Jiangxi Chenming Paper Company Ltd.

EIR Update for Jiangxi Chenming LWC Project

March 14, 2004

Background

The Jiangxi Chenming Paper Company Ltd ("Jiangxi Chenming") is constructing a green-field paper mill in the Changbei Economic Development Zone, outside Nanchang, Jiangxi Province, China.

The project concept was originally developed by the Jiangxi Paper Company ("Jiangxi Paper"), and envisaged the construction of a 200,000 tonnes/year paper mill. An Environmental Impact Report (EIR), prepared by the Environmental Protection Scientific Research Institute of Jiangxi Province, dated October 2003, describes the anticipated environmental impacts of the 200,000 tonnes/year project.

Jiangxi Chenming took over project development from Jiangxi Paper and increased the project scale to 350,000 tonnes/year of light weight coated (LWC) paper, and added a 136,000 tonnes/year de-inked pulp (DIP) line to the original project concept. This EIR update describes differences between the Jiangxi Chenming LWC project now under development and Jiangxi Paper's original project, and the effect of these changes on the project's environmental impacts.

Project Scale

Table 1 compares the planned production outputs of the Jiangxi Paper and Jiangxi Chenming projects.

Table 1: Comparison of Jiangxi Paper and Jiangxi Chenming Paper Project.

Product	Production Output (tonnes/year)	
	Jiangxi Paper	Jiangxi Chenming
Light weight coated (LWC) paper	200,000	350,000
Bleached, chemically treated mechanical pulp. (BCTMP)	187,000	187,000
De-inked pulp (DIP)	-	136,000

The main environmental effects of this change in project capacity are:

- the heat and power demand of the site will increase, necessitating the use of two (rather than one) steam boiler to generate 100 MWe (rather than 50 MWe) from two 50 MWe turbo-generators.
- the water use and discharges from the waste water treatment plant will increase. However, the concentrations of COD, BOD and TSS in the discharged effluent are assumed to be unchanged, since the revised higher flow rate remains within the design capacity of the waste water treatment plant.

The effects of these changes are quantified in the sections which follow.

Emissions to Air

The EIR for the Jiangxi Paper project envisaged the use of one coal-fired power boiler, equipped with a 99.7% efficient electrostatic precipitator (ESP). The resulting particulate concentration in the boiler flue gases would have exceeded IFC's requirements as defined in the World Bank Group Pollution Prevention and Abatement Handbook's 1998

guidelines for new thermal power plants. An upgraded ESP capable or removing 99.9% of particulates will be used.

Table 2 shows emissions to air from the two projects, and compares these figures with Chinese and IFC limits.

Table 2: Air Emission Comparison

Item	Units	Jiangxi Paper	Jiangxi Chenming	Chinese Limit	IFC Limit
Flue gas flow per boiler	Nm^3/hr	275,771	275,771		
Number of boilers		1	2		
ESP Particulate removal	%	99.7	99.9		
Power generation	MW_e	50	100		
SO_2 concentration	mg/Nm^3	480	300	1,200	2,000
SO_2 flow	kg/hr	132	165		
SO_2 per unit of power	Tpd/MW_e	0.064	0.040		0.20
Particulate concentration	mg/Nm^3	68.4	22.8	100	50
Particulate flow	kg/hr	18.9	12.6		
NO_x concentration	mg/Nm^3	650	650		750
NO_x flow	kg/hr	179	358		

[Source: Jiangxi Chenming]

Concentrations of emissions of SO_2, NO_x and particulates will meet Chinese and IFC requirements. In addition the specific SO_2 production per unit of electricity generated will also meet IFC requirements.

The highest values of average annual concentration of SO_2, NO_x and particulates for points within the projects' airshed have been calculated as shown in Table 3.

Table 3: Maximum values of average annual concentration of air pollutants arising from projects.

Item	Units	Jiangxi Paper	Jiangxi Chenming
SO_2 concentration	$\mu g/m^3$	4.02	5.12
NO_x concentration	$\mu g/m^3$	not stated	9.22
Particulates concentration	$\mu g/m^3$	0.76	<0.76

[Source: Environmental Protection Scientific Research Institute of Jiangxi Province]

Ambient air quality data for the complete airshed affected by the project are not available. However, data are available for a monitoring station at the point marked "A", on the attached map, at the edge of the Changbei industrial zone are available. Table 4 shows the annual average concentrations of SO_2, NO_x and PM_{10} particulates for this monitoring station, and the modeled incremental additions to these figures, arising from the project and compares these figures with Chinese requirements and the World Bank threshold defining "poor" air quality.

Table 4: Annual Average Air Quality Parameters.

Item	SO2 ($\mu g/m^3$)	NO_2 ($\mu g/m^3$)	PM_{10} ($\mu g/m^3$)
Pre-project air quality	29	19	80
Increment from Jiangxi Chenming Project	1.94	3.87	0.32
Resulting annual means.	30.94	22.87	80.32
WB threshold for "poor" air quality	100	200	100
Chinese Limit	150	None	150

[Source: Environmental Protection Scientific Research Institute of Jiangxi Province]

The project-affected airshed may be defined as "moderate" air quality because of the high levels of PM_{10} recorded. Modeling shows that the airshed will retain its "moderate" air quality after addition of impacts from the project. Air emissions from the expanded project will meet IFC and Chinese requirements.

