australia, Guam, New Caledonia and Tahiti. The incubator model has also proven successful in Small Island Developing States in the Caribbean region including St. Lucia (population 174,000) and St. Vincent (population 100,000).

3.4 The Small Business Incubator for Youth refers to both a physical space and a system of processes that together provide services for nurturing entrepreneurial ideas through the full process from concept to start-up and survival in a competitive commercial marketplace. The services include those provided to youth entrepreneurs operating within the physical space of the building (i.e. with-walls), and those provided through outreach services to youth entrepreneurs operating in their villages and communities (without-walls).

3.5 A model of small business incubation provides entrepreneurs with access to the full set of specialized business development services to support the development, viability, survival and growth of youth-led micro- and small-enterprises. Furthermore, the services that a Small Business Incubator provides can help to reduce the cost of launching an enterprise. It can provide working space and facilitate networks and access to information and
knowledge needed by an aspiring entrepreneur. It can help to increase the confidence and capacity of the entrepreneur. And it can help to link the entrepreneur to resources and markets required to start and grow a small business. It can help protect a new small business from the risks in a competitive marketplace, and nurture it and help it to survive and grow and create future employment.

3.5 A Small Business Incubator for Youth, operating both with- and without-walls services that are specifically tailored to the needs of youth, can provide aspiring new entrepreneurs with an enabling and empowering environment at the embryonic stage of innovation and at crucial start-up stage of business development.

4. TERMS OF AGREEMENT BETWEEN THE PARTIES

4.1 MWCSD agrees to:

a. Facilitate policy-level support to strengthen the enabling environment for the economic empowerment of youth, women and people with disabilities, to be articulated through the Community Sector Plan 2016 – 2020.

b. Grant full operational use of the renovated building public building located at the former Ministry of Internal Affairs / FalePulenuu to SBEC for management of the services of the Small Business Incubator for Youth. The renovation of this public building and the granting of the operational use of it to SBEC for the Small Business Incubator for Youth will be a contribution from the Government of Samoa’s to the public-private partnership approach to service-delivery through the Small Business Incubator for Youth.

c. Authorise the Programme Manager of the Youth Employment Programme to facilitate technical support to SBEC, including for monitoring and evaluation of activities conducted through the Small Business Incubator for Youth, and assistance with communication and publicity with stakeholders, partners and donors.

d. Recruit a Project Officer through Public Sector Commission processes, to be seconded on a full-time basis to SBEC. The Project Officer will be managed by SBEC and will report directly to the CEO of SBEC. However the workplan outlining the activities for the Project Officer will be developed in consultation with the YEP Programme Manager and will be approved by MWCS. The performance assessment of the Project Officer will be conducted jointly by SBEC and MWCS.
e. Provide funding for the salary of the Project Officer for the period of this MoU (see Section 7), subject to a satisfactory six-monthly performance review conducted by MWCS&D and SBEC.

f. Provide funding on a quarterly basis to SBEC to cover the operational costs of the Project Officer and other reasonable expenses incurred by SBEC related to their responsibilities in establishing the Small Business Incubator for Youth.

g. Ensure the costs of the small business incubation processes for youth are covered, including publicity and communications to stimulate entrepreneurship, technical assistance including skills trainings and mentoring support for youth, and grants for start-up equipment and associated operational costs.

h. Facilitate the provision of technical assistance and other related support to SBEC from the United Nations agencies partnering with MWCS&D in the Youth Employment Programme.

4.2 SBEC agrees to:

a. Take responsibility for the maintenance of the public building granted to it by MWCS&D for management of the operations of the Small Business Incubator for Youth. This responsibility includes ensuring that it retains a satisfactory standard of quality for both the delivery of services to youth entrepreneurs, and as an ongoing attraction to domestic and international visitors. To fulfil these responsibilities, SBEC will develop partnerships with the private sector for ongoing financial and technical support to the Small Business Incubator for Youth, thereby facilitating the private sector contribution to the public-private partnership approach.

b. Incorporate the objectives of the Small Business Incubator for Youth into the regular operations of SBEC and provide institutional leadership in both technical and management functions of the Small Business Incubator for Youth. This will include a governance and organisational structure which incorporates a public-private partnership modality, the design of the internal systems and processes for the incubation of youth small business start-ups, including selection criteria for incubatees (with-walls model) and the delivery of outreach services for community-based youth entrepreneurs (without-walls model).

