

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) REPORT FOR A
PROPOSED COASTAL RECLAMATION BY TERRA HOLDINGS
LIMITED AT KAWENU COVE, FATUMARU BAY, PORT VILA, EFATE,
REPUBLIC OF VANUATU – A SUPPLEMENTARY DOCUMENT**



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November 2011

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ABBREVIATIONS

ADB	Asian Development Bank
BECON	Bani’s Environmental Consultant
DEPC	Department of Environmental Protection and Conservation
DoF	Department of Fisheries
DGMWR	Department of Geology, Mines and Water Resources
EIA	Environmental Impact Assessment
EMMP	Environmental Management & Monitoring Plan
GoV	Government of Vanuatu
MHWM	Mean High Water Mark
PEA	Preliminary Environment Assessment
PP Act	Physical Planning Act No 12. Of 1986
PPU	Physical Planning Unit

1.INTRODUCTION

1.1 Background

An Environmental Impact Assessment Report (EIA) for a proposed coastal reclamation by Terra Holdings Limited at Kawenu Cove, Fatumaru Bay was prepared by BECON in September 2011. The EIA Report was submitted to DEPC in October 2011. The Review Committee met on 4 November 2011 as per section 22 subsections (1) and (2) of the Environmental Management and Conservation (Amendment) Act No 28 of 2010 and section 12 (b) of the Environmental Impact Assessment Regulations Order No of 2011.

Section 22 subsection (3) of the Environmental Management and Conservation (Amendment) Act (CAP 283) states that:

“The Director may, after receiving a recommendation from the review committee under subsection (2) do the following:

- (a) Approve the application with or without terms and conditions, or*
- (b) Refer the matter back to the EIA review committee for further assessment; or*
- (c) Reject the application.”*

The EIA review committee considered the EIA report at its meeting on 4 November, 2011, and submitted its comments to the Director of the DEPC for the Director to notify the project proponent that further information is required for the EIA Report as per section 22 subsection (3)(a). The Director notified the project proponent of the review committee’s comments (Annex 1) from its meeting held on 9 November 2011.

This supplementary document is prepared in accordance with section 22 (b) of the Environmental Management and Conservation (Amendment) Act (CAP 283) and section 12 (a) and (b) of the EIA Regulation Order No. of 2011. This supplementary report is primarily based on the proposal to reclaim the coastal area of Kawenu Cove. There was no other proposal made for other development and therefore, the EIA Report did not consider any other options rather than the sole purpose of reclamation

2. ISSUES WHICH REQUIRED FURTHER INFORMATION FOLLOWING THE RECOMMENDATIONS OF THE REVIEW COMMITTEE

2.1 The Project Description

Section 1.2 of the EIA Report clearly stated that the “*EIA report was prepared solely for the proposed coastal reclamation and any plans for the future development on the reclaimed land will be subject to a separate EIA.*” It is therefore not necessary at this stage to submit designs of resort development as requested by the review committee. This will be covered in a separate EIA report for the next stage of the development which has not been the subject of the EIA report.

The total area proposed to be reclaimed is 12,500m² and approximately 60,000m². The proposal is to reclaim the foreshore outward into Fatumaru Bay at a distance of 65 meters at the center from the existing main road with the width at the southern end of 66 meters from the main road and 50 meters from the northern end respectively. The length of the proposed reclamation area in the bay is 203 meters long. Refer to Annex 2.

2.2 EIA Process

The Environmental Management and Conservation Act (Amendment) Act No.28 of 2010 section 19 (2) state that:

“ In developing the terms of reference for the EIA, the Director must give special consideration to the need for consultation, participation and involvement of custom landowners, chiefs and other interested parties, and may consult with the National Council of Chiefs for that purpose.”

The EIA Regulation Order No. of 2011 section 10 (1) to (4) refers to public consultations for project proposals. The first public consultation for the proposed coastal reclamation at Kawenu Cove, Fatumaru Bay was held at the Shefa Provincial Council on 29 October 2011. This follows a public notice published in the Daily Post in October 2011. The minutes of the public consultation is attached as an Annex to this report. The names of people who attended the consultation is also attached as Annex 3 to this report.

During a meeting held on 9 November 2011 between the project proponent, the consultant and the Director of the DEPC, it was agreed that a second notice be served through the Daily Post to the general public to submit comments/views on the proposed development by 16 November 2011. The comments will be submitted directly to the Director, DEPC and this will be compiled to form part of the consultation process.

2.3 Regulatory Regime

Section 3.1 of the EIA Report referred to the regulatory regime which the proposed development will require approvals before the development can proceed. The following national laws were listed in the EIA Report:

- Foreshore Development Act;
- Physical Planning Act;
- Water Resources Act;
- Environmental Management and Conservation Act;
- Fisheries Act

In this section, each of the legislation is described and the agency responsible for their implementation and the implications of each legislation on the proposed development.

