



MED TEST Case Study

PULP and PAPER sector — EGYPT

Paper industry — Moharrem Press Company

Company overview

Moharrem Press is a medium-size paper enterprise with core business in production of corrugated board. It produces about 10,887 tons/year of corrugated carton, 18,338,136 sheets/year of printed white paper and carton and 450,000 packages/year of playing cards for the local market.

The company has joined the MED TEST project to identify opportunities to increase resource efficiency by solving the existing problems, which mainly include high water consumption and materials and energy losses.

At project start-up, the company was already certified ISO 9001, ISO 14001 and ISO 18001. Through MED TEST, the company has integrated cleaner production and resource efficiency into the existing ISO 14001 management system.

Benefits

The MED TEST project has identified annual total savings of \$US 304,786 in water, raw materials, fuel and electricity against an estimated investment of \$US 279,217. Some options have excellent return on investment and immediate payback period. The identified measures have partially been implemented in 2011; the rest are scheduled for 2012.

Water costs will be reduced by 33% by applying good housekeeping measures, implementing a monitor and control system for water consumption, reusing washing water in the starch section and using high pressure water in the washing processes.

Insulating the steam system, recovering steam condensate, installing a semi-automatic blow-down system at the boiler as well as soft starters and inverters, improving



“The MED TEST project is a symbol of technical cooperation and a model for realizing environmental sustainability.”

Eng. Mohamed Nagieb SALAH, Chairman

the lighting system and the power factor will reduce total energy costs by approximately 15% and CO₂ emissions by 370 tons/year.

Additional environmental benefits will be achieved through good housekeeping and water conservation measures as well as the replacement of the existing glue machine, resulting in a reduction of annual wastewater pollution loads by about 20% BOD₅ and 12% COD.

In parallel to the identification of saving opportunities, the company has updated their policy, actions plans and internal procedures by integrating cleaner production and resource efficiency into the existing ISO 14001 management system; this will ensure the sustainability of all identified actions at company level as well as the development of new cleaner production projects.

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	64 704	-	-	1 932 m ³ water, 787 tons materials	
Water conservation	7 343	5 134	0.7	7 270 m ³ water, 9.5 tons fibres	
Steam system	168 293	17 083	0.1	6 733 m ³ water	1 294
Electrical system	14 446	7 000	0.5		346
New glue machine	50 000	250 000	5	966 m ³ water, 2.4 tons glue 1 678 tons product	
TOTAL	304 786	279 217	0.9		1 640

Good housekeeping: Regular maintenance programmes, safe disposal/recycling of hazardous waste like lubricating oils, elimination of excessive floor washing and all sources of spillage and water leakages, closing/sealing running water taps, installation of screens to prevent solids from entering the wastewater channels and blocking them, water recycling in paper section: such measures will save 4% water consumption and 5% raw and auxiliary materials, and reduce BOD₅ by 5% and COD by 3%.

Water conservation: Several measures will reduce the overall water consumption by 15%, including: installing water meters with an effective monitoring plan, closing the cooling water circuit in the corrugated board section, using high pressure water in washing, reusing the starch tank washing water. The latter will save 9.5 tons/year of starch, reducing BOD and COD respectively by 338 and 308 kg/year.

Steam system: Thermal energy inputs could be reduced by properly insulating the boiler's steam lines to prevent heat losses; installing new steam condensate and blow-down tanks to replace the deteriorated ones; applying semi-automatic blow-down system. These options would save 16% of thermal energy consumption.

Electrical system: A reduction of 11% in electricity consumption could be achieved by: installing soft starters and inverters at pumps, compressors and printing machines; converting the existing manually controlled lightening system into an electronic system; measuring harmonics to check for distortions in the electrical feeder and protecting the capacitors from damage; redistributing the existing capacitors to achieve a standard power factor in the range 0.92-0.95. The power factor will extend the equipment's lifetime, reduce risks for power drops in case of additional load and prevent the company from getting penalty from the Electricity Distribution Company.

New glue machine: Replacing the existing old glue machine with a new one will improve the quality of the product, save 2% water and 30% glue consumption, reduce out-of-specification products by 13%, ultimately decreasing production costs and increasing productivity. The implementation of this high investment project will reduce pollution loads by more than 5% for BOD and 3% for COD.



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