

# Environmental and Social Monitoring Report

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PUBLIC

Semestral Report (July–December 2024)  
March 2025

## Vanuatu: Interisland Shipping Support Project

Prepared by the Ministry of Infrastructure and Public Utilities for the Vanuatu Government and for the Asian Development Bank (ADB).

**CURRENCY EQUIVALENTS**

(as of 10 March 2025)

Currency Unit	–	vatu (Vt)
Vt1.00	=	\$0.00876
\$1.00	=	Vt112.14000

**ABBREVIATIONS**

ADB	–	Asian Development Bank
AF1	–	First additional financing to the project
AF2	–	Second additional financing to the project
AP	–	Affected persons
BOQ	–	Bill of Quantities
CLMO	–	Customary Land Management Office
CSS	–	Country safeguards systems
COESS	–	Compliance Officer - Environment and Social Safeguards
DDR	–	Due Diligence Report
DEPC	–	Department of Environmental Protection and Conservation
DGM	–	Department of Geology and Mines
DOWR	–	Department of Water Resources
EMP	–	Environment Management Plan
EP	–	Environment Permit
ESMO	–	Environment & Social Mitigation Officer
FDC	–	Foreshore Development Consent
GOV	–	Government of Vanuatu
GRM	–	Grievance Redress Mechanism
IEE	–	Initial Environment Examination
IES	–	International Environmental Specialist
MFAT	–	Ministry of Foreign Affairs and Trade - Government of New Zealand
MFEM	–	Ministry of Finance and Economic Management
MIPU	–	Ministry of Infrastructure and Public Utilities
MLNR	–	Ministry of Land and Natural Resources
MOU	–	Memorandum of Understanding
NES	–	National Environmental Specialist
PAM	–	Project Administration Manual
PIT	–	Project Implementation Team
PWD	–	Public Works Department
RP	–	Resettlement Plan
SPS	–	Safeguard Policy Statement 2009
SMR	–	Semo-annual Safeguards Monitoring Report
VISSP	–	Vanuatu Interisland Shipping Support Project
VPMU	–	Vanuatu Project Management Unit
WWP	–	Water Works Permit

**NOTE**

In this report, "\$" refers to United States dollars.

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## ABBREVIATIONS

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PWD	Public Works Department
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SPS	Safeguard Policy Statement 2009
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USD	United States Dollars
VISSP	Vanuatu Inter-island Shipping Project
VPMU	Vanuatu Project Management Unit
WWP	Water Works Permit

# 1. Introduction

## A. Background and Purpose of the Report

1. The Government of Vanuatu (GOV) is implementing the Vanuatu Inter- Island Shipping Support Project (VISSP) with assistance from the Asian Development Bank (ADB) through Loan: 2820-VAN and Grant 0273-VAN; and with the partnership of the Government of New Zealand through the New Zealand Aid Programme administered by the New Zealand Ministry of Foreign Affairs and Trade (MFAT). The GOV's Ministry of Finance and Economic Management (MFEM) is the executing agency, and Ministry of Public Infrastructure (MIPU), and Vanuatu Project Management Unit (VPMU) are the implementing agencies.

2. The overall safeguards requirements are set out in a number of documents including laws of Vanuatu (including any conditions on permits and consents issued), the loan agreement, newly prepared and/or updated Initial Environmental Examination (IEE) and land Due Diligence Reports (DDR). Specifically, the Project Administration Manual (PAM) outlines under safeguards monitoring and reporting that the Borrower shall do the following or cause the Project Executing Agency to do the following:

- Prepare and submit semi-annual Safeguards Monitoring Reports (SMR) to ADB and disclose relevant information from such reports to affected persons promptly upon submission;
- If any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the IEE, the DDR/resettlement plan promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the events and proposed corrective action plan; and
- Report any actual or potential breach of compliance with the measures and requirements set forth in the Environmental Management Plan (EMP) or the DDR/resettlement plan promptly after becoming aware of the breach.

3. This is the eighteenth SMR prepared for the VISSP. It complies with the ADB's Safeguard Policy Statement 2009 (SPS) and Access to Public Information Policy 2018 as well as government requirements for projects, with regards to implementation, monitoring and information disclosure.

4. The VISSP, according to the SPS, is classified as Category B for environment and Category C for involuntary resettlement and indigenous people. Social and environmental safeguards due diligence following SPS, and country safeguards systems (CSS) were completed and approved by the GOV and ADB and the related due diligence documents have been disclosed.

## B. Description of the Project

5. The VISSP commenced in January 2013 and included the: (i) construction and rehabilitation of seven domestic wharves and jetties; and (ii) inter-island shipping subsidy scheme. The seven original subproject sites included the South Paray Wharf construction, Simonsen Wharf rehabilitation, Lenakel wharf rehabilitation, Litzlitz wharf rehabilitation, Lolowai jetty construction, Lolong jetty construction, and Port Sandwich jetty construction (Fig 1 below).

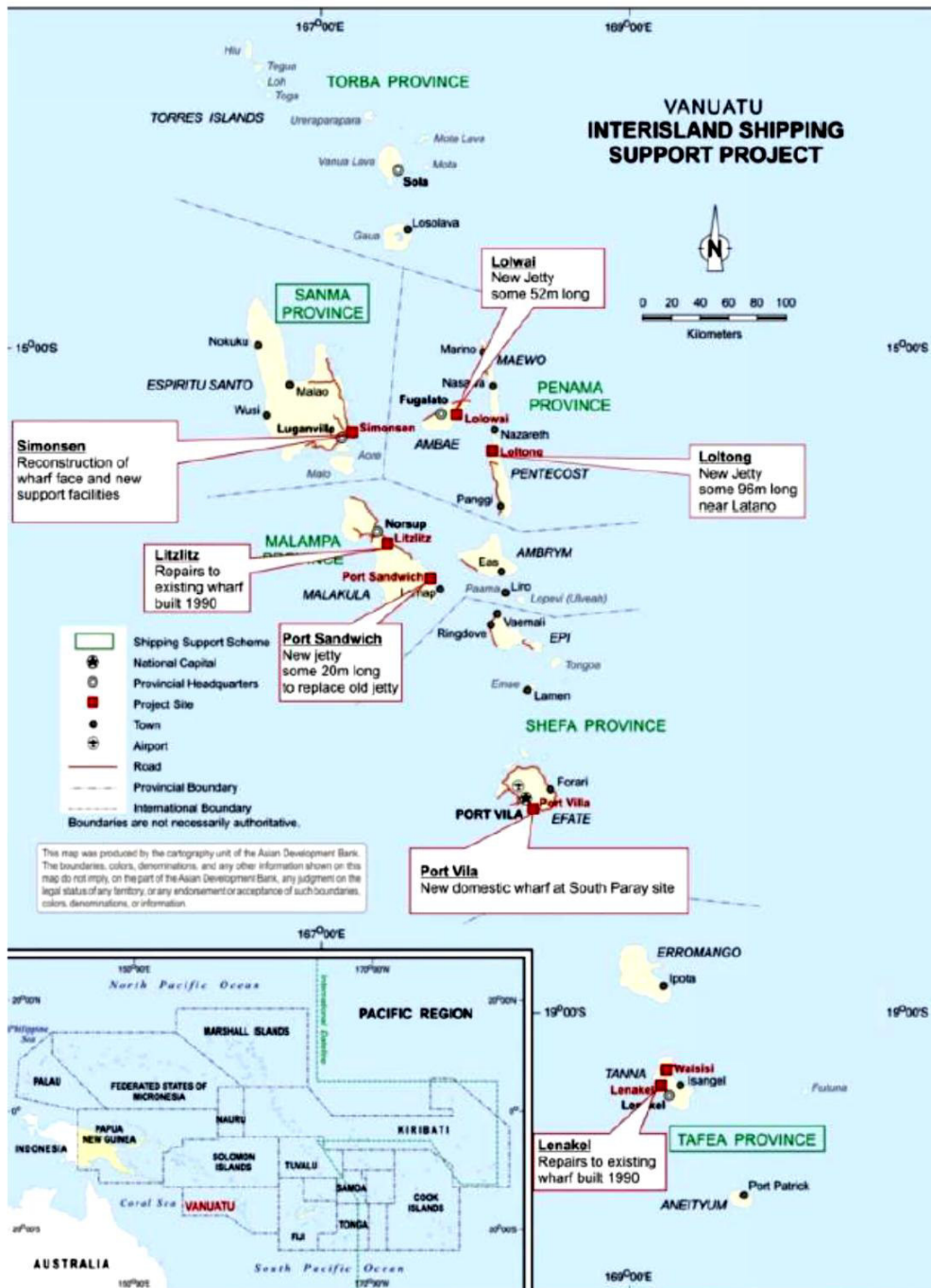


Figure 1- Location of VISSP Subproject sites

6. In 2017 the works at the South Paray Wharf were suspended, and inevitably the entire project, due to inadequate design. The construction works at the South Paray Wharf remained at 70% completion per the original design, with no construction progress made at the other subproject sites. In 2018, a GOV review resulted in a decision to remove the Loltong and Lolowai subprojects and commence redesign of the remaining five subprojects.

7. The rehabilitation construction works commenced at the Lenakel and Litzlitz wharves in October 2021 and were completed by July 2022. Handover of the wharves were made on 7 July 2022 at Lenakel Wharf and on 15 September 2022 at Litzlitz Wharf. The Defects Liability Period expired mid-2023. The public buildings at both sites as well as the Litzlitz ramp are yet to be constructed and pending additional funding.

8. The South Paray Wharf construction contract was signed on 16 June 2022 and the contractor Fletcher Organization Vanuatu (FOV) mobilized to site and commenced demolition and construction works in January 2023. Construction works are ongoing and expected to be completed by March 2025.

9. The detailed designs of the other two remaining subproject sites (Simonsen and Port Sandwich wharves) were completed in September 2021. The construction contracts are yet to be awarded and currently on hold, pending additional funding.

10. Beca International Consultants Ltd (Beca) was accepted as the construction supervision consultant in May 2022, and are currently focusing only on the construction works at the South Paray Wharf as the works at the other remaining wharves are on hold.

### C. Current Status of Implementation

11. **South Paray.** A 7.3 magnitude earthquake struck at the heart of Port Vila on 17 December 2024, consequently invoking a State of Emergency in the country. Works at the South Paray Wharf were immediately suspended until after the new year. As at the end of this reporting period, the construction works at the South Paray Wharf are at 91% completion.

- The demolition of the old concrete wharf deck has been completed, and 86 old “H” piles have been removed or cut down, representing 72% of the 120 old “H” piles removed.



Figure 2 - Additional Ocean Logistics barge and crane in process of the old piles' extraction.

- Piling and structural works for the new ramp, platform and finger wharf are all complete. All works associated with the mooring piles are now completed. All wharf furniture (fenders, bollards and kerbs) is now installed.



Figure 3 - Mooring piles and floating fenders have been completed.



Figure 4: (Top left) Flush bollard on ramp. (Top Right) Seismic separation joint cover plate. (Bottom Left) Fenders, bollards and edge kerbs installed. (Bottom Right) Ladder.

- Dredging from a barge has now been on hold to allow for mooring piling activities. Approximately 12,600m<sup>3</sup> has been dredged from the revetment, from the western berth pocket area and under the platform and finger wharves. Another 8,400m<sup>3</sup> from the existing stockpile and stripping the site to finished levels have also been removed. The bulk of this material has been taken off site for disposal.

- Pavement works commenced onsite in the month of June 2024 and are currently at 72% of the concrete pavement area.



Figure 5 - Left picture shows last section of ACO drain is now complete. Right picture shows earthquake damaged manhole.

- The last section of stormwater drain has been completed. Some of the stormwater manhole risers were damaged by the December 17<sup>th</sup> earthquake. Repairs to these manholes have commenced.

## 2. Monitoring Activities and Status of Safeguard Compliance

### A. Compliance with SPS and CSS Requirements

12. Table 2.1 summarizes the current status of SPS and CSS document compliance for the subprojects as of the end of the reporting period. VPMU continues to facilitate attainment of the necessary permits.

**Table 2.1: Compliance Status with SPS and CSS Requirements**

Subproject	CSS Requirements		ADB SPS Requirement	
	Permit	Status	Document	Status
South Paray	EP	Issued 03/05/21 and extended on 6/6/22 until end of project	IEE Update – cleared by ADB 16/03/21	Issued 17/03/21 Valid until project completion.
	FDC	Issued 29/06/22	Land DDR Update	Issued 21/05/21 Valid until project completion.
	QP/Dredging Permit	Issued 19/07/23	CCP	2014 version still applicable
	WWP	Issued 26/04/21 Renewed 03/05/2024 to 03/05/2025.	CEMP and associated support documents (Rev 4)	No Objection provided 15 December 2022

Subproject	CSS Requirements		ADB SPS Requirement	
	Permit	Status	Document	Status
		Permit holder is now Fletcher Construction and no longer VPMU.		Permit valid until project completion.
Lenakel	EP	Issued 2/03/21 (expired upon project completion)	IEE Update - cleared by ADB 18/12/20	Issued 18/12/20
	FDC	Issued 10/06/21 (expired upon project completion)	Land DDR Update	Issued 21/05/21
	WWP	Issued 19/02/21 (expired upon project completion)	CCP	2014 version still applicable
Litzlitz	EP	Issued 02/03/21 (expired upon project completion)	IEE Update - cleared by ADB 18/12/20	Issued 18/12/20
	FDC	Issued 10/06/21 (expired upon project completion)	Land DDR Update	Issued 21/05/21
	WWP	Issued 19/02/21 (expired)	CCP	2014 version still applicable
Port Sandwich	EP	Issued 14/12/21 – Permit has expired.	IEE Update cleared by ADB 12/07/21	Issued 03/07/21
	FDC	Pending AF2 funding	Land DDR Update	Issued 21/05/21
	WWP	Pending AF2 funding	CCP	2014 version still applicable
Simonsen	EP	Issued 14/12/21 Permit has expired.	IEE Update - cleared by ADB 07/07/21	Issued 03/07/21
	FDC	Pending AF2 funding	Land DDR Update	Issued 21/05/21
	WWP	Issued 08/02/22 Permit has expired.	CCP	2014 version still applicable
	QP	Pending AF2 funding		
Litzlitz Wharf Ramp	EP	Pending AF2 funding	IEE Update – cleared by ADB 18/12/20	Issued 18/12/20
	FDC	Pending AF2 funding	Land DDR Update	Issued 21/05/21

Subproject	CSS Requirements		ADB SPS Requirement		
	Permit	Status	Document	Status	
WWP		Pending AF2 funding	CCP	2014 version	still applicable
QP		Pending AF2 funding			

## B. Environmental & Social Safeguards (South Paray Wharf)

13. The FOV's Construction Environmental Management Plan (CEMP) was approved on 15 December 2022.

14. The first site visits at South Paray for monitoring of environment and social safeguard activities were conducted in February 2023 by Beca with the VPMU using a proforma checklist for the routine monitoring of the CEMP, developed Beca in conjunction with the VPMU. Safeguard monitoring has since been conducted monthly by Beca and VPMU. Area of non-compliance the with the CEMP are recorded in the audit sheets and discussed with the Contractor at the completion of each audit.

