

## MONITORING FORM

If environmental reviews indicate the need of monitoring by JICA, JICA undertakes monitoring for necessary items that are decided by environmental reviews. JICA undertakes monitoring based on regular reports including measured data submitted by the Project proponent. When necessary, the Project proponent should refer to the following monitoring form for submitting reports.

When monitoring plans including monitoring items, frequencies and methods are decided, project phase or project life cycle (such as construction phase and operation phase) should be considered.

### 1. Response/Actions to Comments and Guidance from Government Authorities and the Public

Monitoring Item	Monitoring Results During Report Period
Number of Response/Actions to Comments and Guidance from Government Authorities (DENR, NAI, LGUs, DA, DOLE, DSWD)	<p>Quarterly During Construction</p> <p>1-DENR-EMB ECC Compliance: Submitted</p> <ul style="list-style-type: none"> <li>• Quarterly Self-Monitoring Report (SMR)</li> <li>• Water Quality Monitoring for the 3<sup>rd</sup> Quarter of 2018</li> <li>• Ambient Air Quality Monitoring for the 3<sup>rd</sup> Quarter of 2018</li> </ul> <p>2-LGU Affected Barangays. To conduct Information Education Campaign (IEC) to all affected barangays starting 2018.</p> <p>3-DOLE. Monthly submission of the EHS Report prepared by the Safety Officers/PCOs of the Contractors.</p>

### 2.0 Water Quality (Effluent/Wastewater/Ambient Water Quality) No affected bodies of water under CP1, only CP2, CP3 and CP4

Station/ Contract Package	Parameter/Unit	Measured Value (Median)				Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
		2018						
		1st	2nd	3rd	4th			
<b>SW1/CP4</b>	pH	6.9	-	7.2	-	6.5 to 9.0		
San Miguel na Munti Creek N15° 32' 18.7" E 120° 55' 36.9"	Temperature <sup>1</sup> , Celsius	25.0	-	24.7	-	25 to 31		-The same sampling points in the baseline survey as per CLLEX- EIS 2010  -Quarterly during construction  -Twice a year during operation  -Based on the water quality results of the 3 <sup>rd</sup> Quarter of 2018 monitoring and where weather considered as generally cloudy. The water sampling stations:
	Color, TCU	25	-	80	-	75		
	Dissolved oxygen (DO), mg/L	4	-	8	-	Min. of 5.0		
	Total Suspended Solids (TSS), mg/L	5.0	-	11	-	80		
	Biological Oxygen Demand (BOD), mg/L	2	-	5	-	7		
	Oil and grease, mg/L	0.8	-	0.3	-	2		
	Nitrate (as NO <sub>3</sub> <sup>-</sup> -N), mg/L	0.8	-	0.1	-	7		
	Phosphate (as PO <sub>4</sub> <sup>3-</sup> -P), mg/L	0.2	-	2.1	-	0.5		
	Fecal Coliform, MPN/100mL	2,200	-	16,000	-	200		