c. Develop a corporate plan and budget for the operations of the Small Business Incubator for Youth for the calendar year 2017, with performance targets and indicators that are aligned to the economic empowerment outcomes of the Community Sector Plan approved by MWCS&D.
d. Provide suitable office working facilities for the Project Officer, to be based at the SBEC offices at the Le Sanalelele office complex while the construction of the new buildings at the former Ministry of Internal Affairs / FalePulenuu site is ongoing.

e. Manage the quarterly workplan and daily activities of the Project Officer, ensuring consultation with MWCS, quality of work outputs and the upholding of the values of the Government of Samoa, SBEC and the United Nations. The performance assessment of the Project Officer will be conducted jointly by SBEC and MWCS.

f. Engage in joint activities with the Youth Employment Programme to promote youth entrepreneurship throughout Samoa, and to provide technical assistance to youth entrepreneurs to enable access to start-up grants and other capital.

g. Organise and coordinate the delivery of incubation services for youth enterprise start-ups, to include technical trainings for youth entrepreneurs, the provision of private sector mentoring support and facilitated access by youth entrepreneurs to domestic and overseas markets.

h. Ensure the principles of gender equality and the inclusion of youth with disabilities are promoted through the activities of the Small Business Incubator for Youth.

i. Collect qualitative and quantitative data to assist the monitoring and evaluation of activities and results achieved by the Small Business Incubator for Youth

5. SPECIFIC COOPERATION AND OBLIGATIONS

5.1 The MWCS will provide financial support to SBEC, through the national Youth Employment Programme (YEP) budget, of SAT$3,000 per quarter, to cover reasonable costs incurred by SBEC for the operations of the Project Officer and associated activities according to the terms of the present MOU.

5.2 SBEC will provide MWCS with a written report on a quarterly basis with information on activities conducted and an analysis of progress towards agreed targets and objectives. The quarterly report will include a financial statement of expenditure on funds received for reasonable operational costs. The financial statement will include original receipts.

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4 Reasonable costs to be agreed between the CEO of SBEC and the Programme Manager of YEP. Reasonable costs may include shared use of office internet and other utilities, office photocopier, printer and stationary, travel costs to meetings etc.
5.3 The level of financial support provided by MWCSD will be reviewed on a monthly basis through regular meetings between the CEO of SBEC and the Programme Manager of the Youth Employment Programme.

6. MUTUAL AGREEMENT BY AND BETWEEN THE PARTIES

6.1 Both Parties agree to take actions that will develop and maintain a productive working relationship between the staff of SBEC and the staff of the Programme Management Unit of the Youth Employment Programme.

6.2 Both Parties agree to the following targets for the Small Business Incubator for Youth:

→ By December 2017, at least twenty (20) youth enterprise incubatees in operation in the ‘with-walls’ component.
→ By December 2017, at least thirty (30) youth enterprises in operation and receiving support in the ‘without-walls’ component.
→ By December 2017, both components of the Small Business Incubator for Youth are able to showcase innovation through a range of youth-led start-up enterprises, to include agri-business, tourism, the creative arts and cultural industries.

6.3 All data and information obtained from the activities under this MOU are the property of the Government of Samoa to use when and however it wishes.

7. TERM

7.1 This MOU shall commence on the 24th May 2016 (“the Commencement Date”) and is to be completed no later than 31st December 2017 (“the Completion Date”) or as the Parties otherwise agree.

8. COORDINATOR

8.1 MWCSD designates the Programme Manager of the national Youth Employment Programme as the focal point under this MOU.

8.2 SBEC designates the CEO as the focal point under this MOU.

9. RELATIONSHIP BETWEEN THE PARTIES

9.1 Both parties agree that this MOU cannot be construed as creating a partnership or relationship of employer and employee or principal and agent. Each party will only be liable to the extent of their own wrongful acts or negligence.
10. TERMINATION

10.1 This MOU may be terminated at any time by either party by giving at least twenty (20) working days’ written notice to the other party.

10.2 Where a party fails to satisfy any of its obligations under this MOU, the other party may give notice requiring that the failure be remedied within a period of twenty one (21) days and if not remedied within that time, may terminate the MOU immediately by giving written notice to the other party.

11. VARIATION

11.1 The Parties agree that no variation of this MOU is binding unless it is agreed to in writing and signed by the Parties.

12. DISPUTE RESOLUTION

12.1 Any dispute or difference arising between the Parties arising out or in connection with this MOU or its interpretation which cannot be settled between the Parties will be resolved in accordance with mediation between the Parties. In the event that mediation fails, the dispute will be resolved in accordance with the Arbitration Act 1976 (Samoa). The Arbitrator’s decision shall be deemed final.

