Monthly Environmental Monitoring Form Reported to JICA

Form-2 for Construction Phase

Project Name	:	**The Project for Rehabilitation of Irrigation Facilities in Rwamagana**	**Implementing Agency**	:	**Rwanda Agriculture and Animal resources Development Board (RAB)**
Location	:	**Rwamagana District**	**Monitoring Agency**	:	**RAB/Rwamagana District**
Date Reported	:	**20/03/2019**	**Enforcement Agency**	:	**The Contractor (Tobishima Coporation)**

1. Contractor(s)

Contractor(s) Environmental Awareness	Yes/No	Actions Required	Contractor Response / Comment
Contractor(s) are aware of mitigation requirements?	Yes	Follow up the implementation of mitigation measures	
Contractor(s) have a copy of EMMP?	Yes	Monitoring their EMMP	

2. Mitigation Compliance Inspection

Impact / Mitigation Measures (From EMMP)	Mitigations Implemented? (Yes/No)	Mitigation Effective? (Yes/No)	Impact Observed/ Location	Action Required? (Yes/No) Describe if Yes:	Contractor Response / Comment
- Community is aware of construction schedule	Yes	Yes	-	No	
- Community is aware of contact address of complain and grievance adress mechanism	Yes	Yes	-	No	
- Equipment and vehicles are maintained and in good condition	Yes	Yes	-	No	
- Water is sprinkled on the dirt / unpaved road	Yes	Yes	-	No	
- Covering of all trucks against dust spread	Yes	Yes	-	No	
- Dust control equipment is installed at crushing plant	N/A	N/A	-	-	
- Drip trays are used when refuelling or maintenance	N/A	N/A	-	-	
- Reuse excavated material as much as possible	Yes	Yes	-	No	
- Solid waste are disposed at designated dumping site	Yes	Yes	-	No	
- Construction workers are provided education on site cleaning against litter	Yes	Yes	-	No	
-Safety Assemblage was held for workers	Yes	Yes	-	No	
- Safety tools (helmet, goggle, glove, etc) are provided to workers	Yes	Yes	-	No	
- Workers younger than 16 years old are not employed	Yes	Yes	-	No	
- First-aid kits (FAK) are available at all construction sites and yard	Yes	Yes	-	No	
- An accident and emergency response manual is available	Yes	Yes	-	No	

3. Water Quality at Outlet of Discharge from Sedimentation Pond and Concrete Waste Water

Item	Unit	Baseline Data			Date	Amount measured	Monitoring Result			Model of Equipment used	Standards max. Limits *1	Action Required (Yes/No) Describe if Yes:	Contractor Response / Comment
		Date	Location	Amount measured			Date	Location	Amount measured				
3.1 BUGUGU site													
pH	-	-	Up stream	-	-	-	21-Feb-19 (Cloudy W/rain)	Up stream	6.66	IDAODAN pH Meter	<9.0	No	
			Middle stream					Middle stream	6.62				
			Down stream					Down stream	6.7				
TSS or	mg/L	4-Jan-19	Up stream	730	8-Jan-19 after heavy rain	880	21-Feb-19 (Cloudy W/rain)	Up stream	45	Portable TSS Meter	880	No	
			Middle stream	670		811		Middle stream	14		811		
			Down stream	520		760		Down stream	11		760		
Turbidity	NTU		Up stream	288	8-Jan-19 after heavy rain	279	21-Feb-19 (Cloudy W/rain)	Up stream	87	Lutron tu-2016	288	No	
			Middle stream	194		268		Middle stream	57		268		
			Down stream	122		242		Down stream	68		242		
	3.2 CYIMPIMA site												
pH	-	-	Up stream	-	-	-	21-Feb-19	Up stream	7.21	IDAODAN pH Meter	<9.0	No	
			Middle stream					Middle stream	7.01				
			Down stream					Down stream	6.97				
TSS or	mg/L	4-Jan-19	Up stream	580	8-Jan, 2019 after heavy rain	869	21-Feb-19 (Cloudy W/rain)	Up stream	54	Portable TSS Meter	869	No	
			Middle stream	900		899		Middle stream	23		900		
			Down stream	650		890		Down stream	10		890		

Turbidity	NTU		Up stream	266	8-Jan, 2019 after heavy rain	380	21-Feb-19 (Cloudy W/rain)	Up stream	68	Lutron tu-2016	380	No	
			Middle stream	409		412		Middle stream	92		412		
			Down stream	320		412		Down stream	58		412		
	*1: RS110/2009 Water quality – Tolerance limits of discharged domestic wastewater *2 In case if TSS of baseline data was already exceed the set standards by RS110/2009, the figure measured by baseline data shall be used as maximum tolerance limit. *3: In case Contractor(s) prefer Turbidity to TSS, the Contractor measure TSS and Turbidity in the Baseline survey and identify the turbidity level at pre-construction stage which shall be used as maximum tolerance limit.												

4. Water Quality in Alternative Water Supply Facilities (After drilling)

Item	Unit	Baseline Data Date: Oct. /2016	Monitoring Result		Model of Equipment used	Standards max. Limits *1	Action Required (Yes/No) Describe if Yes:	Contractor Response / Comment
			Date:	Amount measured				
pH	-	6.0				6.5-8.4		
EC	µS/cm	160-255				0-3000		
Nitrates	mg/L	33-51				50		
TDS	mg/L	79-125				0-2000		
Total Hardness	mg/L	62-94				500		
F-	mg/L	0-0.2				0.6-1.2		
SO_4^{2-}	mg/L	6				150		
Total Coli.	CfuX/100ml	1.0-1.3				0		
Chloride	Mg/L	31-43				500		
Fe	mg/L	0.21-0.91				1-3		
Mn	mg/L	0.04-0.06				0.1-0.5		
*1: WHO Water quality guidelines, use range in domestic potable water								

5. Natural Environment

Item	Monitoring Result			Action Required (Yes/No) Describe if Yes:	Contractor Response / Comment
	Date	Nest of protected bird nests found on the trees to be affected? Yes/No	If yes, Number and location found		
Relocation of Bird nests		No		N/A	

6. Noise/Vibration Monitoring

Item / Location	Result of Measurement				Contractor Response / Comment
	Noise (dB)	Date	Vibration (dB)	Date	
	< 85dB		< 75dB		
Bugugu Dam	65.8	21-Feb-19	40.0	21-Feb-19	
Cyimpima Dam	67.5	21-Feb-19	40.0	21-Feb-19	

7. Notes;

For both sites Bugugu and Cyimpima, impact / mitigation measures are well implemented. In consideration of obtained monitoring results for 3: Water Quality at Outlet of Discharge from Sedimentation Pond, the results remain in good range as per the standards and hence there is no required action to be taken so far. At Cyimpima site there has been a significant decrease in TSS or Turbidity concentration compared to the previous month (January) measurements considered as result of setting a sump pit to prevent mud water from directly flowing out to the canal and less agricultural activities within the neighboring area. The noise/vibration remains in good range as well.

Inspection Completed by: NZABAMWITA Innocent **Date: 20/03/2019**

Environmental monitoring officer/RAB