Foreshore Development Act

The Foreshore Development Act No.31 of 1975 regulates all works carried out on the foreshore. The Act is administered by the Ministry of Internal Affairs. Any development

The increase in development on the foreshore of islands is propelled by the Vanuatu's growing tourism industry. Until early 2003 there were no statutory requirements for EIA's to be submitted prior to any Ministerial consent for development on the foreshore. The Environmental Management and Conservations Act, subjects all such developments to mandatory EIA's unless such activity is exempted under the Act. There are great concerns that while the Environmental Management and Conservation Act is the principal environment legislation, there are no coordination between the implementing authorities to ensure that all necessary steps are cleared before any approval is granted for coastal development. There are many weaknesses with the implementation of the Foreshore Development Act and the act needs to be amended to take account of the current development processes.

Physical Planning Act

The Physical Planning Act provides urban development and planning control for Vanuatu. Under the Act, a municipality or local government body may declare any area under its jurisdiction to be a Physical Planning Area. The majority of the Port Vila Area is administered by the Port Vila Municipal Council and this applies to the area being proposed for reclamation. Any areas which have not been declared Physical Planning Areas are not subject to planning and building controls. With the case of the proposed development, the Foreshore Development must apply to ensure that the development does not contribute to the pollution of the marine environment of Fatumaru Bay.

Water Resources Act

This Act provides for the protection, management and use of water resources in Vanuatu.

Water is defined in the Act to include:

- any water flowing over to situated upon the surface of any land;
- water flowing over or contained in any river, stream, creek or other natural course for water any lake, lagoon, bay swamp, marsh or spring whether or not it has been altered or artificially improved;
- any groundwater;
- water at any time contained by works and any estuarine or coastal sea water. “Works” is defined as any physical works related to the protection, management and use of water and includes any storm water or wastewater works and their associated construction activities

An examination of the above legislation indicates that this instrument provides some legal authority for the management of urban governance in the area being proposed for reclamation.

The Minister of Lands, Geology & Mines and Water Resources has the overall responsibility for protecting and managing water use in Vanuatu.

Environmental Conservation and Management Act

The stated objective of this Act is *“to provide for the conservation, sustainable development and management of the environment of Vanuatu and the regulation of related activities.” In short, it builds on existing laws and is regarded as the main legislation that will foster sustainable use of resources and due protection of the environment of Vanuatu, “including its lands, air and waters.”*

Part 3 (sections 11-28) of the Act provides necessary statutory linkages and inter Government agency co-ordination for implementing EIAs. Subject to a few exceptions this law states that EIA’s are mandatory for all development activities, projects and proposals that cause or are likely to cause significant environmental, social and or custom impacts, especially those that are likely to:

- affect coastal dynamics or result in coastal erosion;
- result in pollution of water resources;
- affect any protected, rare, threatened or endangered species, its habitat or nesting grounds;
- result in the contamination of land;
- endanger public health;
- affect important custom resources;
- affect protected or proposed protected areas;
- affect air quality;
- result in unsustainable use of renewable resources;
- result in introduction of foreign organisms and species; etc.

The Act is the principal legislation under which the project will be implemented to ensure that the proposed reclamation is not conducted until all legal issues have been satisfactorily been complied with.

The Director of the DEPC can approve an EIA report based on the recommendation of the Review Committee.

Control of Nocturnal Noise Act

The act prohibits excessive noise between 9 pm and 5 am for the urban areas of Port Vila and it does not include in other areas outside of the municipal boundary.

The use of machineries for the reclamation would have an impact on the people who live around Fatumaru Bay. And due to the nature of the proposed development, the operations will be carried out only between 7.30 am and 5.00 pm.

Fisheries Act

The objective of the Act is “To provide for the control, development and matters incidental thereto” It applies in respect of “Vanuatu waters” is defined to mean “waters of the exclusive economic zone, territorial sea, archipelagic waters, and internal waters..”

This Act is administered by the Department of Fisheries and Marine Resources. Based on the marine survey, it was found that there is little marine life in the proposed area to be reclaimed. The proposed reclamation would therefore have no significant impact on the marine resources of the area.

2.4 Environment Impact Analysis

2.4.1 Marine Survey

A further marine survey was conducted by Karl Fellenius of Vaughani Shores Vanuatu between 11 and 14 November 2011.

The report provides photographic, qualitative, and some quantitative evidence in support of the local assumption that Kawenu Cove in Fatumaru Bay is in an unsatisfactory ecological condition. The assessment is primarily disturbing for overall reef health in terms of blue-green algae. It raises several ecological concerns that are summarised as follows:

1. Coral and non-coral invertebrates are largely absent. The scope of this survey does not include a formal investigation into historical uses of the reef that may have negatively impacted the variety and abundance of invertebrates harvested in the past (e.g. giant clams).
2. All fish sizes are also largely absent from the reef. The ‘snapshot’ nature of the fish survey does not necessarily encompass enough information to conclusively state that fishing pressure or loss of habitat has resulted in this situation. However, the ocean is in a state of collapse in terms of fisheries and habitat loss all over the world. Much of this can be summarised as management actions to conserve fish stocks and protect sensitive habitat without absolute proof that they were under threat, were not taken in a timely fashion. Through that process we are regrettably learning that precaution in the face of scientific uncertainty is a valid approach.

