MED TEST II Case Study

switchmed

As part of the SwitchMed programme, UNIDO supports industries in the Southern Mediterranean through the transfer of environmental sound technologies (MED TEST II) to become more resource efficient and to generate savings for improved competitiveness and environmental performance.

Tunisia

ABCO
Food sector

Context

Number of employees:	300
Key products:	Canned tuna, sardines, mackerel, anchovy
Main markets:	Local and international
Management standards:	ISO 9001, ISO 22000, CE, FDA, Russian accreditation

ABCO, an agribusiness company, is located in the fishing port at Sidi Daoud, in Tunisia's CAP BON region, and was originally a cannery established by the State in 1824.

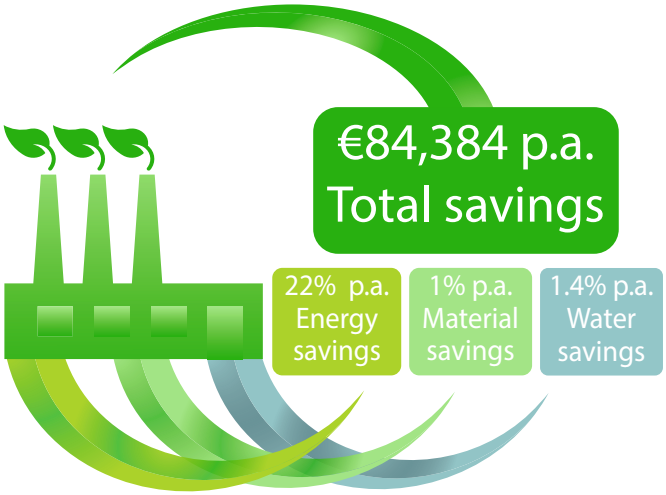
Since then, the company has built up its illustrious and prestigious SIDI DAOUD brand of canned tuna, sardines, mackerel and anchovy in a wide range of flavours. The company produces approximately 4,555 tonnes of tinned produce both for the local market and for international customers in regions including Europe, Africa, the USA, Canada, the Middle East; around 49% of the production is exported.

Today, the company is a jewel in Tunisia's agribusiness crown, the first in the industry to be ISO 9001, ISO 22000, EC, FDA and Russian certified, with further ISO 50001 certification underway, and ISO 14001 certification planned with invaluable support from the MED TEST II project.

"Our concern is to anticipate the risks associated with pollution and to prevent these while minimising waste, and by improving our environmental and energy performance while conserving our resources."

Samy Bellagha
Deputy Managing Director

Benefits



Graphic: UNIDO

The MED TEST II project has identified total annual savings of EUR 84,384 resulting from water resource and energy savings as well as the recovery of fish waste, against an overall investment of EUR 160,426. The return on investment payback time for the 16 measures identified as part of the project varies between 3 and 24 months. The company's management have decided to implement most of the identified measures.

Resource savings will comprise approximately 1% of the purchase cost of raw material and 22% of the energy costs, and will be achieved through the implementation of RECP measures.

The environmental savings will comprise a 10% reduction in CO_2 emissions, a 1% reduction in the volume of liquid waste, a 41% reduction in solid waste, and a 9% reduction in BOD_5.

In addition to the reduced volumetric and pollutant load on wastewater treatment facilities resulting from efficiency measures for the identified resources, the company is planning to acquire new filtration and systematic STEP maintenance systems. This is crucial to ensuring legal compliance.

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SwitchMed is funded by the European Union

Saving opportunities[1]

Action	Economic key figures			Resource savings & Environmental impacts per year		
	Investment euro	Savings euro / Yr.	PBP Yr.	Water & Materials	Energy MWh	Pollution reduction
New sardine thawing technology	6,500	25,000	0.3	2,628 m^3 water 20 t sardines	-	Total: 632 t CO_2 47.3 t BOD_5 4,028 m^3 waste water 28 t solid waste
Recovery of waste into fishmeal	85,926	10,040	8.5	1,400 m^3 water 46.5 t materials	-	
Energy consumption optimisation	20,000	26,727	0.7	-	924	
Implementation of good practices	48,000	22,617	2.1	-	1,103	
TOTAL	**€ 160,426**	**€ 83,384**	**1.9**	**66.5 t materials 4,028 m^3 water**	**2,027 MwH**	

1 Numbers based on production value from 2015

New sardine thawing technology

This involves the acquisition of a new aerosol technology to accelerate the sardine thawing process and as a result, a reduction in water consumption of approximately 1% of total consumption, i.e. 2,628 m^3/year. The project has also enabled an improvement in sardine quality, as well as an increase in the company's productivity by halving thawing time.

Waste recovery

The main tasks identified involve: (1) The recovery of oil at the production level and after the tuna cooking stage, through the construction of collection trays below each cooker to recover lost oil, which is led off to another settling tank. This allows the recovery of approximately 18.5 t per year, or a reduction of 17 tons of BOD_5/year; (2) The recovery of sardine waste consists of recovering all washing waste using filters constructed on the gutters and leading this off to the fishmeal production facility. In addition, the sardine washing-up water is reused to transport the waste to the gutters. This enables the recovery of 28 tonnes of waste, and a reduction in water use of approximately 1,400 m^3/year. (3) This involves the recovery of soluble protein at the compression water stage in order to produce very high quality fishmeal, and to reduce the BOD^5 discharged into the pipes by approximately 17 tonnes.

Energy consumption optimisation

These measures involve:
(1) The acquisition and installation of a monitoring system and the analysis of energy consumption (electricity, fuel and drinking water) and the supplementation of existing metering systems with others for different energy uses.
(2)The thermal insulation of steam circuit valves and flanges, which will enable the recovery of 419 MWh of thermal energy.
(3) A study to switch from a uniform contract to an hourly contract type, and a review of the contracted manpower.
(4) Energy efficiency training for personnel.

Implementation of Good Practices

This involves:
(1) The detection and repair of compressed air and steam leaks on the various production machinery and the distribution circuit, enabling the recovery of 787MWh of energy annually.
(2) An improvement in the operating state, and the optimisation of the operating pressure of the compressor by performing preventive maintenance.
(3) Control of the boiler combustion parameters.
(4) Control of the condensation temperature in the high-pressure systems by altering the variable (HP) condensation temperature according to variations in the external temperature on the variable HP systems (5) STEP renovation through the acquisition of a new filter and the introduction of regular maintenance for the plant.

"Thanks to the MED TEST II project, we have been able to improve our existing cost accounting by determining hidden environmental costs. This trial-based approach has also enabled us to ensure resource savings and to fine-tune our energy management system"

Samy Bellagha
Deputy Managing Director

For more information, contact:

United Nations Industrial Development Organization
Department of Environment
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Telephone: (+43-1) 26026-0, Fax: (+43-1) 26926-69
E-mail: C.GONZALEZ-MUELLER@unido.org
Web: www.unido.org

Centre Technique de l'Agro-alimentaire (CTAA)
12, Rue de l'Usine 2035 Charguia 2,
Tunis Carthage, TUNISIA
Telephone : +216 71 940 081 / 71 940 198 / 71 941 015 Fax: +216 71 941 080
Mail : ctaa@ctaa.com.tn Web : www.ctaa.com.tn