15. Environment audits continued throughout the reporting period at the dates as per table 2.2 below. The audits indicate that FOV has continued to perform satisfactorily. The November 2024 audit report which was conducted on December 5<sup>th</sup> is appended to this report as Appendix A.

**Table 2.2: Dates of Environment Audits from July to December 2024**

Month of Environment Audit	Date conducted
July	23 July 2024
August	29 August 2024
September	26 September 2024
October	31 October 2024
November	5 December 2024
December	None, due to earthquake impacts

16. The main issue raised for the reporting period continues to be on fuel leakage. The Contractor uses bio-degradable hydraulic oil in all equipment used over water to reduce the environmental impacts to the sea in the event of a leak. However, the spill kits have had to be deployed on several occasions due to leaks from the hydraulic hoses on construction equipment. In October a bucket containing form-oil residue fell from the wharf into the sea. The

bucket was retrieved, and instructions were issued out by the Contractor for form oil to be kept in closed containers.

17. Onsite recycling for glass, aluminium and steel is practiced and waste recovery is working well. Notably, much of the old wharf concrete deck and beams have been reused in a retaining wall structure elsewhere on the island. The Contractor has been pro-active in safeguarding the environment. Reporting of environmental incidents have improved since the last SMR.

18. The Contractor has an approved dredging work plan, and a quarry permit required for dredging. Dredging works commenced in August 2023 and approximately 12,600 m<sup>3</sup> of spoil had been removed from site up to the end of December 2024.

19. Water quality monitoring tests were conducted in September 2024 with the assistance of the Department of Water Resources (DOWR) in accordance with the South Paray Wharf water works permit conditions. The results indicated that at all test sites around the wharf site, the water quality was within the recommended limits of the WHO recreational water quality standards. The results are appended to this report as Appendix B.

20. The final monitoring event, which is three years after the translocation of the corals from South Paray Wharf, was conducted in October 2024. The report is appended to this report as Appendix C.

21. The Contractor is generally compliant with their Health and Safety Management Plan and have been proactive in recording H&S findings and incidents. A summary of H&S incidents to date is shown in Table 2.3 below. Their safety toolbox talks occur every Thursdays.

**Table 2.3: Summary of H&S incidents total for project**

Description	Total for Project
Serious Harm Injuries	0
Lost Time Injuries	0
Days Lost due to LTIs	0
Medical Treatment injuries	1
First Aid Treatment	34
Minor Misses	86
Near Misses	18
Safe behaviour observations	138

22. The Contractor has implemented gender inclusion measures. FOV currently have 77 workers assigned to the South Paray Wharf subproject. There are 65 male labourers and supervisors plus five male Engineers and Management staff at the site. There are seven female

workers on FOV South Paray staff plus 2 women in a crew of 5 subcontract staff for Ocean Logistics. There are 9 women out of 82 total staff representing 11% of the total workforce. FOV are actively seeking to engage more suitably qualified female staff from within Vanuatu and are also searching for qualified female personnel regionally to achieve the target 30%.

23. The Contractor has implemented their HIV/AIDS prevention and Gender Based Violence awareness, conducted on 23 June 2023 for all their workers. The Contractor and FOV sub-contracted staff have all signed a Code of Conduct around gender-based violence and violence against children. Further plant operator and Health, Safety and Environment training was conducted by FOV for staff earlier this year.

### C. Grievance Redress

24. VPMU manages a Grievance Redress Mechanism (GRM) for VISSP as described in the original subproject IEEs. A summary of the number of grievances addressed by VPMU over the course of project implementation to date is provided in Table 2.4 below. One complaint is reported in this reporting period.

**Table 2.4: Summary of grievances received and addressed to date.**

Year	Number of Grievances	Issues
2016	1	Custom owners of the South Paray area (Octopus clan) requested assistance with setting up a mechanism for long term management of South Paray Wharf (stevedoring operations) prior to giving consent for development. In response VPMU initiated a series of meetings to discuss the issue with the community which resulted in signing of a Memorandum of Agreement (MoA) with MIPU which assured the community of assistance from Government in meeting their requests.
2017	3	<p>1. CLC concerns about dredging plumes associated with dredging South Paray Channel. VPMU raised awareness with CLC on short term nature of impacts including mitigation measures being implemented.</p> <p>2. Reports of inappropriate social behaviour by the Contractor towards females both in the project and outside the project. A finalized Gender Awareness Plan had not been submitted and approved at the time required. However, Contractor did engage Gender Specialist who conducted gender awareness talks at toolbox meetings.</p> <p>3 The CLC raised a query about the quality of water around the Pontoon Bay area after sighting what looked like oil spill and 'dirty water' within the Pontoon Bay. The source of the polluted water during that day, was not verified, however PIT notified Contractor and emphasized on the requirement to adhere to Waste Management Plans as per CEMP.</p>
2018	0	Project on hold
2019	0	Construction works on hold – redesign in progress
2020	0	Construction works on hold – redesign in progress
2021	2	1. Public concern via social media and through CLC about the environmental impacts of salvage of wrecks at Litzlitz Wharf. Project officer at Malampa Provincial Government responded that the salvage methodology had been approved and an Environment Permit exists for the project. The salvage works were completed without significant environmental impacts.

		2. Landowners of Litzlitz wharf raised their concern in the CLC that the Contractor is not employing locals at Litzlitz area. The Contractor responded by employing locals in the Litzlitz area as security personnel.
2022	1	1. The CLC and Contractor raised their concern regarding the fuel depot at the Litzlitz wharf road entrance, that it was not bunded and a hazard at that location. The MPG is working with the fuel company to remove the fuel tank from that area.
2023	1	1.A member of one of the South Paray Wharf landowner parties went onsite in January 2023 to raise his concern with the Contractor about the leftover dredged material onsite which was from the first phase of the project. A meeting was convened a week later by VPMU with all landowners where the issue was resolved and the GRM process was reiterated to all landowner parties.
2024	2	1. In a meeting held with the landowner parties on 29 February 2024, the landowners raised the matter of the operational management of the wharf upon handover of the project. They wanted to know who would be managing the wharf, as they as landowners are also interested in managing the wharf. 2. A complaint was received and registered on 12 September 2024 from a community member of Ifira Island. He stated that they were receiving a lot of sediments and turbidity from the dredging works at the South Paray Wharf site. The VPMU liaised with the DOWR, and water tests were conducted on 25 September 2024. The results were received on 25 <sup>th</sup> October and on the 31 <sup>st</sup> of October the results were presented to the CAC members in the CAC meeting. The results indicated that the water quality was normal and after further assessments, it was determined that the sediments received from Ifira were due to stormy weather experienced that week. The grievance was considered closed after the meeting.

## D. Stakeholder Consultations

25. A summary of stakeholder consultations undertaken for the VISSP subprojects during the reporting period including key issues discussed and comments made is provided in Table 2.3. Minutes of the CLC meetings are appended in Appendix D.

**Table 2.3: Summary of Stakeholder Consultations for subprojects in SMR Period**

Date	Subproject & Venue	No. of Participants	Key Issues Discussed and Comments Made
31 Oct 2024	South Paray Wharf	20	The seventh CLC meeting was held to update the members of the construction work progress.
Sept to Nov 2024	South Paray Wharf	6	Coordination management meetings were held between VPMU and the Ports & Harbours Department to discuss the operational phase and management of the wharf after the completion of the wharf.

## E. Institutional Strengthening and Training

26. ADB commenced provision of environmental safeguards support to VISSP (and other VPMU projects) through the VISSP loan and grant. Under the Grant an international environmental specialist (IES) and a national environment specialist (NES) were engaged intermittently. The purpose of the assignment was specifically to build capacity in implementation of environmental safeguards within VPMU and the various projects under its overview, and which were achieved.

### 3. Summary and Conclusions

27. Under the VISSP, only the South Paray Wharf sub-project is currently being implemented. The other sub-project sites are pending additional funding.

28. The construction contract for South Paray was awarded to Fletcher Organisation Vanuatu Limited in June 2022. Site establishments works commenced in November 2022 and works commenced in February 2023. The ADB provided no objection approval of the South Paray Wharf's contractor's CEMP in December 2022. To date, the contractor has been implementing their CEMP satisfactorily.

29. The fourth South Paray Wharf marine fauna post-relocation monitoring event was completed in October 2023. Despite the losses, which were expected given the unfavourable conditions, as more corals have survived than were planned to be relocated, the translocation can be seen as successful.

30. Dredging works progressed throughout the reporting period and the Water quality test results in this reporting period indicate that the mitigation measures implemented by the Contractor are effective.

31. Consultations this reporting period have focused on South Paray Wharf, and indicated that overall, the stakeholders are enthusiastic to see the works commencing. No complaints or significant project related environmental issues were raised or left unresolved.

32. All safeguards compliance documents for the five subprojects being implemented under VISSP have been approved.

# APPENDICES

## APPENDIX A: NOVEMBER 2024 ENVIRONMENT AUDIT

### South Paray Safeguards Compliance Audit - CEMP and Safeguards

Audit undertaken: 5 December 2024 @ 9:30 AM

Audit undertaken by: Uravo Nafuki (VPMU), Charles Tevi (VPMU), Jerry Napuat (VPMU), Peter O'Brien (Beca)

	Item	Location in CEMP	Achieved (Y/N/NA)	Comment	Corrective action required
<b>1.</b>	<b>Environmental approvals</b>				
1.1	Import Permits obtained from Biosecurity Vanuatu where needed. VPMU advise permits have been issued for: Quarry & Foreshore	1.5 Environmental and Permitting Approvals Relevant to CEMP	Y	Response by Fletchers: Permits are handled by our Customs Broker - IPACC	N Water Works, Quarry and EP permits still current
<b>2.</b>	<b>Training</b>				
2.1	All staff and subcontractors have completed site induction that identifies environmental and social requirements prior to starting work on site	6.2. Environmental and Social Training	Y	Response by Fletchers: Yes. All inductions logged in the induction register onsite	N
2.2	Training and education sessions ongoing during the project through toolbox and prestart meetings	6.2. Environmental and Social Training	Y	Response by Fletchers: Weekly Toolbox meetings,	N
		6.3. Key Areas of Project Influence	Y	Crane Operator Training, Dogman/Rigger Training.	
		12. Social Impacts and Community Liaison Plan	Y	HIV/AIDS/GBV & CAE awareness training given by VFHA on 23.6.23	N
2.3	Specific training to be conducted:	6.4. Reporting and Emergency Procedures	Y	Response by Fletchers: First Aid Training – 6 Local staff, 3 expat First Aiders,	N

	Item	Location in CEMP	Achieved (Y/N/NA)	Comment	Corrective action required
	<ul style="list-style-type: none"> <li>- Emergency Response Procedures outlined in Site Specific Inductions and Weekly Toolbox meetings.</li> <li>- Spill response procedures and the correct use of spill containment, clean up spill kits and disposal of waste</li> <li>- Awareness workshops on HIV/AIDS, gender-based violence (GBV) and violence against children (child abuse/exploitation or CAE) for construction workers and nearby community members (provided by external consultant)</li> <li>- Training provided on the Gender Action Plan (GAP)</li> </ul>	6.2. Environmental and Social Training	Y	Drugs & Alcohol	N
		6.2. Environmental and Social Training	Y	Emergency Evacuation Drill	Last drill held 22/3/23. Fire Dept to come to site for next Evacuation Drill.
		12. Social Impacts and Community Liaison Plan / GAP	Y	Man overboard held 9.8.23	N
		12.3. HIV/AIDS Prevention including GBV and CAE	Y	HIV/AIDS/GBV & CAE awareness training by VFHA on 23.6.23	Workers on this project have no interactions with any of the local communities.
		12.3. HIV/AIDS Prevention including GBV and CAE	Y	GAP – FOV complying with requirements. VPMU have ongoing GAP Liaison actions	N
<b>3.</b>	<b>Monitoring and Reporting</b>				
3.1	Continuous monitoring and evaluation of environmental controls undertaken	6.3. Key Areas of Project Influence	Y	Response by Fletchers: Continuous - Daily monitoring and Weekly HS & Environmental Inspections	N
3.2	Monitoring to include: <ul style="list-style-type: none"> <li>- Ongoing and regular monitoring to check silt curtain is not damaged or moved by tidal flow.</li> <li>- Machinery and plant is to be inspected regularly to ensure hoses are in good condition.</li> </ul>	7.3. Dredging	Y	Response by Fletchers: Continuous - Daily monitoring and Weekly HS & Environmental Inspections –	N
		7.4. Piling.	Y	Have a weekly site inspection roster.	N

	Item	Location in CEMP	Achieved (Y/N/NA)	Comment	Corrective action required
	- Concrete pumping equipment inspected prior to use to confirm hoses and clamps are in good condition, Formwork and joints regularly inspected	7.6. Concrete Structure Construction	Y	Plant checked daily using daily prestart checklist. Checklists files available upon request	N
3.3	Environmental monitoring in accordance with: <ul style="list-style-type: none"> <li>- Water and Soil contamination – monthly</li> <li>- Safety of Road Users and Transport Movement – Monthly</li> <li>- Dust, Noise and Air Pollution at all Construction activities work sites - daily</li> </ul>	13. Monitoring and Reporting	Y	Response by Fletchers: Continuous daily monitoring – Weekly Environmental Inspections	N Dept Water Resources May 2024 sea-water test results OK. New testing being done today 26 Sept 2024
3.4	Weekly inspection of the site undertaken by the EHS advisor to identify any environmental issues for rectification	13. Monitoring and Reporting	Y	Response by Fletchers: Yes. Weekly HSE inspections	N
3.5	Monthly audits by the EHS advisor (and prior to any forecast extreme weather event) to provide an additional level of assurance that environmental issues are being identified and addressed	13. Monitoring and Reporting	Y	Response by Fletchers: Yes	N Last monthly audit held on 30.10.24
3.6	Contact details for the Emergency Team leader posted on site information boards around the construction zone	6.4. Reporting and Emergency Procedures	Y	Adwin Virand is new ET Leader. Emergency Response action sheets & First Aiders names are up in the Site Office	N
3.7	Reporting protocol in place for spills greater than 10L in place	6.4. Reporting and Emergency Procedures	Y	Response by Fletchers: As per Spill response Plan	N
3.8	Records of all inductions, trainings, incidents, complaints, and monitoring will be maintained on the project files.	13.1. Record Keeping	Y	Response by Fletchers: Yes. Server registers and Radar. Can be provided upon request	N
3.9	Environmental incidents, near misses and observations (environmental hazards or positive	6.7. Notification Procedures	Y	Response by Fletchers: Yes. All reports received uploaded online into Radar.	N