13. CONFIDENTIALITY

13.1 MWCSD and SBEC will treat all confidential information given in connection with the MOU as confidential and not be disclosed without the approval of the other party.

14. PARTICIPATION IN SIMILAR ACTIVITIES

14.1 This MOU in no way restricts the Parties from participating in similar activities with other public or private agencies, organizations, and individuals. However, the Parties shall ensure that their obligations under this MOU are not affected by participating in other similar activities.

15. APPLICABLE LAW

15.1 The MOU shall be governed by and construed in accordance with the laws in force in the Independent State of Samoa.
16. **NOTICES**

16.1 All Notices to a Party must be delivered by hand or sent by post, courier, fax or by email.

16.2 A party giving notice or notification under this MOU must do so in writing and may send the notice via hand delivery or by post, fax or email to the receiving party’s address as follows:

**The Ministry of Women, Community and Social Development:**
Fuimapoao Beth Onesemo-Tuilaepa
Chief Executive Officer
To’oa Salamasina Hall, Sogi
P.O. Box 875, Apia
Tel: 25573 - 5
Email: bonesemo@mwcsd.gov.ws

**The Small Business Enterprise Centre**
Alatina Ioelu
Chief Executive Officer
Le Sanalelele Complex
Saleufi
PO Box 870, Apia
Tel: 22770 – 72
Email: alatina@sbeccsamoa.ws

17. **WAIVER**

17.1 If a party does not exercise (or delays in exercising) any of its rights, that failure or delay does not operate as a waiver of those rights.

17.2 A single or partial exercise by a party of any of its rights does not prevent the further exercise of any right.

17.3 In clause 15, ‘rights’ means rights or remedies provided by this MOU or at law.

18. **SEVERANCE**

18.1 Any reading down or severance of a particular provision does not affect the other provisions of this MOU.
19. **GENERAL**

19.1 This MOU, including any variation records everything as agreed between the Parties. It supersedes all previous communications and other arrangements whether verbal or in writing that the Parties made with each other before this MOU was signed.

20. **NO RIGHT TO BIND THE OTHER PARTY**

20.1 The Parties do not intend merely by entering into this MOU to create any legal relations or otherwise.

**IN WITNESS WHEREOF**, the parties hereto have executed this Memorandum of Understanding to be signed in their respective names:

(1) **SIGNED** by the **CHIEF EXECUTIVE OFFICER,**
    MINISTRY OF WOMEN, COMMUNITY AND SOCIAL DEVELOPMENT,
    FUIMAPOAO BETH ONESEMO-TUILAEPA……………………………………………………………
    for and on behalf of the **INDEPENDENT STATE OF SAMOA** on this date …………………

(2) **SIGNED** by the **CHIEF EXECUTIVE OFFICER,**
    SMALL BUSINESS ENTERPRISE CENTRE
    ALATINA IOELU…………………………………………………………………………………
    for and on behalf of the **SMALL BUSINESS ENTERPRISE CENTRE** on this date ……………

(3) **WITNESSSED** by the **RESIDENT REPRESENTATIVE,**
    UNITED NATIONS DEVELOPMENT PROGRAMME, SAMOA
    Ms. LIZBETH CULLITY ………………………………………………………………………
    for and on behalf of the **UN MULTI-COUNTRY OFFICE, SAMOA** on this date ……………
Guidance for Submitting a Request to the
Social and Environmental Compliance Unit (SECU) and/or the
Stakeholder Response Mechanism (SRM)

**Purpose of this form**
- If you use this form, please put your answers in bold writing to distinguish text
- The use of this form is recommended, but not required. It can also serve as a guide when drafting a request.

This form is intended to assist in:

1. Submitting a request when you believe UNDP is not complying with its social or environmental policies or commitments and you are believe you are being harmed as a result. This request could initiate a ‘compliance review’, which is an independent investigation conducted by the Social and Environmental Compliance Unit (SECU), within UNDP’s Office of Audit and Investigations, to determine if UNDP policies or commitments have been violated and to identify measures to address these violations. SECU would interact with you during the compliance review to determine the facts of the situation. You would be kept informed about the results of the compliance review.

2. Submitting a request for UNDP “Stakeholder Response” when you believe a UNDP project is having or may have an adverse social or environmental impact on you and you would like to initiate a process that brings together affected communities and other stakeholders (e.g., government representatives, UNDP, etc.) to jointly address your concerns. This Stakeholder Response process would be led by the UNDP Country Office or facilitated through UNDP headquarters. UNDP staff would communicate and interact with you as part of the response, both for fact-finding and for developing solutions. Other project stakeholders may also be involved if needed.

