

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

### TERIAK

#### Chemical sector

#### Context

Number of employees: 500

Key products: Medicines for human use

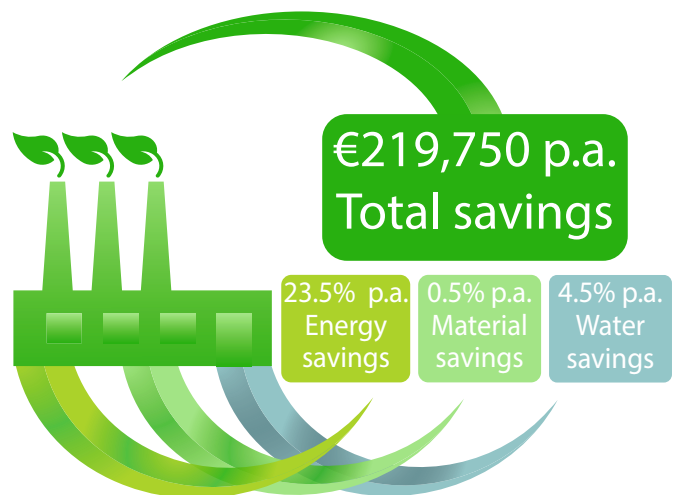
Main markets: Domestic / 35 % export

TERIAK, established in 1997 and located in the Djebel El Ouest region, is active in the pharmaceuticals industry sector. It has an annual production capacity of 650 t. TERIAK produces medical products for human use in various pharmaceutical formats: uncoated and film-coated tablets, pouches, capsules, dry syrups, syrups, ointments, etc.

*“TERIAK’s increasing environmental awareness led the company to participate in the MED TEST project, the objective being to rationalise and resource consumption, better manage the risks associated with the use of chemicals, and control the environmental costs ”*

Asma Sellami,  
Pharmacist & Production Director

#### Benefits



Graphic: UNIDO

The MED TEST II project identified 17 RECP measures, of which the company has decided to implement 90 %. The project is expected to generate total annual savings of approximately EUR 219,750 in energy, raw materials and operating costs, against a total investment of EUR 789,467.

The return on investment term varies between 3 months and 4.5 years. Energy costs have been reduced by 23.5 %. The economic benefits derived from raw material savings (excipients and active ingredients) are estimated at approximately 0.5%.

The water bill will be reduced by 4.5% (i.e., 495 m<sup>3</sup>). Further environmental advantages have been achieved, with a reduction in the pollutant levels in wastewater and CO<sub>2</sub> emissions.

## Saving opportunities<sup>1</sup>

Action	Economic key figures			Resource savings & Environmental impacts per year		
	Investment euro	Savings euro / Yr.	PBP Yr.	Water & Materials	Energy MWh	Pollution reduction
Optimisation of medicine production processes	8,467	34,520	0.2	1.2 t raw materials 594 m <sup>3</sup> Water	1,240	Total: 1,216 t CO <sub>2</sub>  0.3 t BOD <sub>5</sub>
Optimisation of public utility energy management	26,000	20,500	1.2	-	208	
New trigeneration unit	755,000	165,000	4.5	-	1,660	
<b>TOTAL</b>	<b>€ 789,467</b>	<b>€ 219,750</b>	<b>3.6</b>	<b>1.2 t raw materials 594 m<sup>3</sup> Water</b>	<b>1,869 MWh</b>	

<sup>1</sup> Numbers based on production value from 2015

### Optimisation of medicine production processes

This project includes a number of options, including the optimisation of the powdered product filling process into pouches in order to reduce the non-compliant products rate, and, consequently, the waste rate; the modification of the manufacturing procedures and the switch to direct compression, an increase in the size of the batches manufactured in order to reduce verification times and cleaning water, an improvement in the fields and reduction in losses during capsule filling, as well as personnel awareness raising with regards to the challenges of improving yields and productivity.

### Optimisation of public utility energy management

The improvement measures involve the optimisation of the lighting installation by replacing incandescent and halogen lights with 11 W compact fluorescent bulbs or 7 W LED lamps, optimising the power factor at the processing possessions, optimising the compressed air installation by installing a speed controller on one of the compressors, and a sequencer to manage the operation of the compressor in order to increase the load rate and reduce (or even eliminate) running on empty, liner installation, and finally the recovery of lost condensates and control of combustion.

Optimisation of the industrial refrigeration installation: Production of shelters for assemblies from frozen water, automatic condenser sprinkling and installation of speed controllers on the pumps, and introduction of an energy accounting system.

### Installation of a trigeneration unit

The company has decided to install a trigeneration unit with a production capacity of 12,457 MWh/year in order to ensure electricity, heat and cold production.

The unit's annual production is as follows:

- Electricity 4,577 MWh;
- Hot water 5,384 MWh;
- Cold water (ice water) 2,496 MWh.

***“TERIAK is already aware on the ecological limitations of their activities and have already taken timely action to ensure the better management of environmental risks. The MED TEST II approach, with its various aspects, provided the ideal framework for supporting our commitment to the environment”***

Asma Sellami,  
Pharmacist & Production Director

## For more information, contact:



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