

*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.*

## Morocco

### ATREFIL

#### Textile sector

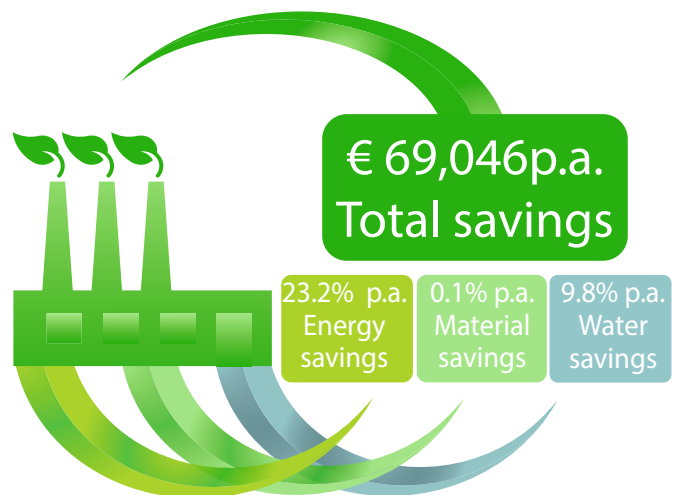
#### Context

Number of employees:	50 Permanent 10 Seasonal
Key products:	Textile Finishing Material, Dyed Yarn, Acrylic Chenille
Main markets:	Local

ATREFIL established in 2001, operating in the textile industry, a very important industry in the country's economy and driving force for growth, specializes in yarn dyeing. Its main strength is focused on meeting customer expectations, meeting internal and external commitments, mastering and reducing costs and continuously improving performance.

In order to measure the degree of implementation of the quality management system, the company sets targets each year for all the indicators. ATREFIL's quality policy structures the link between strategic management and day-to-day operational management of the company.

#### Benefits



Graphic: UNIDO

The MED TEST II project identified opportunities for total annual savings of € 69,046 in water, energy and raw materials for a projected investment of € 290,575. The average return time for the identified RECP measures is 4 years. Of all the measures identified, eight have been rejected and one needs further study. Those accepted by management, will be implemented in 2018-2019.

Due to organization improvement, production optimization, technological upgrade, installation of more efficient equipment, and the replacement of high efficiency motors that are no longer in use, these steps will make it possible to reduce energy consumption by 23.2%, water consumption by 9.8% and raw materials by 0.1%. The environmental benefits achieved by these measures will reduce annual charges and reduce CO<sub>2</sub> emissions by 25.4% (495.3 t).

## 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
LED lighting	6,110	5,632	1.1	-	46	Total: 495 t CO <sub>2</sub> 6,618 m <sup>3</sup> waste water 0.8 t solid waste
Optimized thermal installations	28,385	15,185	1.9	2,000 m <sup>3</sup> water	481	
Energy, water and solid waste Management	43,700	3,752	11.6	3098 m <sup>3</sup> water	95	
Organization improvement and product process optimization	30,900	16,226	1.9	7,400 m <sup>3</sup> water 0.8 t raw materials	119	
Independent PV energy production	181,480	28,250	6.4	-	357	
<b>TOTAL</b>	<b>€ 290,575</b>	<b>€ 69,046</b>	<b>4.2</b>	<b>0.8 t raw materials 6,618 m<sup>3</sup> water</b>	<b>1,098 MWh</b>	

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

### LED lighting

The power consumption will be reduced through improvement of lighting efficiency by installation of LED appliances and reactive energy compensation battery.

### Optimized thermal installations

The thermal energy costs will be reduced by insulation of all hot surfaces of the production circuit, improvement of combustion efficiency of boilers by automatic regulation, use of reverse osmosis water as backup, recovery and reuse of condensates for preheating.

### Energy, water and solid waste management

The implementation of an electrical energy, a thermal and water management system, to implement the ISO 50001 standard on energy management will allow a more economical use of resources. This system will support the implementation of a rigorous policy of waste and wastewater management.

### Organization improvement and product process optimization

The improvement of storage conditions and reorganization of raw material and finished products warehouse as well as optimization of the dyeing process will increase motivation and staff productivity, while improving safety.

### Independent PV energy production

The independent production of photovoltaic energy (248 kWp) will cover almost one third of annual consumption.

## For more information, contact:



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



**Fraquemar**  
Résidence Atlantic, Imm K appt.n°2,  
Cité Yacoub El Mansour, Rabat  
Tel: (+212) 5 37 28 14 26, Fax: (+212) 5 37 28 14 29  
E-mail: yvan.gravel@fraquemar.ma  
Web: www.fraquemar.ma



**MSI Conseil**  
148, Bd BAHMAD, Bureau N° 15, Belvédère,  
Roches noires, Casablanca  
Tel: (+212) 0522 40 90 09, Fax: (+212) 0522 40 90 08  
E-mail: msiconseil1@gmail.com  
Web: www.msiconseil.ma