



MED TEST Case Study

FOOD sector - MOROCCO

Fish industry valorisation - Pesbak & Benjeloun Company

Company overview:

Pesbak Benjeloun is medium-sized industrial unit in the food sector located in the industrial area of Guezenaya in Tangier and specializing in the treatment and valorisation of fish. The company was founded in 1991 with a capital of \$US 1.2 million, employs 150 people, and generates annual turnover of about \$US 14 million. 95% of production is designated for export.

The company joined the MED TEST project in order to identify opportunities for the efficient use of resources (water and energy), improving plant performance, valorising fish waste, and minimizing discharges, specifically liquid effluent, to reduce operating costs and the investment needed for an industrial wastewater treatment plant.

At the beginning of the project, the company was ISO9001 certified and subsequently obtained IFS and HACCP certifications.

Benefits

The actions identified during the MED TEST project were estimated to enable the company to achieve annual savings of about \$US 61,485 for energy, water and raw materials based on an estimated investment of \$US 86,4471, resulting in payback period of 1.4 years. More than half of these actions were carried out (57%) in 2014, and the remainder are scheduled for 2015.

The energy savings were estimated at 24% of the annual energy bill (electricity) which represents approximately \$US 30,967.

The potential for reducing the water consumption was



10% by optimizing floor and workstation cleaning, adequate use of equipment for cleaning of floors and production machinery, automation of the water closing valves, reducing overflows at the washing tanks, and repairing water leaks.

These actions would also help achieve environmental benefits including a reduction in the pollution load of industrial waste water via the reduction of losses in the process, and recovery of fish waste during equipment cleaning operations. These environmental benefits would generate economic savings, in this case a reduction in investment and operating costs of the wastewater treatment plant that the company plans to install.

The company also benefited from technical assistance in starting an environmental management system (EMS) and the integration of the actions identified in the policy. The company already had IFS and HACCP certification, is currently preparing for ISO 22001 certification, and is planning for 14001 certification over the medium term.

For solid waste, the company implemented several good practice measures for improving waste management and valorisation in special recycling industries.

About MED TEST

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

Learn more about the TEST approach at www.unido.org

Company overview:

Option	Economic key figures			Resource savings per year	
	Savings [USD/yr]	Investment [USD/yr]	PBP [yr]	Water, chemicals	Energy [MWh]
Electrical system	30 967	13 529	0.4		270.5
Saving water and chemical products	4 271	24 118	5.6	Water: 1 865 Chemicals: 600kg	
Cooling groups and distribution system	13 582	7 647	0.8		751
Valorisation of fish waste	12 635	41 176	1.8	296 Tons	
TOTAL	12 635	41 176	3.3		388.2

Electrical system:

The project identified several measures for reducing power consumption including: power optimization after power factor improvement, installation of electric meters linked to an energy management system, optimization of factory lighting, load shedding of non-critical equipment to avoid exceeding power draw and the attendant penalties. These measures reduced annual energy consumption by 270 MWh.

Saving water and chemical products:

Several actions were identified including:

- optimized washing of workstations and floor using pressure on spray guns as well as stop valves;
- redevelopment of workstations to prevent failures and product losses;
- reducing overflows in fish wash units;
- eliminating pipe leaks.

For chemicals, cleaning product and disinfectant consumption was optimised by better monitoring and control at the workplace level.

Cooling groups and distribution system:

Several actions were recommended including: installing curtains strips at cold storage entrances, optimization of storage in cold rooms, insulation of cold surfaces, limiting chiller operation during peak hours, and the shedding of cold rooms if power limits are exceeded.

The company set up a preventive maintenance program to improve the efficiency and availability of refrigeration equipment, and an online monitoring system was installed in refrigeration plants. These measures will help optimize energy consumption, reducing it by around 118 MWh.

Valorisation of fish waste:

The company set up a project to use solid fish waste by drying it in dryers and selling the resulting product to fishmeal producers. Non-conformities management procedures to reduce waste at source were also set up in accordance with ISO 22001 certification.

Other waste, such packaging and consumables, is collected, separated, compacted, and sold to recycling industries



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Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem

MedPartnership