



## **VIET TRI PAPER COMPANY**

### **Install a Fluidized Bed Combustion (FBC) External Furnace for the Coal Fired Boilers**

#### **SUMMARY OF THE OPTION**

Viet Tri Paper Company was established in 1961 with the assistance of the Chinese government. It is located in Phu Tho province, Vietnam. The company has six boilers for its two production lines: three coal-fired boilers (chain grade boilers) and three oil-fired boilers, with a total design capacity of 48 tons per hour (TPH). The three coal-fired boilers were manufactured in the 60s, with a design capacity of 12 TPH. They provide the steam necessary for the older production line of the company.

The assessment revealed that the thermal efficiency of the three coal-fired boilers was very slow, ranging from 45% to 50%. This results mainly from the high loss of flue gas, unburnt carbon in ash and low heat transfer efficiency. Some measurements were taken and showed that the heat loss due to flue gas is 11% while the heat loss of unburnt carbon in ash is 20%. To increase boiler efficiency, the Team recommended installing a fluidized bed combustion (FBC) external furnace with dimension of 2m x 2m x 4m for each coal-fired boiler. This improvement would allow for thermal efficiencies ranging from 75% to 80%, thus resulting in annual energy savings of around 2,760 tons of coal, which equates to GHG emission reductions of 6,928 tons. With the coal price of 23 US \$/ton the annual cost saving expected is US \$ 63,480 (approximately 1 billion VND). The cost for the measure, covering design, installation and trials amounted to US\$ 29,000. The expected payback period is six months.

Although this measure offers a quick payback, it is not implemented because of limit of available shop floor surface and the lack of capital. To overcome its lack of available capital, the company has planned to appeal to a leasing company. In addition, it requires intensive training on FBC technology for the technical staff and workers in the company to ascertain that the furnace will be properly employed.

#### **KEY WORDS**

Pulp and Paper, Vietnam, Boilers and Thermic Fluid Heaters, Coal, FBC Boiler

#### **FOR MORE INFORMATION**

##### **GERIAP National Focal Point (NFP) of Vietnam**

Dr. Tran van Nahn, Director VNCPC

Center for Environmental Science and Technology (CEST)/

Vietnam National Cleaner Production Center (VNCPC)

Hi-tech Building, Dai Co Viet Road, Hanoi, Vietnam

Tel: +84-4 8681 686-7

Fax: +84-4 8681 618

E-mail: [vncpc@vncpc.org](mailto:vncpc@vncpc.org)



**GERIAP Company in Vietnam**

Nguyen Duc Hanh, Head of Technical Department: h

Viet Tri Paper Company

Ben Got, Viet Tri City, Vietnam

Tel: +84-210 846702

Fax/Tel: +84-210 851109

***Disclaimer:***

*This case study was prepared as part of the project “ Greenhouse Gas Emission Reduction from Industry in Asia and the Pacific” (GERIAP). While reasonable efforts have been made to ensure that the contents of this publication are factually correct, UNEP does not accept responsibility for the accuracy or completeness of the contents, and shall not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on, the contents of this publication. © UNEP, 2006.*