3. There is between 15% and 20% cyanobacteria, and 5% and 15% funnelweed algae on the substrate. This is a significant amount. It can quickly deteriorate further if algae-eaters are not allowed to re-populate the reef.

4. On average over half the bottom is covered in fine silty sediment 1-3mm thick. In deeper places it is silty mud. The current amount is beyond the ability of most of the marine life documented on this survey to survive. Recruitment of new coral is unsuccessful because the substrate that newly spawned coral settles on is not clean. Fertilised egg packs cannot attach to loose material and subsequently they die.

Based on the limited scope of the marine assessment in this study the author cannot recommend for or against the proposed reclamation. A broader marine survey is required beyond the area of reclamation that also includes investigating the seagrass and mangrove habitats at the head of Fatumaru Bay. And when specific dredging plans are proposed there needs to be a master plan for the bay that considers the positive and negative effects of the increase in circulation. However, it is the view of this author that allowing the status quo of limited circulation and gradual eutrophication of Fatumaru Bay to continue is irresponsible. The excessive algae in the bay needs to be flushed out, and point source impacts related to run-off from the old garbage dump and other sources need to be addressed.

If the proposed reclamation is approved, with or without further study, then this report makes 8 recommendations to mitigate operations, and 5 recommendations toward continued conservation practice in the area:

1. The construction of the retaining wall should be complete before reclamation begins.

2. Marine life in the immediate vicinity of the works must be moved to outside the area of disturbance, beyond the retaining wall on a daily basis. This includes coral colonies and other marine invertebrates. Much can be moved by hand using labourers. The coral bommies at site 4 will need the excavator bucket because of their size.

3. Because there is no breakwater along the retaining wall, daily works need to include placement of large coral boulders for wall construction access. This will also serve to provide the foundation for additional boulders to be placed along the retaining wall to act as artificial reef.

4. Only carry out works under reasonably calm conditions where there is no swell and insignificant wind and waves to mitigate the sediment plume.

5. Employ a sediment curtain at all times during the works. The curtain should be floated on top and weighted at the bottom. In shallow water sediment curtains can be rolled up or shortened.
6. All work must be carried out between 3 hours before and 3 hours after low tide, and the low tide should ideally be low-low. Ideal is during spring tides when the sun and moon are in phase, producing often negative tides.
7. Several labourers must be on site to bucket out loose material left behind after the works before the tide comes in. It will not remove everything, but it is cost effective and mitigates marine life damage beyond the direct area of disturbance.
8. All materials from the reclamation must be sourced from land in the absence of an approved dredging plan. If dredging is proposed:
 - (a). Dredging will aid in flushing of the deeper pools in Fatumaru Bay but may also cause erosion and possibly unexpected changes in bay morphology over time.
 - (b). Risk is the cost of an outcome times the probability of that outcome occurring. The dredging impacts associated with normal conditions and their effects on circulation are likely to be minimal compared to the risk of damage during cyclones, storm surges, and tsunamis. Much of that is because excessive water entering through the channel under such conditions needs a way of exiting the bay instead of piling up at the head and threatening sensitive environments and other developments.
9. There are seagrass and mangrove communities toward the head of Fatumaru Bay, and some mangroves within the proposed area to be reclaimed. Every effort should be made to retain all the mangroves in their current state. To compensate for any unforeseen loss of mangrove health adjacent to the proposed reclamation, the Government should strengthen the protection of the seagrass and mangroves at the head of Fatumaru Bay.
10. Implement a program of marine life monitoring in Fatumaru Bay. This can partially be integrated into specific remedial or monitoring actions recommended through the EIA process.
11. Promote marine life awareness in the communities surrounding Fatumaru Bay. Coordinate Crown-of-Thorns seastar removal and disposal on land. Establish the best possible relationship and understanding among the developer, other residents, and local people to help mitigate the effects of harvesting and reef walking over time. Integrate marine life photos and highlights of the marine survey into a Fatumaru Bay

marine life slideshow. The presentation would also be useful for government agencies and it can support a wider audience as needed.

12, Use the relationships established in local communities and among government agencies to encourage the custom owner not to allow wild aquarium traders to further establish themselves in Fatumaru Bay, Port Vila Harbour, and Mele Bay. The return to historical levels of herbivorous fishes is key to the success or failure of the reef to mitigate the potential situation of excessive sediment leading to siltation and algal overgrowth on the reef.