	Item	Location in CEMP	Achieved (Y/N/NA)	Comment	Corrective action required
	events) reported and recorded on Incident Field Report or Observation Card			Incidents that require notification to external parties / government agencies will be reported accordingly	Reported monthly to Beca
<b>4.</b>	<b>Hazardous Materials and Substances</b>				
4.1	Refuelling undertaken at least 20m away from water and stormwater catchpits and in bunded area	6.3. Key Areas of Project Influence	Y	Response by Fletchers: Refuelling station based in Lapetasi land laydown.	N
4.2	Hazardous chemicals and fuels kept covered and secured in secondary containment minimum 20m from the water's edge and surrounded by a perimeter bund with a capacity of 110% of the total storage volume	6.3. Key Areas of Project Influence	Y	Fuel storage area - fuel storage area is covered and tanks have an internal double bund and additional control to prevent potential machine collision installed.	N
4.3	Spill kit located within the refuelling area and emergency procedures displayed. FOV permitted by VPMU to use spill pads under fuel sampling point	6.3. Key Areas of Project Influence	Y	Response by Fletchers: 3 spill kits onsite. Regular monitoring and replenishment post usage.	N
4.4	Spill kits and silt booms to be readily available near piling operations.	7.4. Piling	Y	Response by Fletchers: There are 2 spill kits located at the work face.	N
4.5	No contact between cement-based products and sea water.	6.3. Key Areas of Project Influence 7.7. Pavement and Drainage	Y	Concrete washout areas and spillage containers provided for concreting works	N
4.6	Cement contaminated water from grout mixing and concrete cutting or drilling collected with a wet vacuum	7.6. Concrete Structure Construction	Y	Response by Fletchers: Cutting complete. Wet-vac available for drilling and grouting operations	N

	Item	Location in CEMP	Achieved (Y/N/NA)	Comment	Corrective action required
4.7	All concrete mixing and washing activities carried out away from the water in a designated bunded area	7.6. Concrete Structure Construction 7.4. Piling	Y	Response by Fletchers: <i>Concrete wash out pits established in May</i>	N
<b>5. Noise and Vibration</b>					
5.1	Noise monitored in accordance with Fletcher ENV03 - Standard Operating Process for Construction Noise Monitoring	6.3. Key Areas of Project Influence	Y	Response by Fletchers: <i>Monitoring during noisy activities recorded by Philip.</i>	N
5.2	Stakeholders are notified of construction works through the Monthly Stakeholders meetings	6.3. Key Areas of Project Influence	Y	To be outlined in Monthly progress meetings by Fletchers	<i>Next meeting on 12<sup>th</sup> December 2024</i>
5.3	Piling works conducted during regular working hours.	7.4. Piling	Y	Works being conducted at regular hours	N
<b>6. Dust Control</b>					
6.1	Dust mitigation measures employed to protect both site works and immediate stakeholders.	6.3. Key Areas of Project Influence	Y	No dust observed or required at time of audit	N
<b>7. Erosion and Sediment Control</b>					
7.1	Work Plan in place detailing site erosion and sediment controls and steps taken to prevent accidental discharge of sediment in the immediate marine zone, showing as a minimum the Site erosion and sediment controls as per Figure 5 in CEMP	6.3. Key Areas of Project Influence 6.8. Proposed Site Layout & Erosion and Sediment Controls	Y	Silt boom is used for revetment works. <i>Dredging has progressed without silt curtains as per agreed protocols.</i>  Perimeter bund has been removed as surface water soaks away - no run-off	N  <i>~ 19,400m<sup>3</sup> of spoil transported off site as at 30/11/24.</i>
7.2	Silt curtain/boom used in various configurations throughout the project works to manage sediment. This includes around entire existing wharf structure prior to demolition commencing	6.3. Key Areas of Project Influence 6.8. Proposed Site Layout & Erosion and Sediment Controls 7.3. Dredging 7.4. Piling	Y  Y	Observed for demolition works around site.  <i>Silt curtain to be used for revetment works only, not required for dredging</i>	N  N

	Item	Location in CEMP	Achieved (Y/N/NA)	Comment	Corrective action required
		7.5. Revetment Construction			
7.3	Silt retention bunds constructed onsite where applicable	6.3. Key Areas of Project Influence	Y	<i>Surface water is controlled by channelling and/or bund containment at each work area</i>	N
7.4	Drying stockpile surrounded by a stabilised decanting bund constructed near barge unloading wharf. Bund will be inspected regularly to ensure effectiveness.	7.3. Dredging	NA	<i>Stockpile is well removed from edges and in a lower section of site, so water does not leave site.</i>	N
<b>8. Waste Management</b>					
8.1	Waste managed onsite as per the Contractor's Waste Management Plan	6.3. Key Areas of Project Influence	Y	Tin, paper and glass recycling available. <i>Steel off site Recycle Corp</i>	N
8.2	Septic waste and grey water stored onsite in temporary septic retention tank. Tank emptied using a septic tank service provider and correctly disposed of offsite	6.3. Key Areas of Project Influence	Y	Response from Fletchers: <i>2 Septic tanks on site. ST cleaning done 23.5.23 by Thompson.</i>	N
8.3	Any material from demolition that falls to the seabed will be removed during revetment excavation	7.2. Demolition of Existing structures	Y	Removal of debris is ongoing as pile removal proceeds	N
<b>9. Traffic Management</b>					
9.1	Site boundary fully fenced with a controlled gate at the site entrance	6.3. Key Areas of Project Influence	Y	Response from Fletchers: <i>Top of driveway closed outside of working hours. Gateman and barrier arm control during the day.</i>	N
9.2	Signage warning the public of increased truck movements at site entrance and warning to not enter site installed	6.3. Key Areas of Project Influence	Y	Signs in place when access road is opened each day	N

	Item	Location in CEMP	Achieved (Y/N/NA)	Comment	Corrective action required
10.	<b>Flora and Fauna</b>				
10.1	Works stopped when marine mammals or turtles are spotted during dredging activities. Requirement outlined within Work Plan Instruction	7.3. Dredging	NA	Response from Fletchers: <i>Events to be reported by FOV in monthly reports</i>	<i>No marine mammals have been sighted to date</i>
11.	<b>Social and Cultural Risk</b>				
11.1	Protection measures implemented to preserve sacred Banyan Tree to the Southeast of site.	6.3. Key Areas of Project Influence	Y	Site located away from works, but along evacuation route.	N
11.2	Chance finds procedures in place	6.3. Key Areas of Project Influence	Y	Response from Fletchers: <i>Notification for chance finds reporting procedure and records are maintained by FOV HQ</i>	<i>No chance finds to date</i>
11.3	Stakeholders notified of the commencement of dredging	6.3. Key Areas of Project Influence	Y		N
11.4	Workers provided with required health and safety equipment, personal protective equipment (PPE) and training	12. Social Impacts and Community Liaison Plan / GAP	Y	Response from Fletchers: <i>Yes, PPE provided. Training to date incl. First Aid, rigging and slinging, working at height, life jacket use, boatman.</i>	N
11.5	Grievance and Complaints register in place and maintained	12.4. Grievance Redress Mechanism	Y	Response from Fletchers: <i>Yes. Register maintained by CLO (or delegated person)</i>	Y Complaint received about sediment plumes – VPMU addressed this at CLC meeting on 31/10/24
11.6	Monthly Stakeholder / CLC meetings held	12.4. Grievance Redress Mechanism	Y	Held by VPMU, Fletchers invited attend	<i>CLC meeting held on 31 October 2024</i>

	Item	Location in CEMP	Achieved (Y/N/NA)	Comment	Corrective action required
12.	<b>Gender Action Plan</b>				
12.1	Target of at least 30% of labour-based workers women	12. Social Impacts and Community Liaison Plan / GAP	Y	Demonstrated via Fletchers monthly reporting. 2 women employed by Ocean Logistics	N <i>Currently 10.0% female (8/82)</i>
12.2	Project office and facilities provide institutional support for female workers such as separate resting areas and sanitation facilities.	12. Social Impacts and Community Liaison Plan / GAP	Y	Response from Fletchers: <i>Separate sanitation facilities both in the office and onsite.</i>	N
12.3	Contractors provide equal pay for equal work for both male and female workers	12. Social Impacts and Community Liaison Plan / GAP	Y	Response from Fletchers: <i>Currently no comparable roles.</i>	N
12.4	All workers sign relevant Code of Conduct for Preventing Gender-based Violence and Violence against Children.	12.3. HIV/AIDS Prevention including GBV and CAE	Y	Response from Fletchers: <i>Code of Conduct (CoC)</i> <ul style="list-style-type: none"> <li>• <i>all NZ staff signed.</i></li> <li>• <i>FOV Subcontractors have CoC undertakings within their contracts</i></li> </ul>	N
			Y	<i>HIV/AIDS/GBV/CAE training done</i>	N

## APPENDIX B: SOUTH PARAY WHARF WATER QUALITY TEST RESULTS

GOUVERNEMENT  
DE LA  
REPUBLIQUE DU VANUATU  
  
DEPARTEMENT DES RESSOURCES EN  
EAU

SAC POSTAL RÉSERVÉ 9001, PORT VILA  
VANUATU  
TÉLÉPHONE: (678) 33435 / 5333820  
VOIP: 3932



GOVERNMENT  
OF THE  
REPUBLIC OF VANUATU

DEPARTMENT OF WATER RESOURCES

PRIVATE MAIL BAG 9001, PORT VILA  
VANUATU  
TELEPHONE: (678) 33435 / 5333820  
VOIP: 3932

<b>Client</b>	<b>Vanuatu Project Management Unit</b>
<b>Primary Contact</b>	Uravo Nafuki
<b>PO Box</b>	192
<b>Address</b>	Port Vila
<b>Email</b>	unafuki@vanuatu.gov.vu

Sample ID	Sample Name	Sample By	Analysis By	Date of Analysis
BMP01	Sampling Point 1	Gmatariki/Ssimeon	Gmatariki/Ssimeon	25-Sep-24

Ref	Analysis	Results	Unit
III_q	Temperature	25.66	°C
II_f	Conductivity	38.4	mS/cm
III_t	Total Dissolved Solids	24.65	g/L
III_o	Salinity	24.04	ppt
III_m	pH	8.23	-
II_h	Dissolved Oxygen (DO)	9	%
III_x	Turbidity	1.6	NTU
III_c	Enterococci	2	CFU/100mL
III_z	Depth	5.891	mbs

Sample ID	Sample Name	Sample By	Analysis By	Date of Analysis
BMP02	Sampling Point 2	Gmatariki/Ssimeon	Gmatariki/Ssimeon	25-Sep-24

Ref	Analysis	Results	Unit
III_q	Temperature	25.64	°C
II_f	Conductivity	38.4	mS/cm
III_t	Total Dissolved Solids	24.66	g/L
III_o	Salinity	24.05	ppt
III_m	pH	8.23	-
II_h	Dissolved Oxygen (DO)	102.7	%
III_x	Turbidity	1.7	NTU
III_c	Enterococci	9	CFU/100mL
III_z	Depth	5.65	mbs

Address Port Vila  
 Email unafuki@vanuatu.gov.vu

Sample ID	Sample Name	Sample By	Analysis By	Date of Analysis
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Sample ID	Sample Name	Sample By	Analysis By	Date of Analysis
BMP03	Sampling Point 3	Gmatariki/Ssimeon	Gmatariki/Ssimeon	25-Sep-24

Ref	Analysis	Results	Units
III_q	Temperature	25.66	°C
II_f	Conductivity	38.4	mS/cm
III_t	Total Dissolved Solids	24.65	g/L
III_o	Salinity	24.04	ppt
III_m	pH	8.23	-
II_h	Dissolved Oxygen (DO)	102.9	%
III_x	Turbidity	2.6	NTU
III_c	Enterococci	3	CFU/100mL
III_z	Depth	5.823	mbs

Sample ID	Sample Name	Sample By	Analysis By	Date of Analysis
BMP04	Sampling Point 4	Gmatariki/Ssimeon	Gmatariki/Ssimeon	25-Sep-24

Ref	Analysis	Results	Units
III_q	Temperature	25.68	°C
II_f	Conductivity	38.42	mS/cm
III_t	Total Dissolved Solids	24.65	g/L
III_o	Salinity	24.04	ppt
III_m	pH	8.23	-
II_h	Dissolved Oxygen (DO)	102.9	%
III_x	Turbidity	2.5	NTU
III_c	Enterococci	4	CFU/100mL
III_z	Depth	5.499	mbs

**Address** Port Vila  
**Email** unafuki@vanuatu.gov.vu

Sample ID	Sample Name	Sample By	Analysis By	Date of Analysis
-----------	-------------	-----------	-------------	------------------

CT 01	Control Point	Gmatariki/Ssimeon	Gmatariki/Ssimeon	25-Sep-24
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Ref	Analysis	Results	Units
III_q	Temperature	26.63	°C
II_f	Conductivity	53.78	mS/cm
III_t	Total Dissolved Solids	34.97	g/L
III_o	Salinity	36.48	ppt
III_m	pH	8.38	-
II_h	Dissolved Oxygen (DO)	94.9	%
III_x	Turbidity	0.11	NTU
III_c	Enterococci	6	CFU/100mL
III_z	Depth	3.12	mbs



Pre-defined Monitoring Point	*Longitude	*Latitude
BMP 01 – Sampling Point 1	168°18'22.84"E	17°45'7.91"S
BMP 02 - Sampling Point 2	168°18'28.04"E	17°45'9.10"S
BMP 03 - Sampling Point 3	168°18'34.07"E	17°45'14.82"S
BMP 04 - Sampling Point 4	168°18'34.81"E	17°45'19.90"S
CT ( Control Point ) 01	168°30'34.04"E	17°74'23.37"S

\* Estimated location, Source: Google Earth, 2022

  
 George MATARIKI  
 WATER QUALITY OFFICER

  
 Brooks RAKAU  
 MANAGER, MONITORING &  
 UNIT



## APPENDIX C: 36 MONTH POST CORAL TRANSLOCATION REPORT

### Vanuatu Interisland Shipping Support Project

### Report on 36-month and final monitoring of Marine Fauna Relocated from South Paray Wharf Report



Prepared by Dr. Christina Shaw, Vanuatu Environmental  
Science Society (VESS)

November 2024



## Summary

This report details the results of the fifth and final monitoring event for the corals translocated from the Paray Wharf construction site. The monitoring event took place in November 2024, 36 months after the translocation. Corals were located, measured, assessed for live coral coverage and photographed. The results of the monitoring were compared with the baseline established at the time of the translocation and subsequent monitoring events.

Unfavourable conditions continued over the last 12 months, particularly with respect to water quality and half the corals that survived to 24 months either perished or could not be found during this monitoring. However, 10% (15 colonies) of the corals translocated to the Iririki site have survived and the coral coverage of those that did survive was 75%.

The number of coral colonies growing was not as high as previous monitoring events with only 27% of the corals having increased in size compared to 39% a year ago. The reduction on growth and coral cover may be a reflexion of the corals being less resilient after being damaged in 2023 and the continued poor water quality.

Many sea cucumbers were encountered during the monitoring events, including the vulnerable curryfish. The translocation of the cucumbers from the wharf construction site is likely to have contributed to this population.

The original translocation plan was to relocate at least 10 *Lobophyllia hemprichii* and 20 acropora colonies. With all translocations, survival is not expected to be 100%. Many more colonies were moved than the recommended 30. The number of corals that have survived represent more than 47% of the recommended number of corals to move and therefore, despite the unfavourable conditions and the high attrition rate, the translocation to the Iririki site can still be seen as a success. More than 80% of the recommended number to be translocated survived to 2 years after translocation and in that time could have spawned and reproduced. Also, the fragments from the acropora species that were physically damaged may have survived and formed a new colony in a close by location. The one leather coral that was translocated has survived and new colonies were found at this monitoring event close to the original colony, indicating that the coral had reproduced. It would be reasonable to assume that some other coral species may have also reproduced since translocation.

