## MONITORING FORM (Revised)

The Vanuatu Project Management Unit conduct environmental monitoring through a local consultant. The result of monitoring will be reported to JICA by this form as a part of the Progress Report.

The final monitoring report is dated at December 2019 (attached to this form)

# 1. Responses/Actions to Comments and Guidance from Department of Environmental Protection and Conservation (DEPC)

Monitoring Item		Monitoring Results during Report Period	Comments from DEPC			
	All	As bellow	Results accepted with NO further comment.			

#### 2. Ecosystems

#### 1) Animals occurrence around the Project site (at any time)

Item	Remarks (Found date & locations, numbers)					
Dugongs	No animals sighted since the start of the project, and during this monitoring period.					
Sea Turtles	No animals sighted since the start of the project, and during this monitoring period.					
Others	Substantial aggregation of coral reef-associated fish and macro-inverts at the relocation site.					

XPlease write the latest information and the date you observed the above animals.

## Attachment 15 Date: 30 Jan 2020

### 3. Corals and Water Quality

Monitoring site		Status of corals (live coral %/coral cover % based on Coral Lukluk Method) <sup>(1)</sup>		Water temp (°C)	Salinity (‰) RANGE	рН		Turbidity (NTU)			Remarks	
		Result	Baseline RANGE	RANGE		Baseline	Standard <sup>(4)</sup>	Measured value (MAX)	Baseline	Standard <sup>(5)</sup>		
Coral relocation site	Bommie 1	5%	100%(3)	28.4 <sup>(2)</sup>	33.2 <sup>(2)</sup>	8.16 <sup>(2)</sup>	N/A	7.8-8.3	0.0	N/A	<9.5	No baseline data available <sup>(6)</sup>
	Bommie 2	6%	100%(3)									
	Bommie 3	10%	100%(3)									
	Bommie 4	Could not be counted	100% <sup>(3)</sup>									
Permanent monitoring site of coral	S4T2 (Fatumar-u Bay) <sup>(7)</sup>	- 18.2%	<31%	28.2	33.4	8.16	N/A		0.0	N/A	<9.5	No baseline data available <sup>(6)</sup>
	S2T1 (Ifira) <sup>(7)</sup>		<5%	27.9	33.2	8.13	N/A		0.0	N/A	<9.5	No baseline data available <sup>(6)</sup>
	S3T3 (Iririki) <sup>(7)</sup>	Not done	<5%	28.4	33.2	8.16	N/A		0.0	N/A	<9.5	No baseline data available <sup>(6)</sup>
	M-1											
Construction site	M-2											
	M-3											
	M-4											
	M-5											
	M-6 <sup>(9)</sup>											
	M-7 <sup>(9)</sup>							-				
Permanent monitoring site of water	C-1											
	C-2											
	C-3											

Temperature and salinity is used to judge if turbidity is due to the project activities or storm water.

The coral data were collected on 7 December 2019, while the water quality data were collected on April 26, 2017, but left here for probable correction.

- (1) The Corel Lukluk Method was used to determine live coral cover. The bleached coral is counted as live coral as VFD judges that these corals still have the potential to regrow.
- (2) The location of coral relocation site is close to the S3T3 and therefore the water quality data of S3T3 was used.
- (3) The relocated coral percentage is based on all live corals successfully transplanted
- (4) Environmental standard of the Basic Environment Act in Japan.
- (5) Standard of fisheries water in Japan Background + 2mg/L. The standard for the particular day with the highest result at the monitoring point is shown.
- (6) The baseline pH and Turbidity are not available for the Coral Monitoring & Coral Relocation Sites as the contractor's baseline survey conducted from October-November 2015 did not include these sites.
- (7) Water quality monitoring commenced for the additional points of S3T3, S2T1 and S4T2 on April 26, 2017 following a request from JICA.
- (8) Dredging at Wharf Zone III and Zone IV. Excavation at Wharf Zone IV and V. Pouring lean concrete and reinforced concrete coping beams Zone II – Zone IV. Backfilling, Zone III – IV. Removal of old wharf piles at Wharf Zone I.
- (9) Points M6 and M7 were both inside the silt curtain while dredging activity was underway, and therefore it was not able to measure the water quality data.

#### 4. Grievance

Grievances from Project Affected Persons	Responses of Executing Agency and Results	Remarks		
NO grievances reported				