13. Encourage the establishment of a marine interpretive centre around Fatumaru Bay for residents as well as visitors. Such services can contribute significantly to local marine conservation efforts, while also adding value to existing tourism and recreation amenities.

2.5 Socio-economic & Cultural Impacts

A public notice was published in the Daily Post on 11 November 2011, to inform the general public and business community around Fatumaru Bay to submit any comments they have by 16 November to the Director of the DEPC. The comments will provide the review committee to make the final recommendation to the Director of the DEPC on the status of the proposed reclamation.

2.6 Mitigation Measures, Monitoring & Management

Summary of potential impacts and recommended measures

Impact category	Main Issues	Main proposed management measures
<i>Construction of the retaining wall: Marine-based</i>		
Traffic	Transport to and from site will increase during the construction and reclamation period	Erect notice boards to inform general public and visitors about times of heavy traffic movements Respect the rights of access of other property owners along the same

		coastline.
Noise, dust and fumes	May increase during reclamation period	Restrict work to between 5 am and 9 pm Use only existing access road.
Impacts on terrestrial cultural values	No major impacts	Report any cultural items found during construction
Impacts of machineries	Leakage of waste oil in the proposed reclaimed area	A packing area for machineries should be located away from the coastline.
Materials for reclamation of the foreshore	To be sourced from existing quarry at Eratap where Enterprise Dinh Van Tu has an existing license and by materials to be excavated from the Fatumaru Bay	If more materials are required, the sources should be from existing quarry with Quarry Permits New quarry site must have relevant approvals including environment and quarry permits

Impact category	Main Issues	Main proposed management measures
<i>Reclamation of the Foreshore: Marine -based</i>		
Reclaim the foreshore with approximately 65,000 tons of materials and construct a retaining wall for the reclaimed area of 12,500m ² .	Destruction of marine environment during reclamation Potential spread of sedimentation during reclamation.	Reclamation must be carried out only during low tide, Use sediment curtain to stop the spread of sediments
Land reclamation	Destruction of marine environment	Sediment curtains around reclaim construction area
Construction of retaining wall	Turbidity and sedimentation in adjacent areas	Sediment curtains around construction area
Marine spills	Potential for spills of oil and other pollutants from machineries and the	Site specific marine spill prevention and response

	restaurant	plan.
Other users and uses	Use of area by local residence within Fatumaru Bay	Marine safety and security exclusion zone

Impact category	Main Issues	Main proposed management measures
<i>Removal of coastal plants- Land based</i>		
Traffic	Transport to and from the proposed development site will be increased during reclamation All vehicles used should comply with traffic laws	Liaise with the residents of Malapoa about timing for movement of large boulders and materials for reclamation through the Malapoa main road to the proposed reclaimed site
Noise, Dust and fumes	May increase during reclamation and construction of the retaining wall	Restrict work to between 9 pm and 5 am Dust suppression water truck on site
Hazardous materials	Construction retaining wall may use hydraulic machineries to compact fill in materials; A fuel and material storage facility for fueling on-site vehicles and machinery.	Fuel storage facility to comply with relevant standards.
Storm water drainage and discharge	The discharge of site storm water, including potential contaminants, into Fatumaru Bay.	Gross Pollutant Traps at discharges. Long term marine pollution monitoring program.
Clearing of site vegetation to enable movement of machinery	New landscaping	Retain all existing mangrove trees along the coastline of the bay to prevent coastal erosion

Impact category	Main issues	Main proposed management measures
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<i>Dredging Marine- based</i>		
Impacts on hydrodynamics and coastal processes	Not predicted to be significant	Collect sufficient physical data to develop hydrodynamic model for Fatumaru Bay
Marine spills	Potential for oil spill from construction work at the development site	Develop proper spill prevention and response.
Impacts on the marine environment and wildlife	Potential for damages caused by sedimentation	Use sediment curtains to stop the spread of sediments around the Fatumaru Bay and Port Vila Harbour
Other users and uses	Use of area by local fishermen and residence for recreation and religious purposes.	Marine safety and security exclusive zone within Fatumaru Bay and Port Vila Harbour

3. Environmental Management & Monitoring Plan (EMMP)

3.1 Management & oversight of the EMMP

Supervisor for construction phase

In order to manage and monitor implementation of the EMMP and to ensure compliance of the project, including contractors, with relevant environmental legislation, including permit and approval conditions, a Supervisor who has environmental expertise or an Environmental Consultant should be appointed by THL to oversee the construction work

The Supervisor's duties should include providing overall supervision to all contractors and workers involved in the construction phase, to ensure that they are fully aware of their obligations under the EMMP and relevant legislation.

EMMP Officer or consultant for operational phase

Once the construction is complete, the THL should designate an appropriately qualified person or hire a consultant, tasked with monitoring and reporting to management on implementation of the EMMP and on compliance of the ongoing operation of proposed development terminal with relevant environmental legislation, including permit and approval conditions.

