MED TEST Case Study

PULP and PAPER sector — EGYPT

Paper industry — General Company for Paper Industry (RAKTA)

Company overview

RAKTA is a publicly owned large size company. The company produces approx. 27,000 tons/year of writing and printing paper, cardboard, fluting and test liner mainly for the local market and for export (5%).

The company was motivated to join the MED TEST project to identify opportunities for increasing resource efficiency and solving the existing problems such as: high water consumption, cellulosic fibre and energy losses and in compliance with law limits for the discharged effluents.

At project's start the company was already certified ISO 9001 and has received technical assistance through the MED TEST project to design and establish EMS according to ISO14001.

"Med TEST Project supported the company to implement cleaner production technology including conservation of raw materials, energy and water."

Eng. Mahmoud EL BATOUTY, Chairman

Benefits

The MED TEST project identified annual total savings of $US 1,518,466 in water, raw and auxiliary materials and fuel with an estimated investment $US of 2,443,446. Some measures have excellent return on investment and immediate payback period. Some of the identified measures were implemented by the company in 2011 and the remaining measures are planned to be implemented in 2012.

Water costs would be reduced by 15% through applying good housekeeping measures and implementation of monitoring and controlling system for water consumption.

Thermal energy costs will be reduced by more than 10% by implementing a monitoring system for steam consumption and boiler efficiency, recycling of steam condensate and isolating the steam lines in boilers and paper section. These measures have been integrated into a larger investment project "Rehabilitation of steam, condensate and ventilation system".

Additional environmental benefits would be reached in terms of reducing wastewater pollution loads corresponding respectively to 6% BOD5 and 2% COD annual loads. The identified measures will reduce the investment and operational costs of the WWTP at design stage, which will have a capacity of 26,000 m^3/ day.

In parallel to the identification of saving opportunities, the site has received technical assistance to design and establish EMS according to ISO14001, fully integrating resource efficiency into company policy, action plans and internal procedures. This will ensure sustainability of all the identified actions at company level as well as the development of new projects. New environmental management accounting (EMA) protocols have also been introduced into the existing internal accounting system for tracking and monitoring the most important environmental costs including those related to non product output costs.

MED TEST is a UNIDO green industry initiative to promote sustainability and competitiveness in the private sector in Egypt, Morocco and Tunisia. TEST integrated approach includes tools like resource efficiency and cleaner production, environmental management system and accounting, cleaner technology transfer and CSR.

Learn more about TEST approach at www.unido.org

MED TEST is sponsored by the Global Environment Facility, the Italian Government and the MedPartnership.

Saving opportunities

Measure	Economic key figures			Resource savings per year	
	Savings [USD/yr]	Investment [USD]	PBP [yr]	Water, Chemicals	Energy [MWh]
Good housekeeping	203 628	-	Immediately	1 075 200 m³ water 585 tons fibres, 450 tons materials	
Process monitoring	124 257	37 333	0.3	537 600 m³ water	6 809
Rehabilitation of steam system	250 000	400 280	1.6	150 000 m³ water	15 200
Installation of a system for fibre recovery	815 581	2 000 000	2.5	5 847 tons fibres	
Activating the monitoring system for controlling boiler efficiency	125 000	5 833	< 0.1		180
TOTAL	**1 518 466**	**2 443 446**	**1.6**		**22 189**

Good housekeeping: The project identified several good housekeeping measures: regular maintenance programmes, eliminating excessive floor washing and all sources of spillage and water leakage holes, closing/ sealing running water taps, taking measures to avoid blockages of the wastewater channels by using screens to prevent solids from entering wastewater channels. The implementation of good housekeeping measures would save 10% of water consumption, reduce fibre losses by 10%, and raw and auxiliary materials by 8%. These measures resulted in reduction of 39.6 tons/ year (3%) BOD and 72.2 tons/ year (1%) COD.

Process monitoring: The installation of metering devices for water and steam flows will allow good monitoring and control of process consumptions. The implementation of these options could save 5% of water consumption, 3% energy consumption and accordingly reduce the capacity of the WWTP by 10%.

Rehabilitation of steam system: Important energy savings can be achieved by increasing the percentage of recycled steam condensate which is currently 20% only. The company applied a steam survey system to detect the steam leakage sources and start the insulation of steam lines in boilers and paper machines. The implementation of this initiative will save total thermal energy consumption by 7%, increase the percentage of recycled steam condensate up to 90%, corresponding to 150,000 m³/ year of water. This project has been integrated into a large size investment plan of the company for improving and optimizing the steam, condensate and ventilation system in the paper making section.

Installation of a system for fibre recovery: This project will replace the old existing DAF (Dissolved Air Floatation) units with a new one for separating and recycling fibre, which in turn leads to increasing productivity of the site. The implementation of this option would save 16.5% (5,847 tons/year) of fibre losses, 16% of auxiliary chemicals and reduce the pollution load of the discharged effluent.

Activating the monitoring system for controlling boiler efficiency: The site implemented an effective monitoring system for adjusting the burning process of the boiler by: regulating air to fuel ratio; and controlling excess air emissions of the combustion process and exhaust temperature. The implementation of this option resulted in reduction of 180 MWh/year.

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