Emissions to Water

Waste water produced by the project will be treated in an anaerobic and then anaerobic treatment system of capacity 40,000 m^3/day, which exceeds the anticipated effluent flow rate of 36,000 m^3/day. Table 5 shows compares the design parameters for the waste water treatment system with IFC and Chinese requirements, and shows that these will be met.

Table 5: Waste Water Treatment Standards

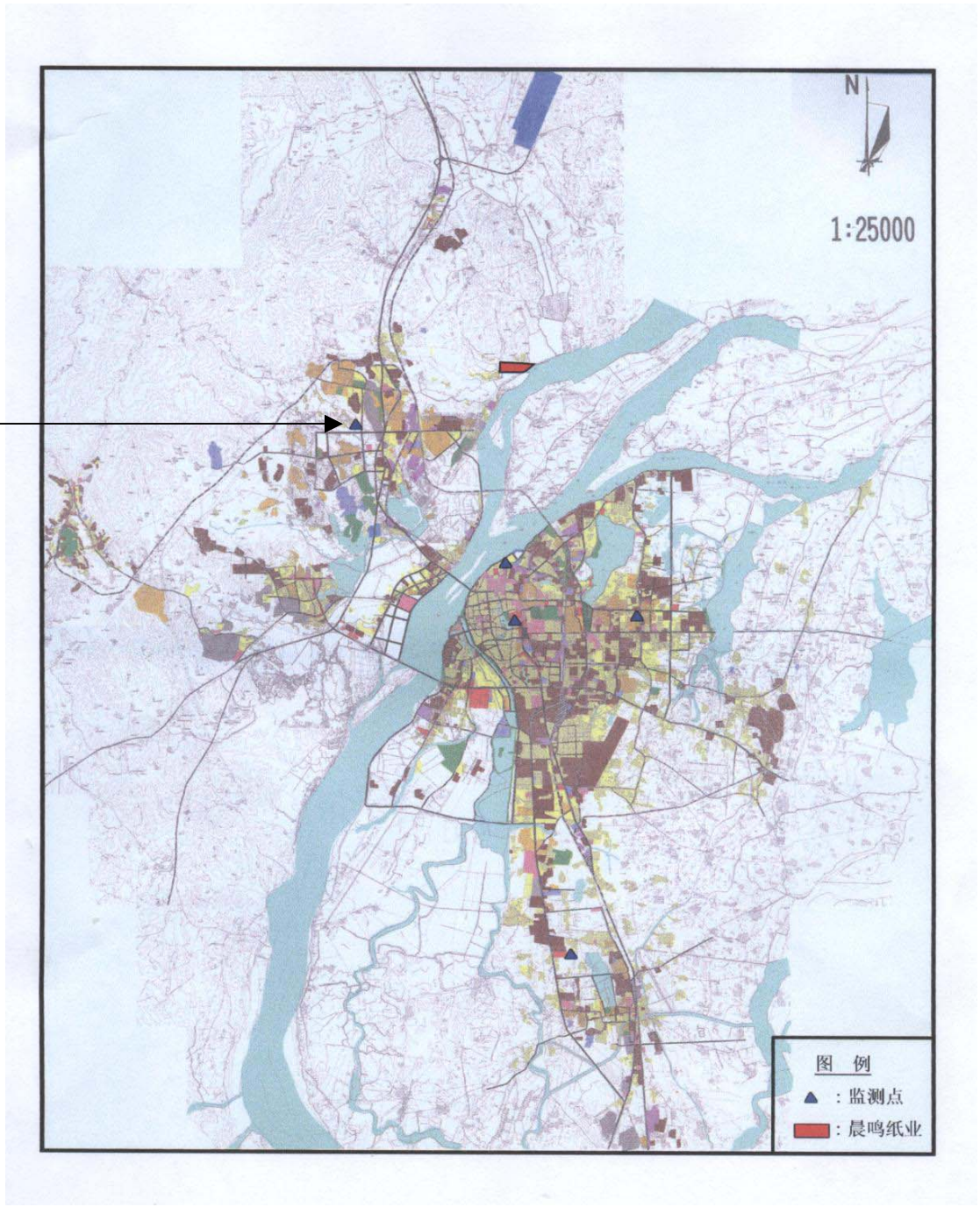
Item	Units	Jiangxi Chenming	Chinese Standard	IFC Standard
Biological oxygen demand (BOD)	mg/l	<30	68	50
Chemical oxygen demand (COD)	mg/l	<300	332	300
Total suspended solids (TSS)	mg/l	<40	100	50

Project effluent will be discharged after treatment to the North branch of the Ganjiang river. Table 6 shows the effect on the river of the two paper projects. The resulting river quality will be within Chinese standards.

Table 6: Effect of paper projects on Ganjiang River Quality

Item	BOD (mg/l)	COD (mg/l)	TSS (mg/l)
Ganjiang River	1	15	10
Increment from Jiangxi Paper project	0.21	1.07	not calculated
Increment from Jiangxi Chenming project	0.41	2.13	not calculated
Chinese Limits	6	30	150

[Source: Environmental Protection Scientific Research Institute of Jiangxi Province]



Note: ▲ Monitoring Points JiangXi ChenMing

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