



MED TEST Case Study

FOOD sector — MOROCCO

Fish canning — Conserverie des 2 Mers

Company overview

Conserverie des 2 Mers is a Moroccan fish canning industry. The company was established in 1988, is located in the industrial zone of Moghgha in Tangier, employs 350 people and generates an annual turn over of \$US 6 millions. All the production volumes are exported and the main products are salty and marinated anchovies.

The company has joined the MED TEST project in order to identify opportunities to implement an efficient use of resources (water and energy), improve production processes, valorize fish solid waste and minimize liquid effluents in light of reducing the investment and operational costs of the future wastewater treatment plant.

The company is certified ISO 22001, IFS 5 and plans to obtain ISO 14001 certification in the medium term.

Benefits

The identified actions within MED TEST project correspond to annual savings of approximately \$US 73,970 in energy, water and raw materials with an investment estimated at \$US 120,175 and a return of investment of 19 months. Half of the actions have been realized in 2011, the rest are planned for the first semester of 2012.

Energy savings represent 65% of the total annual energy bill, corresponding to \$US 43,750.

The reduction of water costs is 22%, as a result of the optimization of the cleaning of cans and pots, the minimization of overflowing during fish washing operations, utilization of adequate equipment for cleaning in place and floors, and automatic control of cooldown valves of the machines when they are not in operation.



“As of our participation in the MED TEST project, the management of C2M has integrated environmental responsibility into the company policy, and all the company staff has adhered.”

LAMRINI Jihane, Director Quality Management

Environmental benefits are expected in terms of reductions of the wastewater pollution load, due to minimized material losses entering the drain system and recovery of edible oils within the process. The company is planning to install a wastewater treatment plant; CMPP is currently finalizing the feasibility study and the technical specifications.

The company has also benefited from the technical assistance through the introduction of an environmental management system (EMS) and the integration all the identified resource efficiency measures into its environmental policy. They plan to obtain certified ISO 14001 in the medium term.

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]
Chillers and cold storage rooms	34 443	26 550	0.8		290
Consumption of water and chemicals	4 911	4 125	1	Water: 3740m ³ Chemicals: 740 kg	
Electrical system, compressors, lighting	11 181	18 875	2		63
Valorization of fish waste and edible oils	14 695	64 375	4	Fish waste: 190 tons Oils 1.9 tons	
Heat recovery	8 739	6 250	0.7		69
TOTAL	73 970	120 175	1.6		422

Chillers and cold storage rooms: Several actions have been implemented: insulation of cold storage rooms (walls and ceiling), insulation of pipes, optimization of COP via regulation of high and low pressure of the chillers, limitation of chillers operation during peak hours, unloading of cold storage in case of exceeding the installed power, increase in the capacity of the chillers' condensers and reduction of the number of the chillers' compressors, replacement of the refrigerant R22 with R404 conform to regulations.

Consumption of water and chemicals: The implemented actions are: installation of water meters, reduction of overflowing at the level of the fish washing tanks, utilization of nozzles and spray guns for floor cleaning and recycling of cans cleaning water. By controlling the use of chemicals at the level of each work station, soda consumption has been reduced by 400 kg/year, disinfectant by 290 kg/year and detergent by 50 kg/year.

Electrical system, compressors, lighting: Measures to reduce electricity consumption include: adjustment/increase of the power factor, energy saving lighting system at the level of the entire site, and installation of electricity sub-metering system. The compressed air system has been optimized through a leak

inspection programme, reduction of idle operations of compressors and limitation of their usage during peak hours, and installation of regulation valves and of pressure probes on the air distribution network and on the air balloons.

Valorization of fish waste and edible oils: Valorization of fish waste has been studied for producing fish meals or for extracting the proteins. A procedure to handle non conformities and minimize waste at the source has been put in place and integrated in the existing IFS and ISO 22001 systems. The company will put in place a system for segregating edible oils losses generated during conditioning and packaging of anchovies and during cleaning of cans. This system will consist of an oil separator with a coalescing filter and a collection basin.

Heat recovery: The company utilizes hot water at 90°C, heated with propane gas, for the cleaning of anchovies. A cost effective alternative would be to pre-heat the cleaning water at 60°C through heat recovery either from the boiler flue gas, or from the chillers' compressors. The company has selected the second alternative for implementation, since it is more viable from an economical point of view.



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