

Environmental and Social Monitoring Form for Construction Stage

Notes: Ln88 – 88km Massangulo – Lichinga in the Main road the Quarry has been deactivated

3KM – Construction of N13 Intersection to Massangulo Vila Sede we have not large scale pollution because all the material applied for this project work comes from an external quarry.

73KM – Lutembue Bridge

Item	Location	Parameter/ Means of Monitoring	Result (Average / Max / Total, etc.)	Standard (Legal / International Standard)	Frequency	Remarks	
Air quality	Construction site	Visual inspection of mechanical condition and exhaust gas	Equipment in good mechanical condition.		Every day before working	This is being registered since the beginning of the bridge works at km 73 + 945 in September 2023	
	Construction site	Visual observation of dust	No dust Emission		Every day	This is being registered since the beginning of the bridge works at km 73 + 945 in September 2023	
		No. of complaint	There is no complaint.		Any time	This is being registered since the beginning of the bridge works at km 73 + 945 in September 2023	
	Boundary of ROW nearest to construction site	SPM10	July to September 2023 Average: 0.002 mg/m ³ , Max: 0.005 mg/m ³ at Main Camp;	0.02 mg/m ³ (Japan, average 24h)	2 times in dry season and 2 times in rainy season	This values were registered by the beginning of the bridge works at km 73 + 945	
			July to September 2023 Average: 0.02 mg/m ³ , Max: 0.03 mg/m ³ at Bridge works KM 73 + 945;			This values are being registered since the beginning of the bridge works at km 73 + 945 in September 2023	
			July to September 2023 Average: 0.0085 mg/m ³ , Max: 0.012 mg/m ³ at Main Camp; Average: 0.009mg/m ³ , Max: 0.0142 mg/m ³ at Massangulo main market			This values are being registered since the beginning of the bridge works at km 73 + 945 in September 2023	
SO ₂			0 mg/m ³			0.04 mg/m ³ (Japan, average 24h)	N/A
	NO ₂	0 mg/m ³	0.10 mg/m ³ (Japan, average 24h)	N/A			
Water Pollution	River, stream, reservoir and other public water body where construction works are executed.	Visual observation	There is no record of activities with high potential for water pollution.		Every Month	River that crosses the Lutembue bridge km 73 + 945	
Noise	Along N-13	No. of complaint	There is no complaint.		Any time	No report of complaint during this period.	
	Boundary of land plot nearest to the construction site	Noise Level	Massangulo Village (July to September 2023) Leq(15min) Min Ave Max Min Ave Max 52.6 56.6 63.4 48.8 54.3 65.8	72 dB (07:30am-05:00pm) 58 dB (07:00pm - 07:00am) (Japan, Trunk Roads)	Every Month		
			Massangulo bus stop (July to September 2023) Leq(15min) Min Ave Max Min Ave Max 71.2 82.6 92.8 72.8 82.5 90.4				
Lione Health centre (July to September 2023) Leq(15min) Min Ave Max Min Ave Max 69.02 78.1 89.1 66.8 71.1 88.2							
Massangulo Secondary School (July to September 2023) Leq(15min) Min Ave Max Min Ave Max 64.2 70.5 88.2 58.9 68.1 72.2							
			Main Camp (July to September 2023) Leq(15min) Min Ave Max Min Ave Max 49.3 55.5 68 56.1 60.0 68.5				
Sensitive Area (School, Hospital)			70 dB (Japan, Sensitive Area)		N/A		
General waste	Waste storage at construction site, Waste Disposal Site	Waste Oil and other construction waste	Store Condition		Every day	Tires, filters and used oils have been stored in drums containers in the storage area of the workshop. They are reusing the remnants of metals to produce stove, roasting pans, signal board and funnel (ongoing)	
			Recycling Status				Recycling of metals drums
			Way of recycle				Produce stove, roasting pans, signal board and funnel.
		General Waste	Recycling Status				Recycling of plastic bottles
			Way of recycle				For domestic use as containers for water/juice and cooking oil. They may also be used as plant pots although in small quantity.
			Way of treatment				Re-use (used by internal personnel); Re-use in construction activities; Dumpsite.
Location of final disposal site	Within the Main-Camp.						
Ecosystem	Along N-13	Visual observation of animals (mammals, birds, reptiles, amphibians)	The presence of some Crow and Owl are observed.		Every day	During the day some crows are on site and owl during the night	
Accident	Along N-13	Checking Traffic Accident Report	Nothing to report for the review period.		Every Month	Nothing to report for the review period.	
Land Acquisition	Along N-13	A: No. of land acquired/ B: to be acquired	A: 03 and B: 0		Once	Borrow Pits are both deactivated. The land compensation have been completed to both of the respective land owners, by the 28th November 2021.	
		A: No. of HHs received compensation/ B: HHs to be compensated	A: 13 and B: 0			Progress Ratio: $A/(A+B) = 228/(228+1) = 0.995633$	Implementation of RAP had been finalized on July 24, 2021. The total number of RAP implementation done at completion of this activity is 13 cases.
		Complaint received	Complaints only occur during explanations and signatures of compensation agreements. The construction began after the implementation of the RAP. We have no record of complaints after commencement of construction.			In general, all affected people	All affected people have received their compensation.

Environmental Monitoring Form for Operational Stage

Item	Location	Parameter/ Means of Monitoring	Result (Average / Max / Total, etc.)	Standard (Legal / International Standard)	Frequency	Remarks
Air Quality	N-13 Intersection of Massangulo Vila sede	No. of complaint			Any time	No comment
	Lutembue Bridge	SPM10	Average: 0.02 mg/m3, Max: 0.03 mg/m3 ;	0.03 mg/m ³ (Japan, average 24h)	Quarterly	Measured
		SO ₂	0 mg/m3	0.04 mg/m ³ (Japan, average 24h)		N/A
		NO ₂	0 mg/m3	0.10 mg/m ³ (Japan, average 24h)		N/A
Noise	N-13 Intersection of Massangulo Vila sede (bus stop)	No. of complaint			Any time	Not measured
	Residential Area/Main camp	54.2dB in Lione and 68.4dB in Massangulo Village between 7:00 AM to 17:00 PM	Leq(5min) Leq(15min) Min Ave Max 49,3 55.5 68	68 dB (06:00-21:00) 62 dB (21:00-06:00) (Japan, Trunk Roads)	Quarterly	Measured
	Sensitive Area (School, Hospital, Market and Church)		Leq(5min) Leq(15min) Min Ave Max 69,02 78,1 89,1 66.8 71.1 88.2	55 dB (Japan, Sensitive Area)		Measured
Ecosystem	Along N-13 Intersection of Massangulo Vila sede	Visual observation of animals, reptiles and amphibious			Quarterly	Nothing to report to date.
Accident	N-13 Intersection of Massangulo Vila sede	Checking Traffic Accident Report			Quarterly	Nothing to report to date
		Visual observation of accident with animals				None to date