The *EMMP Officer's* duties should include providing advise on the provisions of the relevant laws to workers and contractors involved in the operation of the construction, to ensure that they are in compliance with the provisions of the laws.

Ultimate responsibility for environmental issues

Ultimate responsibility for ensuring compliance of the ongoing operation of the development with the EMMP and relevant environmental legislation, including permit and approval conditions, will rest with the General Manager of the company who will be responsible for the construction.

EMMP for Construction Phase: Land-based Activities

Coastal Reclamation: EMMP for Construction Phase: Land-based Activities

Activity/Issue	Environmental Management & Monitoring Measures	Responsibility
Clearing of site vegetation	<ul style="list-style-type: none"> • Retain scattered mangroves :found on site 	Contractors Owner/Operator
Sourcing of reclaimed fill	<ul style="list-style-type: none"> • Quarry Permits: Ensure that quarries have necessary Permit before purchasing fill from quarry 	Contractors Owner/Operator
Noise,dust, fumes	<ul style="list-style-type: none"> • Noise Management: Restrict works to 5 am and 9 pm (<i>Control of Nocturnal Noise Act</i>) • Dust suppression: Provide a dust-suppression water truck to lay-down dust on site during dry and dusty periods. • Vehicle Fume Prevention: Ensure that all vehicles, plant and machinery used during construction are properly serviced and avoid excessive exhaust fumes. 	Contractors Owner/operator “ “
Traffic	<ul style="list-style-type: none"> • Traffic compliance: Ensure that all road traffic that services the construction phase complies with all relevant Vanuatu road and traffic laws and operated by licensed drivers. 	Contractor Owner/Operator

	<ul style="list-style-type: none"> • Oversize Traffic: Contractor to liaise with the Vanuatu Police Traffic Section and the Port Vila Municipal Council prior to transportation of any particularly large or unusual items by road. 	“
Impacts on soil quality	<ul style="list-style-type: none"> • Vehicle oiling and fueling: Develop and implement a proper arrangements for the servicing, oiling and refueling of vehicles and machinery used during the construction phase • Oil handling: Develop and implement proper arrangements for safe storage, handling and containment of oils and fuel used during the construction phase • Waste Oil Management: Develop and implement proper arrangements for the handling and management of all waste oil and any oily waste generated during the construction. • Land Spill Prevention & Response Plan: Develop and implement proper arrangements for the prevention, containment and clean-up of any spills of these materials during construction 	<p>Contractor Owner/Operator</p> <p>“</p> <p>“</p> <p>“</p>
Impacts on freshwater quality, including ground water	<ul style="list-style-type: none"> • Construction Drainage: Develop and implement on-site drainage and siltation controls for the construction 	Contractors Owner/operator

	phase, including gross-pollutant, sediment and oil traps	
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EMMP for Construction Phase: Marine Activities

Land reclamation	<ul style="list-style-type: none"> • Silt Curtains: Deploy marine silt curtains around the work site during reclamation and construction activities (curtains do not need to drop full depth to sea-bed in deeper areas – just 1st 3 meters to stop surface plumes spreading) • Deploy silt curtains at reclaim area during construction activities • Environmental Offset: Possible declaration of tabu over Fatumaru Bay to compensate from destruction of corals 	<p>Contractor Owner/operator</p> <p>“</p> <p>“</p>
Dredging	<ul style="list-style-type: none"> • Detailed Hydrographic Survey: Prior to dredging commencing, conduct detailed hydrographic survey in the proposed dredging area • Silt Curtains: Deploy marine silt curtains around the work site during all dredging activities (curtains do not need to drop full depth to sea-bed in deeper areas – just 1st 3 metres to stop surface 	<p>“</p> <p>Dredging Contractor</p>

	<p>plumes spreading)</p> <ul style="list-style-type: none"> • Turbidity Monitoring: Department of Geology, Mines and Water Resources (DGMWR) to be engaged to monitor daily marine turbidity levels over sensitive coral areas adjacent to the site, throughout the dredging period. If turbidity levels exceed pre-set trigger levels, management action to be taken. Observations to be made over daily tidal cycle. 	DGMWR Dredging contractor
Marine spills	<ul style="list-style-type: none"> • : Marine Spill Prevention & Response Plan: Prior to construction commencing, develop and implement proper arrangements for the prevention, containment and clean-up of any spills of pollutants into the marine environment from construction activities. 	owner/operator. Contractors.
Impacts on other marine users and uses	<ul style="list-style-type: none"> • : Marine Exclusion Zone: For safety reasons, declare and enforce a marine exclusion zone around the construction site, to prevent potential conflict between contractors and marine users and for safety and security. 	Vanuatu Government (Department of Fisheries & Department of Ports and Harbour
Stormwater drainage and discharge:	<ul style="list-style-type: none"> • Marine Pollution Monitoring Plan implemented 	Contractor owner/operator.