Annex II-1

Station/ Contract Package	Parameter/Unit	Measured Value (Median)				Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
		2018						
		1st	2nd	3rd	4th			
[Grab your reader's attention with a								
SW2/CP4  Umangan Creek N 15° 31' 42.4" E 120° 55' 35.0"	pH	7.3	-	7.0		6.5 to 9.0		SW1, SW2, SW3, SW4, SW5, SW6, and SW7 passed the limit for pH, Temperature, Color, BOD, and Nitrate as set in the DAO 2016-08 water quality guideline for Class C Water criteria.  The TSS result of SW5, 1,100 mg/l and SW7, 243mg/l, both exceeded the limit of 80 mg/l during the time of sampling.  The DO result of SW3, <2 mg/L; SW4, <2 mg/l; and SW6, <2mg/L, all exceeded the limit of Min. of 5.0mg/l during the time of sampling.  The Phosphate result of SW3, 0.6mg/l, likewise exceeded the limit of 0.5 mg/l during the time of sampling.
	Temperature <sup>1</sup> , Celsius	24.8	-	24.7		25 to 31		
	Color, TCU	40	-	60		75		
	Dissolved oxygen (DO), mg/L	6	-	4		Min. of 5.0		
	Total Suspended Solids (TSS), mg/L	27	-	52		80		
	Biological Oxygen Demand (BOD), mg/L	3	-	3		7		
	Oil and grease, mg/L	0.9	-	0.3		2		
	Nitrate (as NO <sub>3</sub> <sup>-</sup> -N), mg/L	1.4	-	0.1		7		
	Phosphate (as PO <sub>4</sub> <sup>3-</sup> -P), mg/L	0.07	-	0.07		0.5		
	Fecal Coliform, MPN/100mL	9,200	-	24,000		200		
SW3/CP4  Bibiclat Creek N 15° 33' 01.9" E 120° 52' 02.7"	pH	7.7	7.7	7.0		6.5 to 9.0		
	Temperature <sup>1</sup> , Celsius	24.8	25.0	24.7		25 to 31		
	Color, TCU	20	15	20		75		
	Dissolved oxygen (DO), mg/L	7	6	<2		Min. of 5.0		
	Total Suspended Solids (TSS), mg/L	47	68	42		80		
	Biological Oxygen Demand (BOD), mg/L	2	1	3		7		
	Oil and grease, mg/L	0.7	0.6	0.3		2		
	Nitrate (as NO <sub>3</sub> <sup>-</sup> -N), mg/L	0.5	0.6	0.2		7		
	Phosphate (as PO <sub>4</sub> <sup>3-</sup> -P), mg/L	0.09	0.2	0.6		0.5		
	Fecal Coliform, MPN/100mL	92,000	170,000	16,000		200		
SW4/CP3  Pantoc Creek N 15° 31' 58.0" E 120° 50' 40.2"	pH	7.8	7.8	7.1		6.5 to 9.0		
	Temperature <sup>1</sup> , Celsius	25.0	25.0	24.8		25 to 31		
	Color, TCU	25	15	25		75		
	Dissolved oxygen (DO), mg/L	7	6	<2		Min. of 5.0		
	Total Suspended Solids (TSS), mg/L	52	67	26		80		
	Biological Oxygen Demand (BOD), mg/L	3	2	6		7		
	Oil and grease, mg/L	0.7	0.4	0.5		2		
	Nitrate (as NO <sub>3</sub> <sup>-</sup> -N), mg/L	0.7	0.5	0.2		7		
	Phosphate (as PO <sub>4</sub> <sup>3-</sup> -P), mg/L	0.1	0.2	0.7		0.5		
