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.

Algeria

Laiterie de Saïda

Food and beverages sector

Context

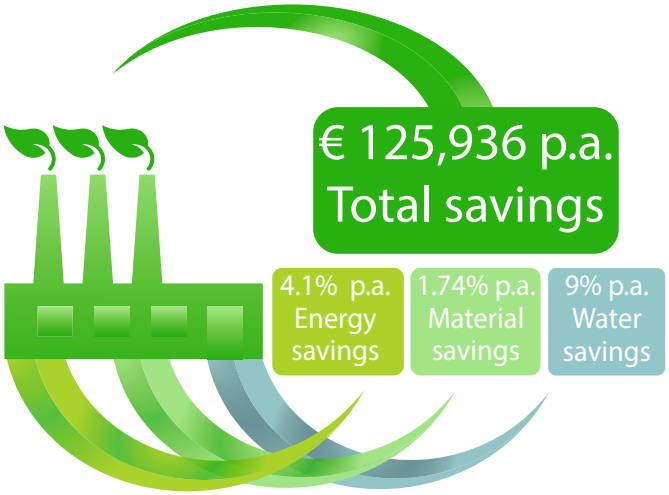
Number of employees:	158
Key products:	Milk, L'ben, Raïb, Cream, Butter
Main markets:	Local
Management standards:	ISO 22000

La laiterie « La Source » de Saïda is a public enterprise established in 1984 and a subsidiary of the GIPLAIT group. It specializes in the production of a wide range of products including milk; fermented milk (Ben and Raïb); cheese, cream and butter. The company is located in the industrial work zone of Saïda, assisting with livestock farming and distribution of finished products, to ensure the availability in the region of Saïda and on the national market of dairy products' widespread consumption.

"The TEST approach is for us a management approach that allows us to strengthen our competitiveness and reduce our negative impacts on the environment, thus contributing to the achievement of our mission and making it sustainable "

Aziz Benkhalfallah
General Manager

Benefits



Graphic: UNIDO

The MED TEST II project identified RECP measures worth 125,936 euros in annual savings resulting from raw material and energy savings. These measures require an overall investment of around 111,393 euros with an average payback period (PBP) of 0.88 years.
The PBP of the identified RECP measures vary between a month and 5.7 years. 50 % of the 20 measures identified were selected for implementation by the management and 25 % of the measures were retained for further studies.

The annual economic savings in raw materials account 1.74 %, 4.14 % on energy costs, and 9 % on water consumption through implementation of the identified RECP measures.
The environmental gains will result in a 9.52 % reduction in CO_2emissions, 18.3 % reduction in solid waste generation, and 18.4 % reduction in wastewater.

Encouraged by the results of the TEST project, the company plans to integrate the MFCA tool as complementary analysis tools into the company's accounting system.

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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
Reducing electricity consumption	9,613	2,657	3.6	902 m^3 water 0.9 t raw materials	904	Total : 224 t CO_2
Energy efficiency	1,378	1,172	1.2	-	6	
Modification of conveyor systems and procedures	79,339	71,678	1.1	273 m^3 milk 9.6 t raw materials	-	20.1 t solid waste
Improvement of technical specifications for packaging	10, 427	46,135	0.2	32,1 t raw materials 27 m^3 milk	-	66 t DCO
Reducing water consumption	10 636	4,294	2.5	10,182 m^3 water	-	
TOTAL	**€ 111,393**	**€ 125,936**	**0.9**	**342.6 t raw materials 11,084m^3 water**	**910 MWh**	11,384 m^3 waste water

1 Numbers based on production value from 2015

Reducing electricity consumption

The heat insulation of the steam circuits and the installation of a hot condensate return circuit onto the boiler make it possible, on one hand, to reduce energy consumption by 904 MWh annually and, on the other hand, to reduce the consumption of water and chemicals necessary for its treatment. These measures also reduce greenhouse gas emissions by 220 t CO_2 annually, or 8.77% of the company's total emissions.

Energy efficiency

A series of procedures such as installation of capacitor banks to improve the power factor, elimination of active energy consumption in peak hours and reduction of the maximum power demand allow the optimization of consumption of electric energy at the company with a reduction in energy bill by 1.54%.

Modification of conveyor systems and procedures

In order to reduce handling operations, which are sources of breakages generating product loss and waste, four steps were retained by the company:1 / Installation of a new conveyor belt, ensuring the conveying of products from the output of packaging machines and to the delivery truck; 2 / Use of an electric pallet truck in the shipping zone; 3 / Use of a manual pallet truck in the reception zone; 4 / Use of hooks better adapted for drawing of bins. These procedures make it possible to reduce polyethylene packaging waste by 9.63 t annually, or 8.74% of waste generated at the company, as well as decrease pollution flow in wastewater by 60 t, expressed in COD, annually or 16.7% of the total pollution flow of the company.

Improvement of technical specifications for packaging

This measure consists of improving the technical specifications of polyethylene packaging used for milk packaging and strengthening their controls. Indeed, the use of international packaging standards ensures optimal quality of packaging with a saving of material. In addition, improving the technical specifications of the polyethylene milk containers increases their wear resistance and prolongs their service life. This results in a reduction in packaging material consumption by 32.1 t annually or 11.2% of total consumption, a reduction of waste by 10.5 t annually or 9.52% of company waste as well as a reduction in the loss of milk and pollution in wastewater due to the breakage of the bins and milk bags.

Reducing water consumption

The main measures determined within this scope are: 1 / Recovery of decentralization of cooling tower purges and reuse for cleaning of docks and parking; 2 / Reuse of final rinsing water from the CIP station for initial rinsing or for floor cleaning; 3 / Use of pressure washers (Karcher type) as well as pressure guns at the tip of pipes and hoses for various cleaning. These measures enable an annual water saving of 11,084 m^3, i.e. 9% of total consumption and a reduction in the volume of wastewater.

"Through the TEST approach, we have changed our approach in managing the environment, moving from a reactive approach to an anticipation and avoidance at source approach. The economic and environmental benefits of the approach are in line with the national policy of rationalizing expenditures and saving resources"

Abdelkader Benkhaled
Technical Director

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