

Environmental Monitoring Form for Construction Stage

Attachment EN3

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	colorless gas, no eyes irritation was left		every day before working	Also at the Fofoueng village level, a maximum PM10 value of 170 µg / m3 was recorded during the measurements. This value, although lower than the Cameroonian standard (260 µg / m3) would be due to the fact that at the level in this village, the ground was not muddy like in the other measuring stations, and therefore dust particles flew off as vehicles passed. As a result, the company has increased the watering of the site	
	construction site	visual observation of dust	No observation of dust in the air. The study was conducted in the rainy season		every day before working		
	storage facilities for dust generating						
	boundary of ROW nearest to construction site	SPM10	4,49 – 27,21		50 µg/m3 (WHO, average 24h)		2 times in dry season and 2times in rainy season
		SPM2.5	2,23 – 19,22		25 µg/m3 (WHO, average 24h)		
		SO2	0 – 0,010		0.30 mg/m3 (MOE, average 24h)		
NO2		0	0.10 mg/m3 (MOE, average 24h)				
	O3	0,009 – 0,060					
water quality	rivers including Sanaga river, streams and other public water bodies where construction works are executed	visual observation	The work in progress does not disturb the current of two (02) streams, however, the flow velocity of eleven (11) is disturbed.		every day	In general, the results of physico-chemical analyzes show that the waters of the rivers that were the subject of this study are unpolluted and have the character of natural waters. Otherwise, The turbid character of some rivers is high (river 13 in particular). Pollution by heavy metals (lead) has been identified in waterways as well as faecal contamination.	
		analysis using potable pH and turbidity meter					
		pH	4,6 – 6,7	6,5–8,5	when any pollution is suspected	In order not to interfere with the flow of water, deviations were created during the construction of the hydraulic structures and the company was asked to avoid pouring the remains of concrete into the watercourse. In addition, the section of road has been the subject of a regular watering schedule.	
		TSS	0 – 510	25–100 (mg/l)			
		TURB	4,89 –124	<5 (NTU)			
		MES	9,1 – 88,3	50 – 100 (mg/l)			
		COND	0 – 660	<400 (µS.cm-1)			
		BOD	22,5 – 100	1–10 (mg/l)			
		COD	27 – 120	1–8 (mg/l)			
		PLOMB	0 – 0,0021	≤0,01 (mg/l)			
		CADMIUM	0	≤0,0005 (mg/l)			
		CHROME	0	≤0,05 (mg/l)			
		ZINC	0	≤3,00 (mg/l)			
		CUIVRE	0	≤ 1 (mg/l)			
CF	10 – 165	< 2000 (UFC/100 ml)					

noise	boundary of land plot nearest to the construction site	Noise level		38,07 – 62,64	60dB(06:00–18:00) 60dB(06:00–18:00) 60dB(06:00–18:00) (MOE, residential area)	*when noise/ vibration level exceeding the standards is suspected *when local residents complain	in order to minimize noise pollution, the working time is well developed: from 7:30 a.m. to 12 p.m. and from 2 p.m. to 6 p.m., horns are prohibited and equipment maintenance is monitored on a regular basis
vibration		vibration level		0 – 0,21	65Hz(05:00–17:00) 60dB(17:00–05:00)		
general waste	waste storage at construction site	slurry and other construction waste	discharged amount		X	every domain	waste continued to be managed by the sate consultant
			recycled amount	0			
			the way of recycle	inert waste is stored at the Mangaï technical base and some recovery for reuse.			
			treated amount	0			
			location of final disposal				
		general waste	discharged amount	0			
			recycled amount	0			
			the way of recycle	Storage at the staff housing site in Mangaï pending collection by SATE SARL.			
			treated amount	0			
			location of final disposal				
Hydrology	rivers, streams and reservoirs where construction works are executed	visual inspection on volume and speed of water flow	The work in progress does not disturb the current of two (02) streams, however, the flow velocity of eleven (11) is disturbed.			every domain	
Ecosystem	lot 1	visual observation of animals, reptiles and amphibious	Palm rats (<i>Xerus erythropus</i>), dwarf mongooses (<i>Helogale parvula</i>), blue duikers (<i>Cephalophus monticoles</i>) and Cob defassa (<i>Kobus ellipsiprymmus</i>), common grasscutter (<i>Thryonomys swinderianus</i>), porcupine (<i>Hystrix cristata</i>), squirrel (<i>Myosciurus pumilio</i>), Gambian rat (<i>Cricetomys gambianus</i>) and African arthritis (<i>artherurus africanus</i>), reptiles (naja, monitor lizards, python, viper). Several species of fish inhabit the rivers of the region, there are species such as Tilapia (<i>Oreochromis niloticus</i>), Catfish (<i>Clarias gariepinus</i>), Common carp (<i>Cyprinus carpio</i>) and Kanga (<i>Heterotis niloticus</i>)			every half year (1 time in dry season and 1 time in rainy season)	Awareness continued on a quarterly basis by an NGO recruited by the company
	lot 2						
	lot 3						
	lot 4						

**Remarks; Past trend and current status including remedial measures if necessary