The translocation to the Iririki site was partially successful. The translocation to the Seafront site was a failure, proving that using two recipient sites was prudent. Also translocating more colonies than recommended in the plan, likely improved the chances of any of the corals surviving. Considering that control corals that were being monitored fared the same fate as the translocated corals, it is most likely the conditions at the site contributed to the demise of many corals rather than the translocation. In conclusion, the corals that were translocated to the Iririki recipient site are likely to have contributed to the biodiversity and natural habitat of the Port Vila Harbour and some are continuing to do so.

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Figure 1: Translocated corals and sea cucumber: Left: A *Lobophyllia hemprichii*. Middle: corymbose coral with fish assemblages. Right: curryfish sea cucumber.

## Abbreviations

DEPC	Department of Environmental Protection and Conservation
EMP	Environmental Management Plan
EP	Environmental Permit
IEE	Initial Environmental Examination
IUCN	International Union for the Conservation of Nature
MFRMP	Marine Fauna Relocation Management Plan
VESS	Vanuatu Environmental Science Society
VPMU	The Vanuatu Project Management Unit

## Introduction

The Vanuatu Project Management Unit (VPMU) has been granted an Environmental Permit (EP) by the Department of Environmental Protection and Conservation (DEPC) for the Construction and Completion of the Existing South Paray Wharf, Port Vila, Efate. A key condition of the EP is that the Environmental Management Plan (EMP) of the Initial Environmental Examination (IEE), submitted to the DEPC as part of the EP application, must be fully adhered to. The proposed work at this site could significantly impact marine life and the IEE recommends that stony coral, soft coral, anemones and sea cucumbers are relocated from the wharf site to recipient reef sites. The Marine Fauna Relocation Management Plan (MFRMP) was prepared prior to commencement of construction works and includes a monitoring plan to assess the effectiveness of the relocation over a 3-year period following the translocation. The monitoring protocol has been designed to detect changes in coral health condition and survivorship from time of out-planting to the next monitoring event. The translocation took place in October 2021. Monitoring commenced with collection of baseline data at the time of transplanting, the results of which were included in the Marine Fauna Relocation from South Paray Wharf Report submitted to the PVMU in November 2021. The plan states that four further monitoring events are required (at 6 months, 1 year, 2 years and 3 years). The second, third and fourth monitoring event were conducted in April 2022 and October 2022 and November 2023, respectively and reported to VPMU. This document is a report on the results of the fifth and final monitoring event undertaken 36 months after the relocation.

## Relocation sites

Two locations were identified as recipient sites for the translocated fauna in the MFRMP: Iririki Reef and the Seafront.

All the marine organisms moved during this project were relocated at these sites. Over 200 coral colonies and fragments were moved during the project. The water clarity and quality appeared to be better at the Iririki Reef site. More Crown-of-thorn-starfish were found at the Seafront site. As such it was deemed that the survival of the coral would likely be higher at the Iririki Reef site. For this reason, more of the corals were moved to the Iririki Reef site. 40 coral colonies and fragments were moved to the Seafront site and 152 to the Iririki Reef site.



Figure 2: Google Earth map of the seafront translocation site.

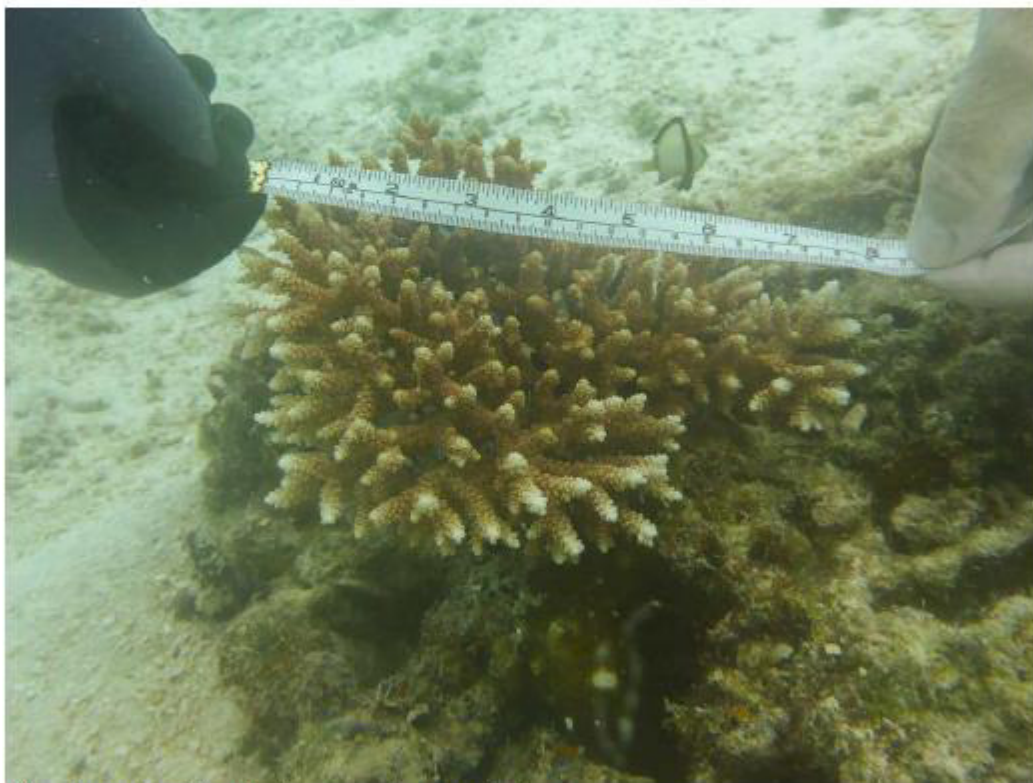


Figure 3: Google Earth map of the Iririki Reef translocation site.

## Monitoring Methodology

Divers located the relocations sites using natural navigation and knowledge of the sites. A GPS was on hand if needed. At the time of translocation all out planted and control corals were demarcated by nailing numbered aluminium tags into adjacent substrate. During monitoring events divers can identify coral colonies using the markers on the coral colonies. The location of the transplanted coral colonies within the footprint of the recipient site at Iririki was also recorded with respect to the transect lines. Maps were drawn of the corals in relationship to each other and recognisable

underwater features. At the Seafront translocation site, a central GPS location was recorded, and the coral planted within a 10m by 16m area around this location. After a coral colony was identified, the tag number, size, and health condition (percentage cover of live tissue cover and any bleaching) of the transplanted and resident control coral colonies was recorded on dive slates. Size measurements of colonies were collected using measuring tape. The length of the coral colonies was measured at the widest part of the colony and the width taken perpendicular to this. Height was measured from the attachment to the substrate to the tallest part of the coral in a straight line perpendicular to the substrate. Photographs of each monitored coral colony were taken to compare to the baseline photographs. Once the divers had surfaced the slates with the data were photographed and were given to VESS to be entered into the excel spreadsheet database.



*Figure 4: member of the dive team measuring a coral colony.*

The location of some of the coral colonies was made difficult as the metal tags had been lost. Some appeared to have been attacked by fish. Others appear to have been lost as the nails became loose in the rock substrate. Since the translocation rainfall and therefore run-off from the land has been higher than usual, resulting in more sediment being deposited over the translocation site than at the time of out planting. This has covered some of the labels, again making the corals hard to identify. Algae was also found to be growing over some labels obscuring them. Since the 24-month

monitoring event, more labels have been lost. In addition, and at the southern portion of the Iririki site, the sand substrate appeared to have been shifted, most likely by storm events or by tidal activity over time, and the rocks where corals had been planted, or whole rocks that were moved, have been covered with sand, smothering the corals and burying the labels. Where the labels were not obvious, where possible, the corals were identified from the maps which showed the relationship to other identifiable coral colonies and using the photographs from the time of translocation and first monitoring events printed on waterproof paper and taken on the dives. Some coral colonies were identified using these methods but there were some that could not be found.

## Conditions since the translocation

It was noted at the time of the translocation that the area of the project footprint, the donor site, has high sediment and higher nutrient load. This coupled with the fact that many of the coral colonies were young and small (because they are newly recruited after the disturbance caused by the previous construction activities in this location), made it likely the corals were not as healthy as colonies in less polluted locations. As indicated by the presence of COTS during the translocation event, the risk of predation by these starfish was very real, particularly for the seafront location. The donor sites are also within the harbour and suffer from poorer water quality than reefs further from urban areas. Therefore, the survival rate of the coral after translocation was not expected to be as high as if they were taken from healthy coral habitats, where there is no COTS outbreak.

The conditions at the translocation sites have been unfavourable since the corals were out planted. There have been multiple tropical cyclones, including two category 4 cyclones 3 days apart in March 2023 and the eruption of the Hunga Tonga–Hunga Ha'apai volcano in Tonga which caused a tsunami in 2022. A significant and prolonged coral bleaching episode from November 2022 to April 2023 resulted in coral mortality in the Mele Bay area. The majority of the time since the out-planting a La Niña weather pattern has been in force resulting in higher-than-average rainfall. This increases run-off from the land causing more sedimentation and increased turbidity in the water affecting coral growth and health. More overcast days reduces the sunlight getting to the corals. Since the last monitoring event (at 24 months), there have not been any cyclones, however there has been some shifting of the sandy substrate, most likely by storms and tides, at the southern end of the Iririki translocation site, burying some of the translocated corals. The water quality has remained poor at the site.

## Results

### Corals

Over 200 coral colonies and fragments were translocated during the project. 171 were tagged for monitoring at the Iririki site and 40 at the Seafront site. The number of corals moved far exceeded the minimum number stated in the MFRMP which followed

the recommendations in the IEE. The MFRMP stated that a minimum of 30 coral colonies should be translocated (10 colonies of *Lobophyllia hemprichii* and 20 colonies of various *Acropora spp.*).

24 coral colonies have been identified as “control” corals. 20 of those are located at the Iririki Reef translocation site and 4 at the seafront site. The coral colonies that were translocated and tagged for monitoring, as well as the resident corals tagged as controls are listed in the table in annex A.

#### Iririki Site

Since the last monitoring event there has been more mortality at the Iririki site which is not unexpected given many of the corals were that had survived until then, were damaged in 2023. Half of the corals that were still alive at 24 months post-translocation have perished in the last year or could not be found at this monitoring event. The survival rate of the translocated specimens at the Iririki site from the time of translocation to 36 months after was 10% (15 out of 151 coral colonies). Two *Lobophyllia hemprichii*, 9 colonies of various *Acropora spp.* and 3 of other types have survived 36 months after translocation. Two clams were also moved and have survived. Sixty of the corals were not found because of missing or covered tags and some of these corals may also have survived. If all these not-found corals had survived, the survival rate would increase to 50%. However, it is more likely that these corals suffered a similar fate if not worse fate than the coral colonies that were found and perhaps only a few more have survived.

None of the control corals were found alive. Eleven out of the 20 were either dead or missing from their known location. Another 9 of the control colonies could not be found. If the un-found corals had survived, the survival rate would have remained at 45%. Although different species were represented in the control group, the lower survival rate compared to the translocated corals may be due to a higher proportion of the corymbose coral morphology, which appeared to be more impacted than the other growth forms in both the control coral and the translocated coral groups.

About half the surviving corals (7 out of 15) have lost coral cover in the last 12 months. The percentage coral cover has dropped to 75%. In every other monitoring period, it has been over 85%. Also, the number of coral colonies growing was not as high as previous monitoring events with only 27% of the corals having increased in size compared to 38% a year ago and 57% in 2022. 40% coral colonies were stable in size and five of the 15 coral colonies (33%) were recorded as having lost size compared to one a year before. The reduction on growth and coral cover may be a reflexion of the corals being less resilient after being damaged in 2023 and the continued poor water quality. No crown-of-thorns-starfish (COTS) nor the scars they typically leave on predated corals were encountered during the monitoring event.



Figure 5: Half of the 15 the corals that survived to 36 months post-translocation have good live coral coverage.



Figure 6: Some corals have lost coral coverage such as this lobophyllia (left) and some have suffered physical damage and lost size like this acropora (right), although this one has retained good coral cover on the remaining branches.

The original translocation plan was to relocate at least 10 *Lobophyllia hemprichii* and 20 acropora colonies. With all translocations, survival is not expected to be 100%. Many more colonies were moved than the recommended 30. The number of corals that have survived represent more than 47% of the recommended number of corals to move and therefore, despite the unfavourable conditions and the high attrition rate, the translocation to the Iririki site can still be seen as a success to date. More than 80% of the recommended number to be translocated survived to 2 years after translocation and in that time could have spawned and reproduced. Also, the fragments from the acropora species that were physically damaged may have survived and formed a new colony in a close by location. The one leather coral that was translocated has survived and new colonies were found at this monitoring event close to the original colony, indicating that the coral had reproduced. As there are no other leather corals in that particular location, the translocated coral colony is very likely the source of the new colonies. As there are naturally occurring corals of similar species to the other corals that were moved, throughout the translocation site, it is much harder to know the origin of any new colonies but would be reasonable to assume that some of them might be.



*Figure 7: The translocated leather coral colony at six months post translocation (left) and at 36 months post translocation (right). In the photo on the right new leather coral colonies can be seen in the foreground.*

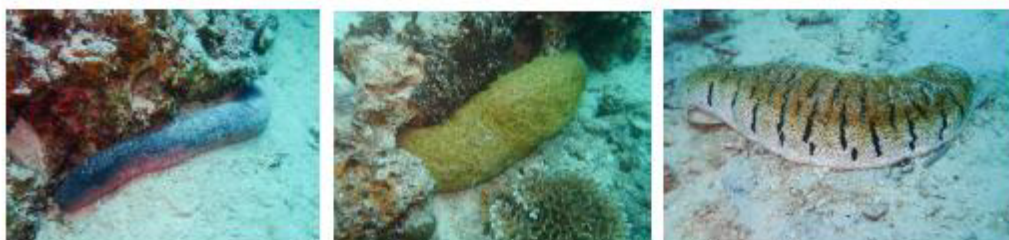
The monitoring data can be found in Annex A. Annex B contains photos of each translocated coral colony and the control colonies, at the time of translocation. Corresponding photos of corals that survived at the 36-month monitoring are shown alongside the original photos. For those corals that did not survive or could not be found, their fate and the time it was established is noted beside the original photo.

#### Seafront Site

No translocated coral or control corals survived to 24 months post-out-planting. This donor site was a failure. The mostly likely reasons for the failure were the water quality (high freshwater and sediment in run off from the land) and predation by crown-of-thorns-starfish.

#### Sea cucumbers

Because sea cucumbers are mobile species and can shift between habitats of their preference it was not recommended to monitor sea cucumbers at the release site as it may not reflect their actual status. Despite not being a requirement in the monitoring plan, the dive team noted that many sea cucumbers were found during the monitoring event in the Iririki translocation site. Figure 8 shows photos of sea cucumbers taken during this monitoring event.