EMMP for Operational Phase: Marine Activities

Issue	Environmental management and monitoring measures	Responsibility
Impacts on marine biodiversity	<ul style="list-style-type: none"> • Marine Biological Monitoring: Undertake ongoing, long-term monitoring of the potential impacts of the terminal on the marine environment, by re-surveying the baseline survey sites at least annually into the future (building on the Marine Biodiversity Baseline Survey undertaken as part of this Supplementary EIA). 	Department of Fisheries to undertake.
Impacts on marine water quality	<ul style="list-style-type: none"> • Marine Pollution Monitoring 	DGMWR to undertake
Impacts on hydrodynamics and coastal processes	<ul style="list-style-type: none"> • Hydrodynamic Model: Implement a comprehensive program to collect oceanographic data • Oil Spill Contingency Plans: Develop and maintain oil spill contingency plans both for Port Vila 	Government of Vanuatu (GoV) with donor support.
Marine spill prevention and response	<ul style="list-style-type: none"> • Maritime Legislation: Undertake a thorough review and update of the national legislation that implements maritime laws 	GoV with donor support
Impacts on other marine users and uses:	<ul style="list-style-type: none"> • Marine Exclusion Zone: Declare and enforce a marine exclusion zone 	GoV Contractor Owner/operator

	around the proposed reclaimed, to prevent potential conflict between workers and the users and uses of Fatumaru	
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4. SUMMARY CONCLUSION

The Supplementary EIA was undertaken from 9 to 14 November 2011, including the marine survey following international the recommendations of the review committee. The Supplementary EIA finds that the environment at and around Kawenu Cove and Fatumaru Bay generally is important and valuable, including special cultural significance for the Ifira people, significant coral communities immediately adjacent to the site on Malapoa Reef, and important socio-economic values such as subsistence fishing by local communities and marine-based tourism.

The Supplementary EIA finds that the proposed project has the potential to impact on these resources and values, and that care needs to be taken in the design, construction and operation of the proposed reclamation, so as to avoid/minimize such impacts.

In accordance with EIA standards, the Supplementary EIA assesses the likely impacts of the proposed development according to the following categories:

- Construction Phase: Land-based Activities
- Construction Phase: Marine Activities
- Operational Phase: Land-based Activities
- Operational Phase: Marine Activities

The table above summarizes the main findings of the Supplementary EIA in relation to each of these impact categories. Some of the main impacts include, but are not limited to:

- clearing of all site vegetation,
- the potential for spills of oil and other pollutants from vehicles and machineries; and
- the discharge of site wash-down effluent and stormwater, including potential contaminants, into the Fatumaru Bay

To address the potential for such impacts, the Supplementary EIA includes a proposed Environmental Management and Monitoring Plan (EMMP) for both the construction and operational phases.

The Supplementary EIA also finds that the proposed development will improve environmental protection compared to the existing facility in a number of important ways, including but are not limited to:

- improved management of solid and liquid wastes,
- improved storage materials,
- significantly improved water flashing in Fatumaru Bay;,,
- the revetment of reclaim faces to prevent erosion and turbidity plumes,
- ° improved drainage and stormwater management; and
- major improvements to site safety and security, reducing the chances of accidents resulting in pollution and environmental damage.

Overall the Supplementary EIA concludes that so long as the recommended EMMP is properly implemented, the proposed development should not pose an unacceptable risk of causing adverse impacts on the physical, biological, socio-economic and cultural environment, natural resources and values of Fatumaru Bay.

The Supplementary EIA concludes there is no environmental reason that the project should not be approved for construction, on the condition that the recommended EMMP is fully and properly implemented.

Should the proposed works change in terms of location, layout, scope and/or scale from what has been assessed in this Supplementary EIA, including any changes to the proposed reclamation activities as outlined in this report, then such changes should be subject to additional EIA prior to approval.

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6. ANNEXES

Annex 1

DEPC EIA REVIEW COMMITTEE MEETING MINUTES

Date: 4/11/2011

Proposal: Reclamation Project at Kawenu Beach, Fatumaru Bay.

EIA Review Committee Members (Present):

- Albert Williams (AW), Director and Chairman, Department of Environmental Protection & Conservation
- Mandela Kalfabun (MK), SHEFA Provincial Planner
- Kalmet Lapi (KL) SHEFA Physical Planner/Assistant Planner
- George Petro (GP) Vanua-Tai Resource Monitors Coordinator, Wan Smol Bag Theatre, NGO representative
- Peter Pate (PP), Acting Director, Department of Lands
- Reginald Tabi (RT), national Project Coordinator, Coral Triangle Initiative, Department of Environmental Protection & Conservation
- Wycliff Bakeo (Jr) (WBJ), Compliance Officer, Department of Environmental Protection & Conservation
- (EM)Emil Mael, Private Consultant Land Use consultant (suspended Physical Planner for SHEFA Province)
- Carol Rovvo (CR), Senior Waste/Pollution Control Officer, Department of Environmental Protection & Conservation

