



MED TEST Case Study

## FOOD sector — MOROCCO

# Meat industry — Boyauderie de l'Atlas

### Company overview

Boyauderie de l'Atlas is a Moroccan company in the agro-food sector specialized in the production of salted and tubular casings in various calibres. The production unit, installed since 1994 in the industrial area of Moghogha near Tangier, employs 320 people and generates a turnover of about \$US 5 million (100% for export).

The company has joined MED TEST in order to identify opportunities for resource efficiency (water and energy), water recycling, recovery of production waste, and minimization and treatment of liquid effluents.

It already has the HACCP standard, currently prepares for ISO 22001, and plans to obtain the ISO 14001 certification in the medium term.

### Benefits

The actions identified by the MED TEST project will enable the company to achieve annual savings of about \$US 133,500 in energy, water and raw materials against an investment estimated at \$US 79,125 with an average payback period of 7 months. Half of these actions were carried out in 2011 and the remaining is planned for the first half of 2012.

Energy savings represent 26% of the annual energy bill, while the water costs reduction amounts to 48% of the annual consumption. The latter will be achieved through recycling wastewater from the calibration and soaking processes, optimizing the washing of floors and crates, and better monitoring water consumption per production unit.



**“A very interesting experience, worthy of being further promoted.”**

Luc MATHET, Technical Director

These actions will reduce the consumption of salt and material losses within process, as well as the wastewater pollution load and therefore the capital investment and the operational costs of the wastewater treatment plant which the company is planning to install in the medium term.

The company has also benefited from technical assistance to set up an Environmental Management System (EMS) and has integrated the identified actions within its environmental policy. It plans to get the ISO 14001 certification 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](http://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 room	10 191	6 875	0.7		78
Electrical consumption, compressed air, lighting	6 559	26 750	4.1		27
Water consumption	55 888	33 000	0.6	Water: 30 840 m <sup>3</sup>	
Valorization of process waste	56 250	5 625	0.1	Fat: 225 tons Guts: 187 tons	
Heat recovery	4 612	6 875	1.5		47
<b>TOTAL</b>	<b>133 500</b>	<b>79 125</b>	<b>0.6</b>		<b>152</b>

**Chillers and cold storage room:** The company has implemented several actions: insulation of cold surfaces, optimization of chillers' COP by regulating pressure, limitation of chillers operation during peak hours, downloading cold storage rooms to avoid exceeding the subscribed power, regulation of chillers' condensers evaporation temperature, and replacement of R22 refrigerant with R404. The annual potential savings of these actions amount to 78 MWh.

**Electrical system, compressors, lighting:** The company has established a set of actions to reduce energy consumption, these include: improving the power factor and optimizing the subscribed power, improving site lighting, and implementing an electricity metering system. For compressed air, the improvement actions concern leaks repair, reduction of compressors' idle operations, limitation of compressors operation during peak hours, and installation of insulation valves on the air distribution network. The company has also launched a procedure to phase out the transformer contaminated with polychlorinated biphenyls (PCBs).

**Water consumption:** The company has installed water meters at each production unit and reduced water consumption in process and in crates washing through a workstation

reorganization. It also plans to purchase an automatic washing machine for the crates and to set up procedures in order to reduce the use of water for floor washing. CMPP is studying the feasibility of recycling wastewater from calibration and soaking operation, which is very rich in salt.

**Recovery of organic waste and fats:** The production process generates significant amounts of fat (0.7 tons/day), and guts waste (1.2 tons/day). These products, rich in fat and proteins, can be valorized. Within the initiative "platform for industrial waste exchange", CMPP is currently in contact with manufacturers likely to use these waste resources as secondary raw material. As part of the implementation of HACCP, the company has developed procedures for managing non-compliance and waste reduction at source.

**Heat recovery from chillers:** The company uses 60°C water heated with electricity for production process and sanitary facilities. A cost effective solution is to recover energy from the chillers' compressor to heat process water. This will require the installation of a heat exchanger at the outlet of the compressor with permanent circulation, loop and buffer tank. The potential energy saving is about 47 MWh/year.



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