Please note that if you have not already made an effort to resolve your concern by communicating directly with the government representatives and UNDP staff responsible for this project, you should do so before making a request to UNDP’s Stakeholder Response Mechanism.

**Confidentiality** If you choose the Compliance Review process, you may keep your identity confidential (known only to the Compliance Review team). If you choose the Stakeholder Response Mechanism, you can choose to keep your identity confidential during the initial eligibility screening and assessment of your case. If your request is eligible and the assessment indicates that a response is appropriate, UNDP staff will discuss the proposed response with you, and will also discuss whether and how to maintain confidentiality of your identity.
Annex VI (b) – Environmental and Social Management Plan
GREEN CLIMATE FUND FUNDING PROPOSAL

Guidance
When submitting a request please provide as much information as possible. If you accidentally email an incomplete form, or have additional information you would like to provide, simply send a follow-up email explaining any changes.

Information about You
Are you…
1. A person affected by a UNDP-supported project?
Mark “X” next to the answer that applies to you: Yes: No:
2. An authorised representative of an affected person or group?
Mark “X” next to the answer that applies to you: Yes: No:

If you are an authorised representative, please provide the names of all the people whom you are representing, and documentation of their authorization for you to act on their behalf, by attaching one or more files to this form.

3. First name:
4. Last name:
5. Any other identifying information:
6. Mailing address:
7. Email address:
8. Telephone Number (with country code):
9. Your address/location:
10. Nearest city or town:
11. Any additional instructions on how to contact you:
12. Country:

What you are seeking from UNDP: Compliance Review and/or Stakeholder Response
You have four options:
• Submit a request for a Compliance Review;
• Submit a request for a Stakeholder Response;
• Submit a request for both a Compliance Review and a Stakeholder Response;
• State that you are unsure whether you would like Compliance Review or Stakeholder Response and that you desire both entities to review your case.

13. Are you concerned that UNDP’s failure to meet a UNDP social and/or environmental policy or commitment is harming, or could harm, you or your community? Mark “X” next to the answer that applies to you: Yes: No:

14. Would you like your name(s) to remain confidential throughout the Compliance Review process?
Mark “X” next to the answer that applies to you: Yes: No:
If confidentiality is requested, please state why:
15. Would you like to work with other stakeholders, e.g., the government, UNDP, etc. to jointly resolve a concern about social or environmental impacts or risks you believe you are experiencing because of a UNDP project?

Mark “X” next to the answer that applies to you: Yes: No:

16. Would you like your name(s) to remain confidential during the initial assessment of your request for a response?

Mark “X” next to the answer that applies to you: Yes: No:

If confidentiality is requested, please state why:

17. Requests for Stakeholder Response will be handled through UNDP Country Offices unless you indicate that you would like your request to be handled through UNDP Headquarters. Would you like UNDP Headquarters to handle your request?

Mark “X” next to the answer that applies to you: Yes: No:

If you have indicated yes, please indicate why your request should be handled through UNDP Headquarters:

18. Are you seeking both Compliance Review and Stakeholder Response?

Mark “X” next to the answer that applies to you: Yes: No:

19. Are you unsure whether you would like to request a Compliance Review or a Stakeholder Response? Mark “X” next to the answer that applies to you: Yes: No:

Information about the UNDP Project you are concerned about, and the nature of your concern:

20. Which UNDP-supported project are you concerned about? (if known):

21. Project name (if known):

22. Please provide a short description of your concerns about the project. If you have concerns about UNDP’s failure to comply with its social or environmental policies and commitments, and can identify these policies and commitments, please do (not required). Please describe, as well, the types of environmental and social impacts that may occur, or have occurred, as a result. If more space is required, please attach any documents. You may write in any language you choose.
23. Have you discussed your concerns with the government representatives and UNDP staff responsible for this project? Non-governmental organizations?

Mark “X” next to the answer that applies to you: Yes: No:

If you answered yes, please provide the name(s) of those you have discussed your concerns with

Name of Officials You have Already Contacted Regarding this Issue:

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<th>Title/Affiliation</th>
<th>Estimated Date of Contact</th>
<th>Response from the Individual</th>
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24. Are there other individuals or groups that are adversely affected by the project?

Mark “X” next to the answer that applies to you: Yes: No:

25. Please provide the names and/or description of other individuals or groups that support the request:

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<th>First Name</th>
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Please attach to your email any documents you wish to send to SECU and/or the SRM. If all of your attachments do not fit in one email, please feel free to send multiple emails.

Submission and Support

To submit your request, or if you need assistance please email: project.concerns@undp.org