	Fecal Coliform, MPN/100mL	28,000	110,000	63,000		200		

Station/ Contract Package	Parameter/Unit	Measured Value (Median)				Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
		2018						
		1st	2nd					
SW5/CP3  Talavera River N 15° 30' 38.9" E 120° 50' 54.3"	pH	7.9	8.2	7.9		6.5 to 9.0		This can be primarily attributed to untreated domestic wastewater discharge of the nearby houses. The possible direct discharging to these bodies of waters, help worsen the water quality which exceeded the water bodies' assimilative capacity.  <i>The CLLEX project, however, did not, in any form of the on-going construction Works, contribute to the exceedance of the Fecal Coliform, DO, TSS, Phosphate and Oil and Grease.</i>
	Temperature <sup>1</sup> , Celsius	25	25	24.8		25 to 31		
	Color, TCU	20	10	10		75		
	Dissolved oxygen (DO), mg/L	9	3	8		Min. of 5.0		
	Total Suspended Solids (TSS), mg/L	37	63	1,100		80		
	Biological Oxygen Demand (BOD), mg/L	2	1	2		7		
	Oil and grease, mg/L	1.0	0.4	0.5		2		
	Nitrate (as NO <sub>3</sub> <sup>-</sup> -N), mg/L	1.4	1.0	0.7		7		
	Phosphate (as PO <sub>4</sub> <sup>3-</sup> -P), mg/L	0.08	0.07	0.06		0.5		
	Fecal Coliform, MPN/100mL	5,400	1,300	24,000		200		
SW6/CP2  Rio Chico River N 15° 28'37.9" E 120° 44'51.3"	pH	7.9	7.9	7.3		6.5 to 9.0		
	Temperature <sup>1</sup> , Celsius	24.9	24.8	24.8		25 to 31		
	Color, TCU	20	50	25		75		
	Dissolved oxygen (DO), mg/L	7	7	<2		Min. of 5.0		
	Total Suspended Solids (TSS), mg/L	77	316	25		80		
	Biological Oxygen Demand (BOD), mg/L	1	<1	3		7		
	Oil and grease, mg/L	0.8	1.2	4.1		2		
	Nitrate (as NO <sub>3</sub> <sup>-</sup> -N), mg/L	1.2	0.2	0.1		7		
	Phosphate (as PO <sub>4</sub> <sup>3-</sup> -P), mg/L	0.07	0.2	0.2		0.5		
	Fecal Coliform, MPN/100mL	1,100	24,000	23		200		
SW7/CP2  Rio Chico River N 15° 26'53.1" E 120° 44' 57.5"	pH	7.8	7.9	7.6		6.5 to 9.0		
	Temperature <sup>1</sup> , Celsius	24.8	24.8	24.8		25 to 31		
	Color, TCU	25	10	20		75		
	Dissolved oxygen (DO), mg/L	7	8	5		Min. of 5.0		
	Total Suspended Solids (TSS), mg/L	110	34	243		80		
	Biological Oxygen Demand (BOD), mg/L	2	<1	1		7		
	Oil and grease, mg/L	0.8	0.4	1.1		2		
	Nitrate (as NO <sub>3</sub> <sup>-</sup> -N), mg/L	0.8	0.2	0.7		7		
	Phosphate (as PO <sub>4</sub> <sup>3-</sup> -P), mg/L	0.09	0.06	0.2		0.5		
	Fecal Coliform, MPN/100mL	3,500	16,000	16,000		200		