*Figure 8: Sea cucumbers seen during monitoring event including the vulnerable curryfish.*

## Threatened Species

### *Vulnerable species:*

One colony of *Acropora echinate* was identified during the marine assessment of the wharf project site. This species is listed as vulnerable on the IUCN red List of Threatened species. Therefore, the divers were instructed to look out for and move the “bottlebrush” type coral species that could be *A. echinate* during the translocation. 5 colonies of *Acropora echinate* were moved to the recipient site. 4 of the 5 specimens have survived to twelve months post translocation. However, none were found alive at the 24-month and the 36-month monitoring event. It is possible one or more may have survived but lost the label, but this cannot be confirmed. It is also possible as 4 survived to 12 months that they could have spawned and reproduced in that time and new colonies could have grown close to the relocation site. However, this also, cannot be verified.

Fourteen curryfish sea cucumbers (*Stichopus hermanni*), assessed as vulnerable, were collected from the project footprint and translocated to the Iriki Reef recipient site. Sea cucumbers are not being monitored as they are mobile animals. Several large curryfish were seen at the Iriki translocation site during the monitoring event.

## Corrective action to mitigate threats

No COTS were encountered during this monitoring event.

## Plan for continued monitoring

This was the final monitoring event is for this project.

Annex A: Data from 36-month monitoring event for each translocated and control coral colony at the Iririki site compared to time of translocation. The colonies in bold were either still alive or their fate has changed since the 24-month monitoring event.

## Translocated corals – Iririki Site

Tag number	Coral type	Taxonomic identification	Attachment method	At time of translocation				At 36-month monitoring event				
				Length (cm)	Width (cm)	Height (cm)	% live cover	Status	Length (cm)	Width (cm)	Height (cm)	% live coral cover
34	Submassive	<i>Lobophyllia hemprichii</i>	Cement	8	5		95	Missing @ 12 months				
35	Corymbose	<i>Acropora millepora</i>	Cement	24	20	10	98	Missing @ 12 months				
<b>36</b>	Submassive	<b><i>Lobophyllia hemprichii</i></b>	Cement	<b>19</b>	<b>10</b>	<b>8</b>	<b>60</b>	<b>Alive</b>	<b>19</b>	<b>17</b>	<b>13</b>	<b>10</b>
37	Staghorn	<i>Acropora parilis</i>	Wooden wedge	4	1	4	95	Missing @ 12 months				
38	Staghorn	<i>Acropora muricata</i>	Wooden wedge	2	2	4	40	Missing @ 12 months				
	Staghorn	<i>Acropora muricata</i>	Wooden wedge	2	2	12	30	Missing @ 12 months				
	Staghorn	<i>Acropora muricata</i>	Wooden wedge	1	1	7	90	Missing since last monitoring				
	Staghorn	<i>Acropora muricata</i>	Wooden wedge	1	1	11	90	Missing @ 12 months				
39	Staghorn	<i>Acropora parilis</i>	Wired	9	3	8	85	Dead at 24 months				

<b>40</b>	Corymbose	<i>Acropora selago</i>	Cement	<b>26</b>	<b>20</b>	<b>16</b>	<b>95</b>	<b>Not found at 36 months</b>				
41	Corymbose	<i>Acropora selago</i>	Cement	15	10	7	80	Dead @ 12 months				
42	Corymbose	<i>Acropora rosaria</i>	Cement	20	15	12	85	Dead @ 12 months				
43	Corymbose	<i>Acropora subulata</i>	Cement	34	24	12	80	Dead @ 12 months				
44	Corymbose	<i>Acropora selago</i>	Cement	4	4	3	95	Dead @ 12 months				
<b>45</b>	Porites	<i>Porites sp.</i>	Cement	<b>11</b>	<b>9</b>	<b>9</b>	<b>85</b>	<b>Alive (no measurements taken)</b>				
<b>46</b>	submassive	<b><i>Lobophyllia hemprichii</i></b>	Cement	<b>11</b>	<b>14</b>	<b>14</b>	<b>95</b>	<b>Not found at 36 months</b>				
47	Corymbose	<i>Acropora subulata</i>	Cement	13	15	12	11	Dead @ 12 months				
<b>48</b>	Corymbose	<b><i>Acropora subulata</i></b>	Cement	<b>14</b>	<b>16</b>	<b>11</b>	<b>8</b>	<b>Not Found at 36 Months</b>				
<b>49</b>	Submassive	<b><i>Lobophyllia hemprichii</i></b>	Cement	<b>13</b>	<b>13</b>	<b>9</b>	<b>65</b>	<b>Not Found at 36 Months</b>				
50	Submassive	<i>Porites sp.</i>	Cement	5	3		90	Missing				
	Submassive	<i>Porites sp.</i>	Cement	2	1		90	Missing				
	Submassive	<i>Porites sp.</i>	Cement	2	2	3	80	Missing				
51	Branching	<i>Acropora carduus</i>	Cement	12	11	17	90	Not found @ 12 months				
52	Branching	<i>Acropora echinata</i>	Cement	18	17	13	95	Dead at 24 months				
53	Corymbose	<i>Acropora subulata</i>	Cement	24	15	14	95	Dead @ 12 months				
<b>54</b>	Submassive	<b><i>Lobophyllia hemprichii</i></b>	Cement	<b>12</b>	<b>13</b>		<b>85</b>	<b>Not Found at 36 months</b>				

55	Submassive	<i>Lobophyllia hemprichii</i>	Cement	13	12		75	Dead at 24 months.			
56	Corymbose	<i>Acropora subulata</i>	Cement	13	12	7	95	Dead @ 12 months			
57	Porites	<i>Porites sp.</i>	Cement	12	12	9	30	Not found @ 24 months			
58	Branching	<i>Acropora echinata</i>	Cement	4	4	5	100	Not found @ 12 months			
59	Branching	<i>Acropora selago</i>	Cement	5	5	6	95	Not found @ 12 months			
	Branching	<i>Acropora subulata</i>	Cement	4			95	Not found @ 12 months			
60		<i>Lobophyllia hemprichii</i>	Cement	12	9		80	Missing @ 12 months			
61	Porites	<i>Porites sp.</i>	Cement	6	4	3	60	Not Found at 36 Months			
	Massive	<i>Astreopora myriophthalma/ocellata</i>	Cement	11	8	6	70	Not Found at 36 Months			
	Massive	<i>Porites sp.</i>	Cement	5			40	Missing @ 12 months			
63	Submassive	<i>Lobophyllia hemprichii</i>	Cement	9	7	4	40	Missing @ 12 months			
64	Submassive	<i>Lobophyllia hemprichii</i>	Cement	13	11	8	70	Not Found at 36 Months			
65	Branching	<i>Acropora echinata</i>	Cement	24	17	23	85	Missing at 24 Months			
66	Corymbose	<i>Acropora subulata</i>	Cement	9	6	11	95	Not Found at 36 Months			
67	Branching	<i>Acropora echinata</i>	Cement	2	2	4	95	Not found at 24 months			
68	Staghorn	<i>Acropora muricata</i>	Wooden wedge	20	14	12	95	Dead at 24 months			

69	Staghorn	<i>Acropora muricata</i>	Wooden wedge	4	3	9	95	Dead at 24 months				
70	Massive	<i>Astreopora</i>	Cement	8	4	5	50	Dead @ 12 months				
71	Massive	<i>Astreopora</i>	Cement	12	5	5	50	Deas @ 12 months				
73	Corymbose	<i>Acropora selago</i>	Cement	9	4	8	80	Missing at 24 months				
74	Corymbose	<i>Acropora millepora</i>	Cement	21	18	14	90	Dead @ 12 months				
75	Submassive	<i>Lobophyllia hemprichii</i>	Cement	13	8		90	Not found at 24 months				
76	Branching	<i>Acropora selago</i>	Cement	5	4	7	80	Dead @ 12 months				
78	Corymbose	<i>Acropora subulata</i>	Cement	7	7	8	95	Dead @ 12 months				
79	Corymbose	<i>*acropora carduus</i>	Cement	16	10	10	95	Dead @ 12 months				
80	Corymbose	<i>Acropora selago</i>	Cement	20	8	8	95	Dead @ 12 months				
81	Corymbose	<i>Acropora subulata</i>	Cement	20	19	10	60	Missing @ 12 months				
82	Corymbose	<i>Acropora subulata</i>	Cement	8	5	8	100	Dead @ 12 months				
	Corymbose	<i>Acropora subulata</i>	Cement	8	3	8	90	Dead @ 12 months				
83	Corymbose	<i>Acropora subulata</i>	Cement	8	7	5	95	Alive	17	16	15	100
84	Branching	<i>Acropora longicyathus</i>	Cement	22			85	Alive	35	17	24	80
85	Corymbose	<i>Acropora subulata</i>	Cement	11	11	12	90	Alive	10	8	6	60

86	Massive	<i>Lobophyllia hemprichii</i>	Cement	22	20	15	85	Alive	24	22	19	70
87	Corymbose	<i>Acropora subulata</i>	Cement	23	16	11	95	Missing @ 12 months				
88	Branching	<i>Acropora parilis</i>	?	no measurements taken initially				Not found @ 12 months				
89	Branching	<i>Acropora muricata</i>	Wired	no measurements taken initially				Not found @ 12 months				
90	Corymbose	<i>Acropora selago</i>	Cement?	no measurements taken initially				Not found at 24 months				
91	Staghorn	<i>Acropora muricata</i>	Wired and cement	25	19	26	90	Dead at 24 months				
92	Porites	<i>Porites sp.</i>	Whole rock moved	28	28		90	Alive	37	26	14	100
93	Giant Clam	<i>Tridacna gigas</i>	Whole rock moved	14				Alive	16			
	Giant Clam	<i>Tridacna gigas</i>		13				Alive	14			
94	Corymbose	<i>Acropora subulata</i>	Cement	9	7	6	100	Dead @ 12 months				
95	Corymbose	<i>Acropora subulata</i>	Cement	11	5	12	95	Missing @ 12 months				
96	Corymbose	<i>Acropora subulata</i>	Cement	8	7	5	90	Missing @ 12 months				
97	Corymbose	<i>Acropora millepora</i>	Cement	33	25	12	100	Not found @ 12 months				
98	Staghorn	<i>Acropora muricata</i>	Wooden wedge	11	6	11	90	Missing @ 12 months				
	Staghorn	<i>Acropora muricata</i>	Wooden wedge	7	5	12	90	Missing @ 12 months				
	Staghorn	<i>Acropora muricata</i>	Wooden wedge	3	3	5	90	Missing @ 12 months				

99	Corymbose	<i>Acropora selago</i>	Cement	7	6	5	100	Missing at 12 months Possibly re-found at 24 months. Not found at 36 months.				
100	Corymbose	<i>Acropora subulata</i>	Cement	9	7	7	100	Missing @ 12 months				
101	Staghorn	<i>Acropora robusta</i>	Wired	33	29	37	90	Dead at 24 months				
	Branching	<i>Acropora muricata</i>	Whole rock moved	15	11		100	Missing @ 12 months				
102	Massive	<i>Lobophyllia hemprichii</i>	Whole rock moved	2	3		80	Not found at 24 months				
103	Corymbose	<i>Acropora subulata</i>	Whole rock moved	33	24	14	98	Dead @ 12 months				
	young massive	<i>Lobophyllia hemprichii</i>	Whole rock moved					Dead @ 12 months				
	young massive	<i>Lobophyllia hemprichii</i>	Whole rock moved					Dead @ 12 months				
104	Staghorn	<i>Acropora muricata</i>	Wired	46	35	25	90	Missing @ 12 months				
106	Corymbose	<i>Acropora rosaria / Acropora subulata</i>	Cement	33	26	9	90	Missing @ 12 months				
111	Branching	<i>Acropora parilis</i>	Whole rock moved	6	4	4	95	Not found @ 12 months				
	Encrusting	<i>Porites astreoides</i>	Whole rock moved	19	13		70	Not found @ 12 months				
112	Corymbose	<i>Acropora subulata</i>	Whole rock moved	7	6	3	95	Not found at 24 months				
113	Staghorn	<i>Acropora muricata</i>	Wooden wedge	23	16	16	90	Not found at 24 months				

114	Leather coral	<i>Sinularia sp.</i>	Wired	15	12	21	70	Alive	24	13	10	100
115	Branching	<i>Acropora carduus</i>	Cement	15	12	14	95	Alive	30	24	22	80
116	Staghorn	<i>Acropora parilis</i>	Wooden wedge	15	3	13	95	Not found @ 12 months				
117	Submassive	<i>Lobophyllia hemprichii</i>	Cement	7	5		85	Not found at 36 months				
	Submassive	<i>Lobophyllia hemprichii</i>	Cement	6	5		85	Dead at 24 months				
118	Massive	<i>Lobophyllia hemprichii</i>	Cement	12	10		95	Dead @ 12 months				
119	Staghorn	<i>Acropora muricata</i>	Wooden wedge	23	20	22	80	Not found at 36 months				
120	Corymbose	<i>Acropora subulata</i>	Cement	10	9	8	95	Missing @ 12 months				
121	Staghorn	<i>Acropora muricata</i>	Wooden wedge	1	1	4	90	Missing @ 12 months				
	Staghorn	<i>Acropora muricata</i>	Wooden wedge	3	1	4	90	Missing at 24 months				
	Staghorn	<i>Acropora muricata</i>	Wooden wedge	3	1	2	65	Missing @ 12 months				
	Staghorn	<i>Acropora muricata</i>	Wooden wedge	6	3	5	90	Missing at 24 months				
	Massive	<i>Porites sp.</i>	Cement	4	4	3	90	Dead @ 12 months				
122	Corymbose	<i>Acropora selago</i>	Wooden wedge	8	4	7	90	Missing @ 12 months				
123	Staghorn	<i>Acropora muricata</i>	Cement	17	15	12	80	Alive	20	17	17	35
124	Staghorn	<i>Acropora muricata</i>	Wooden wedge	10	3	13	95	Missing @ 12 months				

125	Branching	<i>Acropora longicyathus</i>	Whole rock moved	19	16	12	90	Not found @ 12 months				
	Branching	<i>Pocillopora damicornis</i>	Whole rock moved	9	5		85	Not found @ 12 months				
126	Corymbose	<i>Acropora subulata</i>	Cement	11	10	6	95	Missing @ 12 months				
127	Massive	<i>Lobophyllia hemprichii</i>	Whole rock moved	11	9		90	Missing @ 12 months				
	Massive	<i>Lobophyllia hemprichii</i>	Whole rock moved	17	15		85	Not found at 24 months				
	Massive	<i>Lobophyllia hemprichii</i>	Whole rock moved	23	13		80	Not found at 24 months				
	Massive	<i>Astreopora</i>	Whole rock moved	6	5		70	Missing @ 12 months				
	Branching	<i>Acropora longicyathus</i>	Whole rock moved	7	5	4	98	Missing @ 12 months				
128	Corymbose	<i>Acropora echinata</i>	Whole rock moved	22	18	7	95	Not found at 24 months				
	Branching	<i>Acropora subulata</i>	Whole rock moved	22	9	18	95	Missing @ 12 months				
	Young massive	<i>Lobophyllia hemprichii</i>	Whole rock moved	9	8		80	Not found at 24 months				
130	Corymbose	<i>Acropora subulata</i>	Wooden wedge	13	2	6	90	Missing at 24 months				
131	Corymbose	<i>Pocillopora damicornis</i>	Nailed	11	8	9	95	Dead @ 12 months				
132	Staghorn	* <i>Acropora parilis</i>	Wooden wedge	12	7	9	95	Alive	39	19	24	80
133	Corymbose	<i>Acropora subulata</i>	Wooden wedge	3	2	5	95	Dead @ 12 months				