EIA Review Committee Members (Absent):

- Director, Department of Fisheries, Ministry of Agriculture, Livestock, Quarantine, Forestry and Fisheries
- Town Planner, Port Vila Municipal Council
- Principal Physical Planner, Physical Planning Unit, Ministry of Internal Affairs

EIA Review Committee Minutes DEPC 04/11/2011

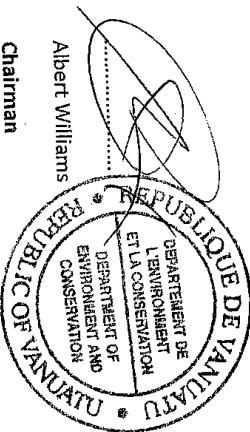
	<p>especially with respect to length and shape of the reclamation)</p> <ul style="list-style-type: none"> - Proposed a 'give and take' to developer to put a public beach (AW) - Are there any construction guidelines? (PP) - What is the purpose of the reclamation? (GP) - Need to have a master plan for Port Vila harbour to accommodate (AW) - Current JICA project for construction of wharf are currently doing tidal surveys in the harbour (AW) 	
<p>2.EIA Process (stages of EIA process completed)</p>	<ul style="list-style-type: none"> - Has consulted only Shefa province but no report produced - So far consultant has done limited consultations for the project - consultation with all stakeholders, esp. Business houses and communities etc.... to fulfil the act and regulation requirements (PP, EM, MK, AW, WBI) 	<ul style="list-style-type: none"> - To comply with the current EPC Act and regulations the consultant need to conduct wider community consultation with all stakeholders, esp. Business houses and communities etc.... to fulfil the act and regulation requirements
<p>3.Regulatory Regime (National Laws, Local Laws)</p> <ul style="list-style-type: none"> - <i>Foreshore development act</i> - <i>Physical Planning act</i> - <i>Water resources management Act</i> - <i>Environmental Protection & Conservation Act</i> - <i>Fisheries Act</i> - <i>Shefa Provincial Council by-Laws</i> 	<ul style="list-style-type: none"> - Developer need to fully understand the current laws related to project developments before submitting EIA proposals to DEPC - Current proposal has gaps regarding laws governing project development 	<ul style="list-style-type: none"> - Need to elaborate on sections dealing with review the Regulatory regime section - The implications of the legislations need to be discussed in detail and not just be listed as the current report does.
<p>4. Existing Environment</p>	<ul style="list-style-type: none"> - Marine survey has never been conducted 	<ul style="list-style-type: none"> - Consultant must conduct a marine survey for the

<p>Environmental setting: Project site/current land-use activities/marine water quality/bathymetry/ oceanography and hydrodynamic processes/marine biodiversity/any environmental or important significance... etc</p>		<p>development as the proposal seeks to reclaim the Kawenu Beach</p>
<p>5. Environmental Impact Analysis</p> <ul style="list-style-type: none"> - Clearing of site vegetation - sourcing of reclaim fill - Traffic - Noise dust & fumes - Impacts on soil quality - Impacts on any freshwater or ground water. -Impacts on marine biodiversity -Impacts on marine users & uses - Impacts on marine water quality -Impacts on hydrodynamics and coastal processes. - Land reclamation activities -Dredging activity 	<p>Discussion on the impacts is descriptive now and analysis will need to be detail</p>	<ul style="list-style-type: none"> - Conduct marine survey on the proposed reclaimed area and acknowledge sources of information (Spot checks and quadrates) - Set up permanent transect - need to review and submit impact analysis
<p>8. General Waste Management</p> <ul style="list-style-type: none"> -Proper waste reduction strategies 	<p>Ok but if consultant want to discuss any other waste management issues, they can do so</p>	<p>Ok but if consultant want to discuss any other waste management issues, they can do so</p>
<p>9. Energy Use & Water</p>	<p>Ok but if consultant want to discuss any other energy/water management issues, they can do so</p>	<p>Ok but if consultant want to discuss any other energy/water management issues, they can do so</p>