\*Note: Red Font means exceedance from the Class C water quality guideline; 1 – Temperature levels were tested in the laboratory but samples were already ice-chilled for preservation.

**- Waste: Monitoring on covers all Contract Package, CP1, CP2, CP3 and CP4**

Monitoring Item	Monitoring Results During Report Period, 2 <sup>nd</sup> Quarter 2018
Solid Wastes (ton/day)	Zero waste on solid waste. The CLLEX Phase 1-Project is a road project hence no known excavated waste. Oil and grease is included in the daily regular monitoring of all Contract Package. Used oil and grease are stored in tight containers. Hazardous wastes from the materials testing and laboratory are also included in the regular monitoring. The stored used oil and grease and other stored hazardous wastes shall be transported by an EMB accredited Haz Waste Treater/Transporter.
Sanitary Waste (ton/day)	
Unsuitable Soil (cubic meter/day)	
Spill-out oil from equipment (liter/month)	
Hazardous Wastes (liquid: liter/month)	
Hazardous Wastes (solid: kg/month)	

**3. Mitigation Measures Air Quality (Emission Gas/Ambient Air Quality)**

**Ambient Air Quality Monitoring: Covering 5 Ambient Air Sampling Stations**

Station/ Contract Package	Parameter/Unit	Measured Value (Median)				Country's Standards	Referred International Standards	Remarks (Measurement Point, Frequency, Method, etc.)
		2018						
		1st	2nd	3rd	4th			
A1/CP1 Amucao Bridge along Sta. Rosa Highway  15°27'41"N 120°41'18"E	SO <sub>2</sub> µg/Nm <sup>3</sup>	12.26	1.98	<0.5		340	-	-The same sampling points in the baseline survey as per CLLEX-EIS 2010  -Quarterly monitoring during construction phase
	NO <sub>2</sub> µg/Nm <sup>3</sup>	0.49	0.084	<0.5		260	200 (IFC)	
	COmg/Nm <sup>3</sup> **	-	-	-				
	DUST (TSP)µg/Nm <sup>3</sup>	42	1,035	126.8		300	-	
A2/CP1 Sta. Rosa National Road  15°28'39"N 120°40'54"E	SO <sub>2</sub> µg/Nm <sup>3</sup>	18.10	1.72	<0.5		340	-	-Twice a year during operation  -Air sampler & high volume sampler
	NO <sub>2</sub> µg/Nm <sup>3</sup>	0.22	0.128	<0.5		260	200 (IFC)	
	COmg/Nm <sup>3</sup> **	-	-	-				
	DUST (TSP) µg/Nm <sup>3</sup>	84	335	77.6		300	-	
A3/CP1 Guevarra Area along National Highway, La Paz-Victoria Road  15°28'22"N 120°43'01"E	SO <sub>2</sub> µg/Nm <sup>3</sup>	10.75	1.34	<0.5		340	-	-Noise meter for the Noise measurement  - The results of the 3 <sup>rd</sup> Quarter 2018 ,August 9, 2018 sampling indicate that, at the time of sampling, Total Suspended Particulates (TSP), Sulfur Dioxide (SO <sub>2</sub> ), and Nitrogen Dioxide (NO <sub>2</sub> ) levels for all sampling stations are within the applicable National Ambient Air Quality Guideline Values.
	NO <sub>2</sub> µg/Nm <sup>3</sup>	1.2	0.107	<0.5		260	200 (IFC)	
	COmg/Nm <sup>3</sup> **	-	-	-				
	DUST (TSP) µg/Nm <sup>3</sup>	36	149	78.8		300	-	
A4/CP3 Aliaga Trading Center along Aliaga-Gulmba Road, Sto. Rosario, Nueva Ecija  15°31'11.3"N 120°49'44.7"E	SO <sub>2</sub> µg/Nm <sup>3</sup>	10.04	1.79	<0.5		340	-	
	NO <sub>2</sub> µg/Nm <sup>3</sup>	<0.12	0.281	<0.5		260	200 (IFC)	
	COmg/Nm <sup>3</sup> **	-	-	-				
	DUST (TSP) µg/Nm <sup>3</sup>	25	171	90.5		300	-	
A5/CP4 Brgy. Caalibangbangan Road, Cabanatuan City  15°31'44"N 120°56'02"E	SO <sub>2</sub> µg/Nm <sup>3</sup>	10.48	1.30	<0.5		340	-	
	NO <sub>2</sub> µg/Nm <sup>3</sup>	<0.12	0.267	<0.5		260	200 (IFC)	
	COmg/Nm <sup>3</sup> **	-	-	-				
	DUST (TSP) µg/Nm <sup>3</sup>	26	360	258.0		300	-	

*Red Font* means exceedance from the standard of Total Suspended Particulate.

\*Note: Only the parameters TSP, SO<sub>2</sub>, and NO<sub>2</sub> are collected following the data in the EIS for the construction phase. \*\*Not included in the IES parameters (CLLEX\_EIS 2010) **Annex II-4**

**- Noise/Vibration**

Station/ Contract Package	Parameter/Unit	Measured Value (Median)				Country's Standards	Category of the Area	Remarks (Measurement Point, Frequency, Method, etc.)
		2018						
		1st	2nd	3rd	4th			
<b>A1/CP1</b> Amucao Bridge along Sta. Rosa Highway  15°27'41"N 120°41'18"E	Noise/dBA	72.20	74.95	79.20		70	C	-The same sampling points in the baseline survey as per CLLEX-EIS 2010  -Quarterly during construction  -Twice a year during operation  -Noise meter for the Noise  -The results showed that Noise Level measured in Stations 1,2,4, and 5 exceeded the standard limit of 70Dba for Noise for Class C Light Industrial Area.  The noise primarily came from all types of vehicles passing in the 5 Stations during the time of sampling.
<b>A2/CP1</b> Sta. Rosa National Road  15°28'39"N 120°40'54"E	Noise/dBA	64.30	75.30	79.90		70	C	
<b>A3/CP1</b> Guevarra Area along National Highway, La Paz-Victoria Road  15°28'22"N 120°43'01"E	Noise/dBA	63.20	72.10	65.87		70	C	
<b>A4/CP3</b> Aliaga Trading Center along Aliaga-Guimba Road, Sto. Rosario, Nueva Ecija  15°31'11.3"N 120°49'44.7"E	Noise/dBA	64.80	80.60	71.10		70	C	
<b>A5/CP4</b> Brgy. Caalibangbangan Road, Cabanatuan City  15°31'44"N 120°56'02"E	Noise/dBA	67.90	73.30	79.65		70	C	

*Red Font means exceedance from the standard limit for Noise Class C Light Industrial Area.*

**2. Natural Environment**

**- Ecosystem**

Monitoring Item	Monitoring Results During Report Period, 3 <sup>rd</sup> Quarter of 2018
Social Component	The whole alignment of the CLLEX project has NO negative impact to the ecosystem and the community (social) during the 3rd Quarter 2018 Monitoring.