134	Staghorn	<i>Acropora muricata</i>	Wooden wedge	2		7	95	Missing @ 12 months				
135	Staghorn	<i>Acropora muricata</i>	Wooden wedge	5	4	10	90	Not found at 24 months				
136	Corymbose	<i>Acropora subulata</i>	Wooden wedge	7	6	9	90	Not found at 24 months				
137	Staghorn	<i>Acropora parilis</i>	Wooden wedge	15	8	4	90	Dead @ 12 months				
138	Corymbose	<i>Acropora subulata</i>	Cement	14	14	13	90	Alive	10	7	7	100
139	Corymbose	<i>Acropora subulata</i>	Wooden wedge	9	7	7	95	Missing @ 12 months				
140	Corymbose	<i>Acropora subulata</i>	Wooden wedge	8	3	9	80	Alive	22	16	8	
	Corymbose	<i>Acropora subulata</i>	Wooden wedge	6	4	3	80	Not found at 24 months				
	Corymbose	<i>Acropora subulata</i>	Wooden wedge	3	3	5	80	Missing @ 12 months				
141	Corymbose	<i>Acropora subulata</i>	Cement	28	26	11	80	Not found at 24 months				
142	Corymbose	<i>Acropora subulata</i>	Whole rock moved	18	11	11	100	Not found at 36 months				
143	Branching	<i>Acropora longicyathus</i>	Whole rock moved	12	7	17	80	Not found at 24 months				
144	Massive	<i>Lobophyllia hemprichii</i>	Whole rock moved	24	19		60	Missing				
	Corymbose	<i>Acropora subulata</i>	Whole rock moved	21	16	8	100	Missing				
145	Staghorn	<i>Acropora robusta</i>	Whole rock moved	27	17	15	75	Not found @ 12 months				

146	Branching	<i>Acropora longicyathus</i>	Cement	26	20	16	85	Alive	30	25	25	95
147	Staghorn	<i>Acropora muricata</i>	Wired	13		15	80	Not found @ 12 months				
148	Staghorn	<i>Acropora muricata</i>	Wired and cement	42	32	30	80	Alive	29	17	26	40
149	Branching	<i>Acropora selago</i>	Wired	12	9	9	95	Not found at 24 months				
150	Branching	<i>Acropora subulata</i>	Cement	22	19	14	85	Not found @ 12 months				
151	Staghorn	<i>Acropora muricata</i>	Wooden wedge	3	5	13	98	Not found at 24 months				
	Staghorn	<i>Acropora muricata</i>	Wooden wedge	7	5	11	98	Not found at 24 months				
	Staghorn	<i>Acropora muricata</i>	Wooden wedge	6	3	14	98	Missing @ 12 months				
154	Corymbose	<i>Acropora selago</i>	Whole rock moved	10	8	10	100	Not found at 24 months				
	Corymbose	<i>Acropora selago</i>	Whole rock moved	16	11	10	90	Missing @ 12 months				
155	Corymbose	<i>Acropora subulata</i>	Whole rock moved	14	9	5	95	Not found at 24 months				
159	Corymbose	<i>Acropora rosaria</i>	Whole rock moved	14	10	10	80	Not found at 36 months				
	Sub-massive	<i>Lobophyllia hemprichii</i>	Whole rock moved	12	5		85	Missing at 24 months				
	Sub-massive	<i>Lobophyllia hemprichii</i>	Whole rock moved	17	15		90	Not found at 36 months				
161	Staghorn	<i>Acropora muricata</i>	Whole rock moved	16	12	17	45	Not found @ 12 months				










	Massive	<i>Astreopora</i>	Whole rock moved	6	5	3	85	Not found @ 12 months
162	Branching	<i>Acropora subulata</i>	Whole rock moved	13	14	9	100	Not found @ 12 months













## Control corals – Iririki Site











Tag number	Coral type	Taxonomic identification	At time of translocation				At 12- month monitoring event				
			Length (cm)	Width (cm)	Height (cm)	% Live coral cover	Status	Length (cm)	Width (cm)	Height (cm)	% Live coral cover
62	Corymbose	<i>Acropora millepora</i>	18	15	8	100	Missing @ 12 months				
72	Corymbose	<i>Acropora selago</i>	5	5	3	100	Missing @ 12 months				
77	Submassive	<i>Lobophyllia hemprichii</i>	9	8		90	Dead @ 12 months				
105	Corymbose	<i>Acropora subulata</i>	No data from initial monitoring but have photo				Not found at 24 months				
	Massive	<i>Lobophyllia hemprichii</i>	No data from initial monitoring but have photo				Not found at 24 months				
	Massive	<i>Lobophyllia hemprichii</i>	No data from initial monitoring but have photo				Not found at 24 months				
107	Corymbose	<i>Acropora subulata</i>	26	18	14	80	Missing @ 12 months				
108	Submassive	<i>Lobophyllia hemprichii</i>	12	8		85	Dead @ 12 months				















	Submassive	<i>Lobophyllia hemprichii</i>	8	8		80	Dead @ 12 months				
109	Corymbose	<i>Acropora subulata</i>	6	6	8	98	Dead @ 12 months				
110	Branching	<i>Acropora echinata</i>	18	10	11	95	Not found @ 12 months				
129	Branching	<i>Acropora muricata</i>	18	14	15	95	Missing @ 12 months				
152	Corymbose	<i>Acropora subulata</i>	26	23	10	100	Not found @ 12 months				
153	Corymbose	<i>Acropora subulata</i>	6	6	8	95	Not found at 24 months				
156	Corymbose	<i>Acropora selago</i>	17	10	8	95	Dead @ 12 months				
157	Corymbose	<i>Acropora selago</i>	14	10	5	100	Missing @ 12 months				
	Corymbose	<i>Acropora selago</i>	14	11	9	100	Missing @ 12 months				
158	Branching	<i>Acropora selago</i>	10	8	6	95	Not found at 24 months				
160	Branching		18	19	8	100	Not found @ 12 months				
	Staghorn		11	9	11	100	Not found @ 12 months				











## Annex B: Photographs of corals at time of transplant and 36 months later













Seafront Translocation site			
Photos at time of translocation	Photos at 36-month monitoring and status	Photos at time of translocation	Photos at 36-month monitoring and status
	Dead at 6 months		Dead at 6 months
001		002	
	Missing at 6 months		Dead at 6 months
003		004	
	Dead at 6 months		Dead at 6 months
005		006	
	Dead at 6 months		Dead at 6 months
007		008	
	Dead at 6 months		Missing at 6 months
009		010	













	Dead at 6 months		Dead at 6 months
011		013	
	Dead at 6 months		Dead at 6 months
014		015	
	Dead at 6 months		Dead at 6 months
016		017	
	Dead at 6 months		Dead at 24 months
018		019	
	Missing at 6 months		Dead at 6 months
020		021	
	Missing at 6 months		Dead at 6 months
022		023	














	Dead at 6 months		Dead at 6 months
024		025	
	Missing at 6 months		Dead at 6 months
026		027	
	Dead at 6 months		Missing at 6 months
028		029	
	Dead at 6 months		Dead at 6 months
030		031	
	Dead at 24 months		Missing at 6 months
032		033	















Iriki Translocation site			
	Not found / missing at 12 months		Missing at 6 months
034		035	
			Missing at 12 months
036	Alive at 24 months	037	
	Missing at 12 months		Dead at 24 months
038		039	
	Damaged, and bleached at 6 months, regrowth at 24 months. Not found at 36 months.		Dead at 6 months
040		041	
	Dead at 6 months		Dead at 6 months
042		043	
	Dead at 6 months		















044		045	Grew to 12 months, not found at 24 months. Re-found at 36 months.
	Grew to 12 months. Had lost coral cover at 24 months. Not found at 36 months		Dead at 6 months
046		047	
	Not found at 36 months. Alive at 24 months. Damaged and bleached at 6 months		Not found at 36 months. Missing at 6 months, re-found at 24 months.
048		049	
	Two alive, one missing at 6 months. 3 missing at 12 months.		Was damaged but Regrowing at 6 months, not found at 12 months.
050		051	
	Grew to 12 months, dead at 24 months		Dead at 6 months
052	Alive, Grown	053	
	Alive at 24 months. Not found at 36 months.		Grew to 12 months Dead at 24 months
054		055	












	Dead at 6 months		Alive at 12 months, not found at 24 months
056		057	
	Not found at 12 months.		One growing one damaged at 6 months. Not found at 12 months
058		059	
	Not found at 6 months		2 of 3 alive but lost live coral cover at 12 months, 1 stable at 24 months, 1 lost lot more coral cover. Not found at 36 months.
060		061	
	Missing at 12 months. significant damaged at 6 months		Missing at 6 months
062		063	
	Alive at 24 months. Not found at 36 months.		Grew to 12 months. Missing at 24 months
064		065	
	Was damaged and was regrowing at 6 months. Grew to 24 months. Not found at 36 months.		Alive at 12 months, not found at 24 months.
066		067	














	<p>Grew to 12 months. Missing at 24 months</p>		<p>Some branches broken but others grown at 6 months. Alive at 12 months. Dead at 24 months</p>
068		069	
	<p>Dead at 12 months</p>		<p>Dead at 12 months. Bleached at 6 months</p>
070		071	
	<p>Missing at 6 months</p>		<p>Grew to 12 months. Missing at 24 months</p>
072		073	
	<p>Dead at 6 months</p>		<p>Missing at 6 months</p>
074		075	
	<p>Dead at 6 months</p>		<p>Dead at 6 months</p>
076		077	
	<p>Dead at 6 months</p>		<p>Dead at 6 months</p>
078		079	













	Dead at 12 months, damaged at 6 months		Dead at 6 months
080		081	
	Dead at 6 months		
082		083	Alive at 36 months.
			
084	Grown at 24 months. Alive at 36 months.	085	Damaged and regrowing at 6 months. Alive at 24 months and at 36 months.
			Missing at 6 months
086	Alive at 24 months	087	
No original photo or measurement	Damaged with regrowth at 6 months. Not found at 12 months	No original photo or measurement	Alive at 6 months. Not found at 12 months
088		089	
No original photo or measurement	Alive and grew to 12 months, not found at 24 months.		Significant loss of live coral cover at 12 months, dead at 24 months
090		091	












			
092	Alive, Stable at 36 months	093	Alive, Stable at 24 months
	Dead at 6 months		Missing at 6 months
094		095	
	Not found at 6 months		Not found at 6 months
096		097	
	Missing at 6 months		Missing at 6 months, possibly re-found at 24 months. Not found at 36 months.
098		099	
	Missing at 6 months		Grew to 12 months, dead at 24 months
100		101	
	Alive and Stable to 12 months. Not found at 24 months		Not found at 12 months
102		103	





	Missing at 12 months. Significant damage with only one branch fragment attached and at 6 months		Alive and stable to 12 months. Missing at 24 months.
104		105	
	Missing at 6 months		Missing at 6 months
106		107	
	Dead at 6 months		Dead at 6 months
108		109	
	Not found at 6 months		Missing at 6 months
110	Not found	111	Not found
	Grew to 12 months, not found at 24 months		Alive at 24 months. Not found at 36 months.
112		113	
			

114	Alive, Stable and reproduced at 36 months	115	Alive, Grew to 24 months. Damaged but alive at 36 months.
	Grew to 6 months. Missing at 12 months		Grew to 12 months. 1 dead at 24 months.
116		117	
	Grew to 6 months. Dead at 12 months.		Grew to 24 months. Not found at 36 months.
118		119	
	Missing at 6 months		Alive, Grown at 12 months. Missing at 24 months.
120		121	
	Missing at 6 months		
122		123	Alive, was damaged at 6 months. Regrowing at 12 and 24 months. Damage again at 36 months.
	Missing at 6 months		Not found at 12 months
124		125	

	Missing at 6 months		Alive at 12 months. Not found at 24 months.
126		127	
	Grew to 12 months. Not found at 24 months.		Alive at 6 months. Not found at 12 months, missing at 24 months.
128		129	
	Alive at 6 months. Not found at 12 months, missing at 24 months.		Missing at 6 months
130		131	
			Dead at 6 months
132	Grew to 12 months. Alive but damaged at 24 months and at 36 months	133	
	Missing at 6 months		Alive at 6 months, Not found at 12 months.
134		135	
	1 fragment grew to 12 months. Not found at 24 months.		Missing at 12 months. Was alive but damaged at 6 months

136		137	
			Missing at 6 months
138	Alive at 36 months, was damaged but regrowing at 6 months.	139	
			Damaged and regrowing at 6 months. Alive at 12 months. Not found at 24 months.
140	Grew to 12 months. Not found at 24 months. Re-found at 36 months.	141	
	Missing at 6 months		Grew to 12 months. Not found at 24 months.
142		143	
	Missing at 6 months		Not found at 6 months
144		145	
	Alive at 24 months. Not found at 36 months.		Not found at 12 months Alive at 6 months.
146		147	

			Not found at 12 months
148	Grew to 12 months. Alive but damaged at 24 months and more damaged at 36 months.	149	
	Not found at 12 months. Alive but damaged at 6 months.		Not found at 24 months.
150		151	
	Not found at 12 months. Alive but damaged at 6 months.		Not found at 12 months. Alive at 6 months.
152		153	
	Corymbose coral missing but rest of corals on moved rock present and stable at 12 months. Not found at 24 months		Alive, Stable at 12 months. Not found at 24 months.
154		155	
	Missing at 12 months.		Missing at 6 months
156		157	

	<p>Grew to 12 months. Not found at 24 months.</p>		<p>Alive at 24 months. Not found at 36 months</p>
<p>158</p>		<p>159</p>	
<p>No original photo</p>	<p>Not Found at 6 months</p>		<p>Coral coverage reduced at 6 months. Not found at 12 months.</p>
<p>160</p>		<p>161</p>	
	<p>Not found at 12 months.</p>		
<p>162</p>			

## APPENDIX D: MINUTES OF COMMUNITY LIAISON MEETINGS



**VISSP COMMUNITY LIAISON COMMITTEE MEETING No. 7**  
**SOUTH PARAY WHARF SUB-PROJECT**

**Date:** Thursday 31st October 2024  
**Time:** 9:30am – 11am  
**Venue:** Conference Room, Cultural Centre, Port Vila

**Attendance:** *(Signed Attendance Sheet appended as Appendix 1)*

No.	Name	Agency
1	Kiery Manassah	VPMU
2	Allen Faerua	VPMU
3	Jerry Napuat	VPMU
4	Charles Tevi	VPMU
5	Uravo Nafuki	VPMU
6	Brenda Mala Tabilepo	Fletcher Construction
7	Vinitesh Kumar	Fletcher Construction
8	Garry Anderson	Beca
9		Pango Mtakseu Association
10		Pango Mtakseu Association
11		Pango Mtakseu Association
12		Pango Mtakseu Association
13		Ocean Logistics
14		Ifira Disability Group
15		Ifira Water Taxi Association
16		Pango
17		Sikotau Association
18		Ifira Wataba Women's Group
19		Vanuatu Ferry
20		Wataba WG

1. **Opening Remarks** – The meeting Chairman Kiery Manassah thanked everyone for their time to attend this meeting. The CLC did not meet since April and so this meeting is timely as another update for all.
2. **Opening Prayer** – Serah opened the meeting with Prayer.
3. **Matters Arising from Last Meeting's Minutes**  
 Kiery asked everyone if they had gone through the last CLC meeting's minutes and if there were any matters arising from the minutes for discussion.
  - Garry stated that a correction was to be made on page 5, that there will be office space for different ships.
  - No more matters arising to be discussed.
  - Minutes moved as corrected, accepted and seconded.

