



Kribi Power Development Company

Dibamba Power Project 88MW Thermal Power Plant & 90kV Transmission Line

**Environmental and Social Impact Assessment
Air Quality Addendum Final**

April 2008

Report Control Form

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Environmental and Social Impact Assessment
Air Quality Addendum Final

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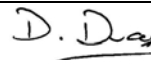
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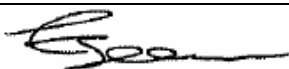
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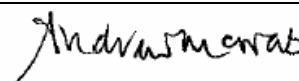
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AIR QUALITY ADDENDUM

1.1 INTRODUCTION

Within Section 5.3 of Scott Wilson Dibamba Power Project ESIA (Environmental and Social Impact Assessment), January 2008, it was noted that Cameroon does not have an established network of air quality monitoring stations in the project, or wider, area. In order to evaluate the baseline air quality in the vicinity of the proposed site, a 12-week diffusion tube survey was carried out, from November 2007 to February 2008. Although the results of the baseline survey were not available in time for inclusion within the ESIA chapter, they are reported within this document.

1.2 BASELINE AIR QUALITY SURVEY

The survey undertaken included the measurement of nitrogen dioxide (NO₂) and sulphur dioxide (SO₂) at ten locations around the power plant site (see figure 5.3.1 within the ESIA). At three sites, diffusion tubes were also deployed to determine local background concentrations of ozone (O₃).

There is one existing industrial development in the vicinity of the proposed power plant, the Savonnerie Azur soap factory (here in known as the ‘soap factory’), which is adjacent to the site directly to the north. The other main local sources of combustion emissions are the nearby Douala to Edéa main road and domestic emissions from local housing. Traffic travelling along the main road is light, averaging approximately 3,500 vehicles per day.

1.3 MONITORING LOCATIONS

Monitoring locations were chosen in order to evaluate the contribution to baseline pollutant concentrations from the soap factory and local road traffic, and also to establish background levels in areas remote from significant sources of combustion emissions. The monitoring locations are detailed in Table 1 and shown on Figure 5.3.1 (see full ESIA).

Table 1: Air Quality Monitoring Sites		
Monitoring Sites		Description
NO₂ and SO₂	O₃	
1	1	Rural location along a dirt track to west of site boundary
2	-	Main road to north east of site
3	-	Rural area to south east of proposed site
4	-	Closest house next to main road to north of site
5	-	Yassa Junction
6	-	Rural location to north of site
7	2	Rural location by local houses to south of site
8	-	Yassa Village south west of site
9	-	Farm to east of site, near Dibamba bridge
10	3	Rural area to north of site

1.4 SURVEY RESULTS

The results of the monitoring survey are reported in Tables 2, 3 and 4. The monitoring programme was broken up into three four-week sections, and diffusion tubes were changed at the end of each monitoring period. The monitoring periods were:

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- A: 28/11/2007 to 27/12/2007
- B: 27/12/2007 to 23/01/2008
- C: 23/01/2008 to 20/02/2008

Site	Pollutant Concentration (µg/m ³)			
	A	B	C	Average
1	6	4	5	5
2	17	4	7	9
3	5	2	3	3
4	11	8	10	10
5	15	12	12	13
6	5	4	5	5
7	8	3	10	7
8	5	3	7	5
9	8	6	7	7
10	9	8	8	8
Annual Mean World Bank Criteria				100

Existing local ambient concentrations of NO₂ are well within the annual mean World Bank standard of 100µg/m³. Measured concentrations at most locations are typically less than 10µg/m³. Slightly increased levels can be observed in close proximity to busier roads within the study area, such as at sites 5 (Yassa Junction) and sites 2 and 4 (on the Douala to Edea main road). Sites 2 and 4 are also in close proximity to the existing soap factory, and it is possible that emissions from this process contribute to the measured concentrations at these locations.

Site	Pollutant Concentration (µg/m ³)			
	A	B	C	Average
1	3	3	2	3
2	3	3	3	3
3	1	3	3	2
4	1	6	3	3
5	4	4	3	4
6	2	11	2	5
7	1	5	3	3
8	1	4	3	3
9	1	3	2	2
10	2	3	4	3
Annual Mean World Bank Criteria				80

Baseline levels of SO₂ are low at all the locations sampled, and are well within the World Bank standard. The highest measured concentrations during the sampling programme were at location 4 (6.4µg/m³) and location 6 (10.6µg/m³), it is possible that location 4 experienced an increase during month B due to emissions from the soap factory and site 6 due to a localised emission source that was near the monitoring tube.

Site	Pollutant Concentration (µg/m ³)			
	A	B	C	Average
1	46	52	52	50
2	42	43	43	43
3	57	51	51	53

The results of the ozone monitoring survey has confirmed that baseline levels are typical of equatorial latitudes, and are representative of the conditions assumed within the ESIA Chapter.

Overall, baseline air quality in the vicinity of the proposed plant site and transmission line route has been confirmed as being of a good standard.

1.5 CONCLUSIONS

The ESIA air quality chapter assumed annual mean baseline levels of 1.0µg/m³ NO₂, 1.5µg/m³ SO₂ and 39.0µg/m³ O₃. These values were derived from previous monitoring undertaken in rural Cameroon. Based on the updated data presented within this report, predicted operational concentrations of NO₂ would be, on average, between 2µg/m³ and 12µg/m³ higher than those reported in the ESIA chapter. Predicted concentrations of SO₂ would be, on average, between 1µg/m³ and 4µg/m³ higher. These revised values would not affect the conclusions of the assessment, which were that annual mean values of NO₂ and SO₂ would remain within World Bank criteria.

The modelling assessment predicted that emissions would disperse to raise baseline annual mean NO₂ concentrations at sensitive receptors within the study area by between 0.8µg/m³ and 35.7µg/m³. The maximum impact was predicted to occur to the north east of the proposed plant. Taking into account the existing concentrations reported within this document it is unlikely that the World Bank criteria for annual mean NO₂ would be exceeded.

Modelled emissions of SO₂ were predicted within the ESIA assessment to raise annual mean concentrations by between 0.4µg/m³ and 31.7µg/m³, or between 0.5% and 40% of the World Bank criteria. Given the widespread low levels of measured baseline SO₂, it is unlikely that there would be an exceedence of the criteria at sensitive receptors.