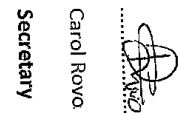
<p>10. Socio-economic & cultural Impacts</p>		<ul style="list-style-type: none"> - Need more community consultations to address community concerns for area such as loss of public beach, fishing grounds, and loss of area for picnic etc
<p>11. Mitigation measures, monitoring & management for: Construction-Phase : (Sourcing of construction materials/ Impact of reclamation/ Noise, dust fumes/importance of soil quality/erosion/ dredging/ engineering design.</p> <p>Operational-Phase : Impacts on marine users and uses/ Impacts on hydrodynamic and coastal processes/ impacts on biodiversity</p>	<ul style="list-style-type: none"> • No environmental management and monitoring plan (EMMP) submitted with EIA Report 	<ul style="list-style-type: none"> • Submit an environmental management and monitoring plan (EMMP) for the proposed project
<p>12. Rehabilitation plans - Rehabilitation after physical works - Liability and insurance</p>	<ul style="list-style-type: none"> - Need to identify what would be severely destroyed so a proper rehabilitation can be developed to manage/rehabilitate the issue (PP) - A marine survey would help to identify the life underwater where the proposed reclamation is planned 	<ul style="list-style-type: none"> - Need to discussed rehabilitated options - Provide a rehabilitation plan in the Environment Monitoring and Management plan for the project
<p>13. Findings & Recommendations</p>	<ul style="list-style-type: none"> - Re-submission of EIA with supplementary information for the review team - Consult GIS team of DOL for Proposed Master Harbour Development Plan (sketch) featuring proposed 65m reclamation 	
<p>14. Additional comments by</p>	<ul style="list-style-type: none"> • Allow 3-4 weeks for consultant to submit the 	<p>Chairman to brief Project Proponent and Consultant on this</p>

members of the Review Committee	<ul style="list-style-type: none"> • supplementary information • Convene another Review Team within 1 week after receiving the Supplementary Information 	report
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Certified true minutes of the EIA Review Committee convened on the 04th November 2011 at DEPC/Energy Conference Room



Albert Williams
Chairman



Carol Rovu
Secretary


Attendance Sheet

Propose Coastal Reclamation at Fatumaru Bay—Public Disclosure and Consultation

Group/Community consulted: AV Date of Consultation: 29/10/2011 location of Consultation: SHERA PROVINCIAL COUNCIL HQ

	NAME	ADDRESS	OCCUPATION	AGE	MALE/FEMALE (M/F)	SIGNATURE
1	BOB MAKINI	BP 00	SOFTY DIST		M	
2	BO SKAME	BP 740	Self employed		F	
3	ALBERT WILYANS	HW 9023	PIPE FDR		M	
4	GENE WONG	PO 90X 816 RW	MERCHANT		M	
5	KEVIN BAEVARS	PO BOX 3162			M	
6	M. Dolores KANINE	Malapa 3261	Self employed		F	
7	Lynette SARDS	MALAPA	PAINTER		F	
8	FIREMAN LANGAN	MELEVALLE	DEVELOPER		M	
9	SADJI SAURI	IFURA	STUDENT		M	
10	JOSEPH SAUWA	IFURA	UNEMPLOY		M	
11	MARGARET DELBOCE	Malapa	Business developer		F	
12	DAVID SHERR	Malapa	RETIRED		M	
13	KAUSAKU LEITONGA	IFURA	HOUSEWIFE		F	
14	BAVAT SORS MEKUMINT	IFURA	BUSINESSMAN		M	
15	BROHN LOGANSON	IFURA			M	
16	SHERMAN PRYMER	IFURA	Academy		M	
17	LOUISE SIFE	SHERA PROVINCE	RESTAURANT		M	
18	PETER WHITELAW	PO Box 611, WU	SHUTTLE BUS DRIVERS BIZ		M	
19	SHE NEVEN	PO BOX 5067	Architect		M	
20	DOUGLAS PATTERSON	P.O. Box 2	DEVELOPER		M	

	NAME	ADDRESS	OCCUPATION	AGE	MALE/FEMALE (M/F)	SIGNATURE
21	Smith P Oliver	991	OWNER.	?	F	
22	PHUMNU LODGE	1359	OWNER.	?	F	
23	Shem Ramua	Box 530	hairing consultant.	?	M	
24	Karl Felenius	Box 3183	hairing consultant.	?	M	
25	Sth Nuan NABOIKI BOU	1570 Box	hairing consultant.	?	F	
26	Linnah SAURER	Box 3103	Wurfe	?	F	
27	Linnah SAURER	✓	SPGC	?	F	
28	Raedly Tint	PMB 9063	Environment	?	M	
29	Taipachan KATUBUN	Antaput.	General	?	M?	
30	DAVID MORGES	SIARA	consultant	?	M	
31	CATHERINE MALOSU	INDEPENDENCE PARK	CONSULTANT	?	F	
32	NATONDA OSUN	85139	✓	?	M	
33	Justine LAGSONOMI	Makpong	consultant.	?	F	
34	Dick SALLE	Tepona	De Gas	?	M	
35	Beatrice KARA	Ihira Point	Assistant Officer	?	F	
36	Jay Nguele	Chiefs Nakama	Builder	?	M.	
37	Dinh van AUCY	Nambatu	Builder	?	M	
38	Mydree BAKES DR	DEBE	Environment Officer	?	M	
39	MP JOSINA KASAKA	TRUA	MP	?	M	
40	MP DAN SIMON	Poh WUA	MP	?	M	

	NAME	ADDRESS	OCCUPATION	AGE	MALE/FEMALE (M/F)	SIGNATURE
41	ELM BSA BANU	Box 3251	CONSULTANT	/	M	
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