#### **4. Agenda 1 - Fletcher Construction Update**

Vinitesh presented the wharf construction update. Copies of the presentation slides are appended to this minute as **Appendix 3**.

- A. The wharf ramp and finger wharf structures have been completed.
- B. Some bollards and wharf furniture still to be completed but will not take too long.
- C. Pavement works are at 60% completed.
- D. Water mains installation at 60%.
- E. Storm drainage – 80% completed, and expected to be completed by mid next month.
- F. Retaining wall – small one at the front still to be completed.
- G. Dredging works – on hold for a while so that we can start driving the mooring piles. Mooring piles and dredging works can be done at the same time, with the machines standing on the finger wharf.
- H. Workers – can get up to 50 workers onsite per day. There are a lot of ladies not only in the office but also on the grounds.
- I. Management ran a breast cancer awareness to the employees as part of Pink October.
- J. Competency test for the local operators to upskill them, with certificates awarded.
- K. Construction end date now set for April 2025. The target is to complete by March 2025.

5. No questions for the Contractor from the members present.

#### **6. Agenda 2 – Rehabilitation for the Temporary Wharf.**

Kiery ran through the presentation (slides are appended as **Appendix 4** herein) and stated that:

- A. It is the obligation of the Government to rehabilitate the site. We are renting the area and paying for access. The agreement between the landowners and the Government for the use of the area also includes rehabilitation.
- B. Once the South Paray domestic wharf is commissioned and fully operational, then we will need to rehabilitate the temporary wharf site and put it back to the condition to that of before it was used as a wharf.
- C. The rehabilitation matrix includes the consultation now (November 2024) to the actual implementation in April and May of 2025.
- D. The area had already been reclaimed before being made a temporary wharf and so we would only need to remove the pontoon and rubbish.
- E. Charles showed a before picture of temporary wharf so that everyone knows that the area was reclaimed before the pontoon was installed.
- F. Charles also showed the area of rehabilitation, which does not include the area that the Tanna Ferry and the Vanuatu Ferry ships berth at, as they have their own agreements with landowners.

- G. Kiery stated that the new wharf will not be for old ships that cannot work as we can see now at the temporary wharf. All the ships that need to be removed have had notices issued to the ship owners by the Department of Ports & Harbour. We want to keep the new wharf clean and up to standard.
- H. April 2025 is the last month that the Government will pay rent, and by June 2025 the site should be completely rehabilitated.

## 7. Discussions:

- A. Serah – Our families at Ifira Island depend on the sea for food, and I just want to know if the fish is safe, especially on the wharf side.
  - i. Uravo – We have been conducting sea water quality tests every quarter, and the results indicate that the sea water is within WHO standards for recreational waters. We have conducted another round of tests last month. However, we know that the fish may eat rubbish thrown in the sea and so the fish may be unsafe, we would need to do tests if we want to know more. The people of Ifira know when the fish is safe or not for eating. Also, we know that the activities from our project site is not the only activities in the harbour, we also have the other two international wharves, and the government wharf, and the boral gas supply near the government wharf as well as the Iriki island resort. Therefore, the activities are many that contribute to the water quality in the area.
- B. Leitonga – The harbour is our main resource area for food. Our area is very polluted, we used to be able to eat shellfish but now we cannot. Also, we need to get our representatives from Ifira group of companies, our Chief is the Chairman. Including Ifira shipping, water taxi. We need a lot of consultation.
  - i. Charles – we did send invites to the IPDS and Chief of Ifira, but they do not turn up.
- C. Leitonga – If they do not turn up then please come across to the Ifira island and do your awareness at the Nakamal so everyone can be informed.
  - i. Kiery – Point noted.
  - ii. Charles – The VPMU will come to the island as per our consultation plan on the rehabilitation of the Katatara temporary wharf and the operating standards of the new wharf.
- D. Elisabeth – The reef along the channel that was dredged is growing back towards the main land from Iriki. Are there any future plans to dredge that reef so it doesn't grow back?
  - i. Garry – No, dredging planned for there.
  - ii. Vinitesh – There are no dredging planned for areas outside the project site, only from the channel towards the South Paray Wharf.

- E. Serah – Congratulated the project team. And asked if there had been any disturbance to the works?
  - i. Kiery stated that so far there has not been any major disturbance. However a grievances was registered which is the next agenda..

### **8. Agenda 3 – Water Quality Complaint Received from the Ifira Community**

Charles ran through the slides prepared for the agenda. The presentation is attached as Appendix 4 herein. He stated that the Contractor received the complaint of sea water turbidity from a member from Ifira in August.

- A. After VPMU received the grievance, VPMU liaised with DOWR, who then ran tests on the area. The results indicate that the water quality are within the standards.
- B. A desktop review of data indicated that the flow of the harbour circulation went around Iririki island and was greater during high tide. The slides of the High tide and low tide flow within the harbour are detailed in Attachment 4 herein.
- C. The VPMU team also visited the site to assess the area during non-dredging days and noted that there was a turbidity flow coming from the Government Wharf area. Pictures showed this and that there seemed to be a flow of fuel spill from the Boral Gas site.
- D. Pictures from dredging days and non-dredging days show that the turbidity was not coming from the South Paray project site but from the other side of the harbour.
- E. Initially the Contractor used silt curtains during the revetment works. Once the revetment works were completed and dredging started, the silt curtains were removed so that the barge could be used for the dredging and also to keep the dredged channel clear for the vessels to use to access the Government Wharf.
- F. There are a lot of activities happening in the harbour and our project site cannot be the only one blamed for turbidity as the assessments indicate.
- G. The way forward recommended is for the dredging operations to be carefully monitored by the Contractor through drone footage to ensure there is minimum impact to water quality, and for the drone footage to be recorded and shared to relevant authorities.

### **9. Discussions:**

- A. Leitonga – That small corner is dangerous because of the fuel depot, and also there is a gas box along that road there. So it is dangerous.
- B. Elisabeth – Commended the team for the update, and how the grievance was handled. Thanked the project team.
  - i. Kiery – We want development to come but we need to take care of our environment as well.
- C. Leitonga – The mamas want a market house, for selling of food, as experienced at the temporary wharf, where locals buy food from there while waiting to board the ships or when they disembark from the ships.

- i. Kiery – This is noted, and we will raise with Department of Ports and Harbour.

## **10. Other Matters:**

### **A. Future Management of Wharf**

Kiery stated that the Department of Ports & Harbours are taking steps already to manage the wharf on behalf of the government. The wharf is government asset and would need to make revenue to pay off the loans taken to build the wharf. He used the examples of the Litzlitz and Lenakel wharves whose management are run by private entities and who do not share the wharf revenue collected with the government. VPMU and the Department of Ports & Harbours are working together with other related government agencies to prepare for the commencement of operations.

- B. Supplementary** - Allen Faerua stated that April 2025 will be the last month for the government to pay rent to the landowners of the temporary wharf. So that is the time when all ships have to leave. He stated that the Ports and Harbour Department has issued 30 days notice to the ship owners who need to remove their ships from the temporary wharf. We all know that as per our ways, we can give the notice but they will need more time for them to remove the ships. This is all provided for under the Ports Amendment Act no 18 of 2021. It is the first time to attend the meeting and he is happy with the discussions made.

- C. Supplementary** - Serah stated that all members need to stick to timing, to come on time for the meeting.

- a. Leitonga – Agreed with Serah that if you are unable to come on time, send message or call to pass on your message that you will come in late, or pass on your apology if you will not be attending.

- D. Next Meeting** – The next meeting will be held in February 2025 after the Christmas holidays.

## **11. Closing Remarks**

- A. Brenda – As this is the last meeting, on behalf of the Contractor, we would like to thank all for the support shown in the meetings, for the vocal participation in the meetings and the time made to attend all the meetings. Would like to wish everyone a Merry Christmas and Happy new year.
- B. Garry – This will be my last participation in the CLC as I will be leaving in November due to my contract ending. Loves Vanuatu and hopes to be back.
- C. Charles and Kiery – At the next meeting in February 2025, the CLC will be informed on the South Paray Wharf Commissioning date.

- D. Leitonga – As a beneficiary of the project, she would like to thank all the information and updates received, many projects do not have this. Faftai.
- E. Kiery – On behalf of VPMU thank you for attending the meetings to ensure all communities receive update project information. Wishes all a happy holidays and see you all next year.
- F. Kiery made the closing prayer.

**12. Notes**

- A. Everyone had lunch and had their transport cost reimbursed.

**APPENDIX 1 – SIGNED ATTENDANCE SHEET**

**CLC MEETING #7 Attendance Sheet**  
 South Ferry Wharf Construction Project - VSSP  
 VENUE: Cultural Centre  
 DATE: 30/12/24

No.	NAME	GENDER (M/F)	Office/Village Area	Title	CONTACT NUMBER	TRANSPORT REIMBURSEMENT COLLECTED	SIGN
1	[REDACTED]	F	Pango	Pango Mntn	[REDACTED]	2000	[REDACTED]
2	[REDACTED]	F	Pango	Self employed	[REDACTED]	2000	[REDACTED]
3	[REDACTED]	F	Pango	Self employed	[REDACTED]	2000	[REDACTED]
4	[REDACTED]	F	Pango	Self employed	[REDACTED]	2000	[REDACTED]
5	[REDACTED]	F	Crane/Kapapa	[REDACTED]	[REDACTED]	1500	[REDACTED]
6	[REDACTED]	F	Ifira	Self employed	[REDACTED]	2000	[REDACTED]
7	[REDACTED]	M	Ifira	Water tank	[REDACTED]	2000	[REDACTED]
8	[REDACTED]	M	Fletcher	Engineer	[REDACTED]		[REDACTED]
9	[REDACTED]	M	Beca	Leadest Engineer	[REDACTED]		[REDACTED]
10	[REDACTED]	M	VPMU	Material Project Manager	[REDACTED]		[REDACTED]
11	[REDACTED]	F	Fletcher	HE Advisor	[REDACTED]		[REDACTED]
12	[REDACTED]	F	Pango	Self Employed	[REDACTED]	2000	[REDACTED]
13	[REDACTED]	F	Ifira	Self-employed	[REDACTED]	2000	[REDACTED]
14	[REDACTED]	F	Ifira (Widow)	Widow (Self)	[REDACTED]	2000	[REDACTED]

Agnes

april/0 vauvau - ferry . com

15	[REDACTED]	M	Ycaudo Ferry	Self employed	[REDACTED]		[REDACTED]
16	[REDACTED]	F	Wabla/Wt	Ifira	[REDACTED]	2000	[REDACTED]
17	[REDACTED]	F	VPMU	SUPERVISOR	[REDACTED]		[REDACTED]
18	[REDACTED]	M	VPMU	M & E OFFICER	[REDACTED]		[REDACTED]
19	[REDACTED]	M	VPMU	SUPERVISOR	[REDACTED]		[REDACTED]
20	[REDACTED]	M	VPMU	CONTRACT OFFICER	[REDACTED]		[REDACTED]
21							
22							
23							
24							
25							
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27							
28							
29							
30							
31							
32							

## APPENDIX 2 – MEETING PICTURES



Pic 1 – Vinitesh presenting the construction update on behalf of the Contractor



Pic 2 – Meeting in progress



Pic 3 – Charles presenting the latest water test results of the South Paray



Pic 4 – Lunch being shared after the meeting

## APPENDIX 3 – CONTRACTOR'S PRESENTATION ON CONSTRUCTION WORKS UPDATE

THE FLETCHER CONSTRUCTION COMPANY  
BUILDINGS | INFRASTRUCTURE | SOUTH PACIFIC | BRIAN PERRY CIVIL | HIGHWAYS

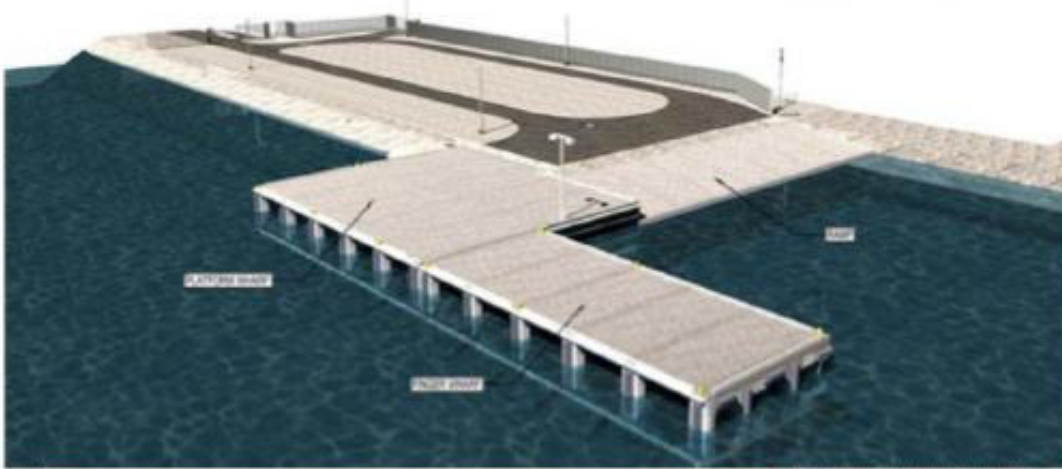
6 NOVEMBER 2024

### Civil Works for South Paray Domestic Wharf Terminal

Vanuatu Inter-Island Shipping Support Project (VISSP)  
(Contract No. VISSP/CW-02)

ADB/VPMLJ/BECA/Fletcher

## Project Update



6 NOVEMBER 2024

THE FLETCHER CONSTRUCTION COMPANY

## Project Update – October 2024



### Ramp and Wharf Structures:

- The concrete structure 560 m<sup>2</sup> Concrete Ramp, 390m<sup>2</sup> Finger Wharf and 288m<sup>2</sup> of Platform deck is complete now
- Final deck poured 25<sup>th</sup> October
- Minor works continue – 15 Tee Bollards, 5 Flush Bollards, Arch fenders, D/D fenders, precast curbs, watermain and fire hydrants being installed presently

Photo 13 October 2024

5 NOVEMBER 2024

THE FLETCHER CONSTRUCTION COMPANY

## Project Update – October 2024



### Pavement and Utilities:

- 60% of the concrete pavement has been placed
- 60% of the watermain is in the ground
- 60% of the lighting cables is in the ground and the lighting plinths are placed and cured ready for lighting pole installation
- 80% C/Alex slot drain installed
- 100% 2 x stormwater outfalls installed
- 70% retaining walls installed
- 40% Gravel Pavement is complete.

