

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.

## Jordan

### Nutridar

### Food and beverage sector

#### Context

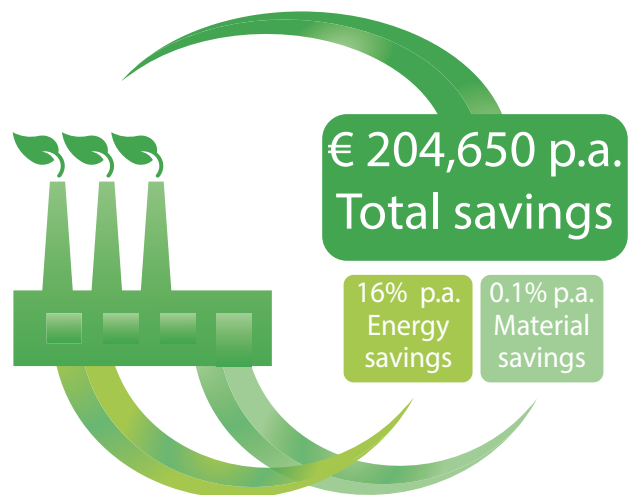
Number of employees: 143

Key products: Infant and baby milk, cereal, and herbal tea

Main markets: Local 50% and regional 50%

Management standards: ISO 9001:2008, ISO 22000:2005, ISO 26000, GMP, HACCP

#### Benefits



Graphic: UNIDO

The Nutridar Company is a medium-size enterprise established in 1998 for producing infant and baby milk (up to 3 years old), cereal, and herbal tea for the local and regional markets. The company participated in the MED TEST II project to improve its performance in production efficiency and energy consumption mainly to reduce the consumption of electricity since it had noticeably increased.

***“Cutting energy consumption is a management objective that could help us reduce costs, and we look forward to seeing how MED TEST II can help us achieve this objective, making it into a core strategy for the business.”***

Eng. Haidar Zubaidi,  
Managing Director

The MED TEST II project identified total annual savings of 204,650 euros in energy and raw materials with an estimated investment of 1,204,070 euro. The average pay back period is approximately 5.9 years, and some of the measures are already implemented or under implementation. 11 saving options are concluded from the project to reduce the consumption of energy (electricity and fuel) and raw materials, however, only one of the 4 options proposed to reduce the raw materials is accepted by the top management due to the sensitive nature of the product. Over 64% of the identified measures were accepted by the top management for implementation.

Materials' consumption will be reduced by 0.1% and energy consumption by approximately 16%. Additionally, CO<sub>2</sub> emissions due to the company's onsite activities will be reduced by 17.6%, and solid waste by 2.7%.

The company also issued its EMS policy statement and was provided with a guide to establish an RECP integrated EMS system.

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

Action	Economic key figures			Resource savings & Environmental impacts per year		
	Investment euros	Savings euros / Yr.	PBP Yr.	Water & Materials	Energy MWh	Pollution reduction
New raw materials storage	€1,133,335	€168,550	6.7	3.5 tons Raw materials	96	Total: 136.2 tons of CO <sub>2</sub>  3.5 tons of Solid waste
N <sub>2</sub> onsite production	€53,335	€20,000	2.7	-	45*	
Lighting and compressed air system	€16,550	€9,100	1.8	-	71	
Steam system	-	€320	-	-	6	
Cooling system	€850	€6,680	0.1	-	52	
<b>TOTAL</b>	<b>€1,204,070</b>	<b>€204,650</b>	<b>5.9</b>	<b>3.5 tons Raw materials</b>	<b>270 MWh</b>	

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

\* Indirect thermal energy reduction from N<sub>2</sub> transportation (imported from Kuwait)

### New raw materials storage

A new warehouse for raw materials that are stored for long periods (upon market demand) is needed to improve the management of materials handling, and to reduce the percentage of damaged input materials. Approximately 20% of the roof of the new store will be used to install solar panels to reduce the investment cost.

### N<sub>2</sub> onsite production

Instead of buying Nitrogen (N<sub>2</sub>) in tanks the company purchased a generator for its own N<sub>2</sub> onsite production reducing the running costs and the indirect CO<sub>2</sub> emissions arising from shipping N<sub>2</sub> to Jordan.

### Lighting and compressed air system

A number of inefficient Halogen high bay lamps, fluorescent lamps and Mercury lamps are replaced by efficient LED lamps and LED high bay lamps to reduce electricity consumption. Additionally, electricity consumption could be reduced by arresting 90% of air leakages in the compressed air system.

### Steam system

Reducing the setting point of steam pressure from 8 to 7 bars will reduce the operating time and the steam losses, which will reflect on the fuel consumption.

### Cooling system

The actual energy performance of chillers (cooling capacity, cooling load, COP) were analyzed. It appeared that the COP is lower than the minimum acceptable value (3.5), due to the low efficiency of the compressor and the un-shaded chiller's condenser. High air temperature at the suction area due to lack of ventilation is responsible for the high energy consumption.

Periodical maintenance and relocation of the chillers will improve the chiller's compressor and condenser efficiency.

***“The MED TEST II project has showed us how to improve our productivity and energy efficiency. We will continue to use the methodology to identify and evaluate future saving opportunities for Nutridar.”***

Eng. Haidar Zubaidi,  
Managing Director

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