Photo 12<sup>th</sup> October 2024

6 NOVEMBER 2024

THE FLETCHER CONSTRUCTION COMPANY

## Project Update – October 2024



### Dredging and Mooring Piles:

- Dredging has progressed however has halted to allow the mooring piles to be installed from barge access
- Dredging will recommence from new structure in the meantime and back on the water late November when another barge is available
- Estimated 1/3 of the total dredge volume has been removed to date
- Piling spread mobilised last week to install 6nos. mooring piles

Picture 1/30 (left), 30<sup>th</sup> October 2024

Insert Mooring pile layout plan

THE FLETCHER CONSTRUCTION COMPANY

6 NOVEMBER 2024

## Project Update – October 2024



### Summary

- Over 150 people inducted onto the project
- Approximately 50 – 40 onsite daily
- 9% female workforce



- Breast Cancer Awareness training conducted in October

### Due date for completion:

- Originally late January 2025
- Currently not EOP due to delays mid-April 2025
- Targeting mid-March 2025

Photo version

THE FLETCHER CONSTRUCTION COMPANY

6 NOVEMBER 2024

## APPENDIX 4 – VPMU UPDATE PRESENTATION



### Meeting Agendas

- Welcome and Opening Remarks (VPMU)
- Project Status Update / Contractors Work Program (Fletcher)
- Discussion:
  - Proposed Rehabilitation Plan for the temporary domestic wharf
  - Grievance – Water Quality affected by dredging works
  - AOB
- Closing and Lunch

### Agenda 1: Project Progress Update

## Agenda 2 : Proposed Rehabilitation Plan for the Katatara Temporary Domestic Wharf

### Land Access Agreement

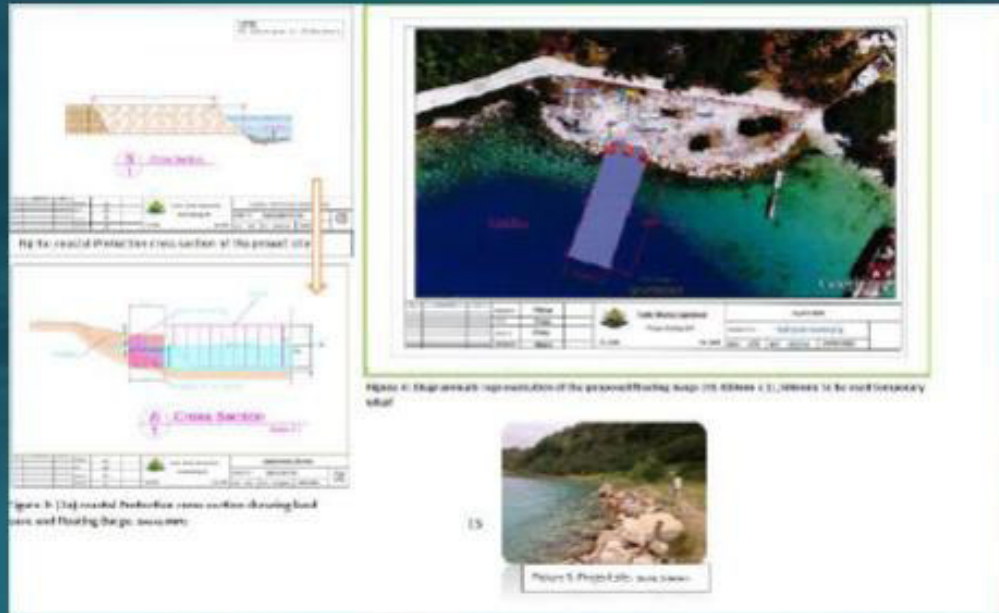
#### CLAUSE 8: OBLIGATIONS AND COVENANTS OF THE GOVERNMENT

##### 5.1 The obligations of the Government are:

- (a) to cease operations over the desired property upon the opening of the new South Port Bay domestic Wharf unless further agreements are made between the parties;
- (b) to dispose of all Government assets including established structures, heavy machinery, vehicles and store containers brought onto the desired property at the end of operations under subclause 5.1(a) by any means the Director General sees fit and within three (3) months from the date operation ceases.

# Brief Rehabilitation Work Plan Matrix

Step	Activity	Target Date ( Subject to Changes)	Responsible
1	Conduct meeting with the stakeholders about the rehabilitation plan of the temporary domestic wharf at Katatara site	November, 2024	YPMU
2	Consultation with ship owners, business company and nearby residence on decommissioning of the temporary wharf.	December, 2024	YPMU & VMGA
3	Removal of old damaged machinery, rusty irons and rubbish at the temporary wharf area.	March, 2025	YPMU & Ports and Harbour
4	Removal of the unworthy domestic vessels no longer fit for operation	April, 2025	Ports and Harbour & VMGA
5	Removal of the portion out from the temporary wharf to a designated preferred by the Department of Ports & Marina to assist with domestic operations. Cease operation of domestic vessels at the temporary wharf site.	April, 2025	YPMU & Ports and Harbour
6	Repair of the access road starting from the Ocean Logistics operation site to temporary wharf area	April, 2025	YPMU and PWD
7	Re-vegetation and beautification of the disturbed area	May, 2025	YPMU
8	Visual inspection by stakeholders	May, 2025	YPMU & PH
9	Final Rehabilitation Completion Report of the Katatara temporary domestic wharf.	June, 2025	YPMU





**Agenda 3:**  
**Grievance – Report on changes to Water Quality Nearby the Paray Bay Coastline**

### Water Quality Test Results

- Conducted by: DoWR
- Date: 25/09/24

### Control Point

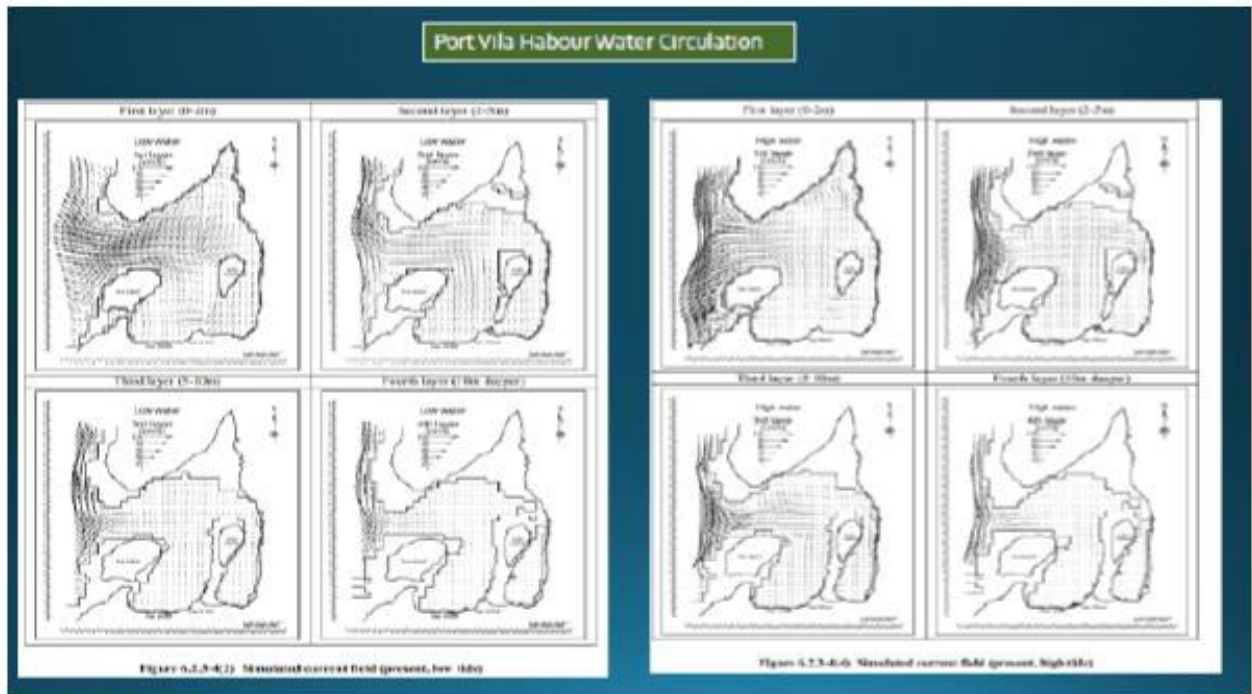
### Sample Point 3

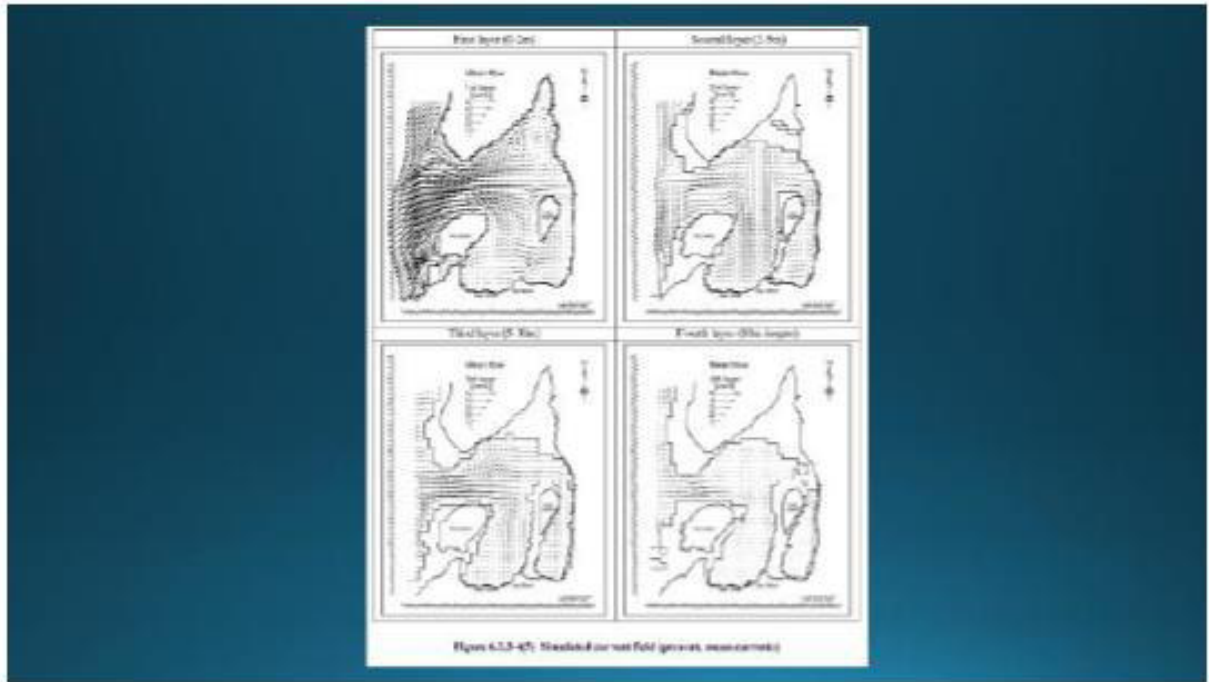
#### Sample Point 1

Sample ID	Sample Name	Sample ID	Sample ID	Test of Sample
01/24	Sample Point 1	02/24	Control Point	03/24
01.1	Temperature	20.22	°C	
01.2	pH	7.17	PH	
01.3	Total Dissolved Solids	161.0	mg/l	
01.4	Salinity	35.38	ppt	
01.5	DO	8.08	mg/l	
01.6	Dissolved Oxygen (DO)	8.07	%	
01.7	Turbidity	2.2	NTU	
01.8	Chlorophyll a	0	µg/L (µg/L)	
01.9	Depth	3.17	m	

#### Sample Point 4

Sample ID	Sample Name	Sample ID	Sample ID	Test of Sample
04/24	Sample Point 4	05/24	Control Point	06/24
04.1	Temperature	21.44	°C	
04.2	pH	7.11	PH	
04.3	Total Dissolved Solids	118.0	mg/l	
04.4	Salinity	35.38	ppt	
04.5	DO	8.07	mg/l	
04.6	Dissolved Oxygen (DO)	8.07	%	
04.7	Turbidity	1.7	NTU	
04.8	Chlorophyll a	0	µg/L (µg/L)	
04.9	Depth	3.18	m	

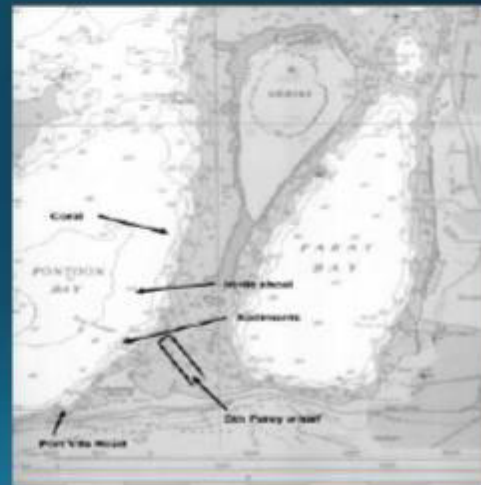




Drone footage of Dredging Operations at South Paray Wharf Construction Site



Why no usage of silt curtains??



Turbidity flow coming from the South Eastern side of the Paray Bay flowing west towards the Project site. Dredging operation was on hold on the date this photo was taken.



## WAY FORWARD:

1. Dredging operations will be carefully monitored by the contractor to ensure there is minimum impact to the water quality within the nearby coastal areas. Dredging operations is almost 60% complete.
2. Drone footage to be taken and shared to relevant authorities to ensure there is minimum impact and for record purposes.



Thank you tumas!

Questions & Discussions

## **APPENDIX E: LIST OF NATIONAL STATUTORY REQUIREMENTS**

- Environmental Protection and Conservation Act 2002 (CAP 283 the Environment Act)
- Environmental Impact Assessment Regulations Order no. of 2011
- Foreshore Development Act: Volume 90 (CAP 90), which requires the written permission of the Minister to approve any development on the foreshore or coast;
- Ports Act (CAP 26), no. 11 of 1998 and no. 32 of 1999. Volume 26;
- Health and Safety at Work Act; Volume 47 (CAP 195);
- Land Acquisition Act of 1992 and 2000 which establishes procedures to acquire land for public purposes or easements, including compensation for acquiring land;
- Preservation of Sites and Artefacts; Volume 39 (CAP 39);
- Control of Nocturnal Noise Act (Cap.40)
- Custom Land Management Act (gazetted in 2015);
- Mines and Minerals Act 1986 (all quarried material must be from approved quarries only);
- Mines and Minerals Act, Quarry Permit Regulation. Order No. 8 of 2005;
- Maritime (Conventions) Act;
- Employment (Amended) Act 2010; and
- Road Traffic (Control) Act

### **International obligations:**

Vanuatu is a signatory to a number of international agreements. Listed below are some of the more applicable agreements to the dredging and marine activities:

- The Convention on Biological Diversity (CBD); 1992;
- The United Nations Framework Convention on Climate Change (UNCCD); 1992;
- Agreement on International Dolphin Conservation Program – 2003;
- Agreement Establishing the South Pacific Regional Environment Programme (SPREP); 2005;
- Multilateral Treaty on Fisheries and Related Amendments; 2005;
- The Stockholm Convention on Persistent Organic Pollutants; 2005;
- International Convention for the Prevention of Pollution from Ships (MARPOL 73);
- London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter; and
- Convention on the Elimination of all Forms of Discrimination Against Women