

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.

## Egypt

### International Company for Agricultural Production and Processing Food and beverage sector

#### Context

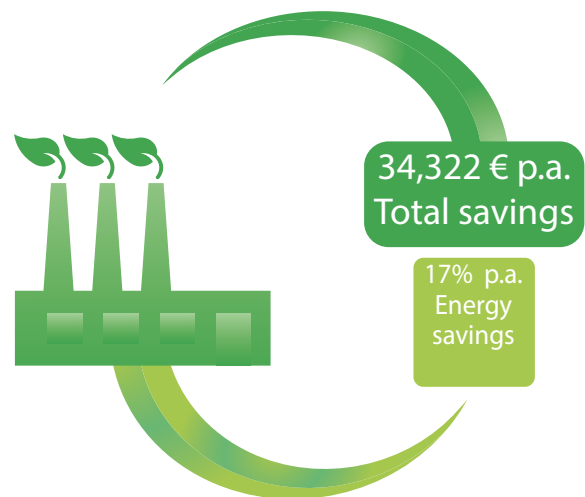
Number of employees:	750 full-time employees
Key products:	Vegetable line: beans, artichokes, carrots, cauliflower, okra, marrow, broad beans, broccoli, Leafy Vegetable line: Molokhia, spinach, vine leaves; Fruit line: strawberries, pomegranate, apricot
Management standards:	ISO 9001 ISO 14001 OHSAS 18001 ISO 22000:05 BRC: 07 - EHS

(ICAPP) the International Company for Agricultural Production and Processing is Located in 10th of Ramadan city and it has more than 750 full-time employees. The company is under different environmental and industrial regulations and it has Quality management systems (ISO 9001, ISO 14001, OHSAS 18001, ISO 22000:05, BRC: 07, EHS). Company aims to be certified under the Energy management systems (ISO 50001). The company area is 18750 m2. The company was founded under the Egyptian law of investment and approvals from the ministry of trade and Industry in 2004. ICAPP provides a wide range of product specifications according to customer needs. Production is divided into vegetables line, leaves line and fruits line, the study focused on multi-purpose line.

*“We thank the MED TEST II team for their efforts that helped us to start saving in our resources based on their scientific methodology and exchange experience.”*

Eng. Ahmed Fayed  
Q.A. Manager of ICAPP

#### Benefits



Graphic: UNIDO

The MED TEST II project identified total annual savings of 34,322 euros mainly in energy use with an estimated investment of 54,000 euros. The average pay back period is 1.57 year. 11 saving measures have been identified during the project with the active support of the internal company team. Six of the identified measures were approved for implementation in 2018, four were retained for further investigation, while one was discarded.

The accepted measures revealed that the energy consumption can be reduced by 17%, from which 2.2% of the total energy was achieved from the implemented measures, and the remaining 14.8% are planned for implementation upon completion of the feasibility studies.

ICAPP team was trained on the TEST approach, and appreciated the methodology being simple to quickly identify the opportunities for improvement. Following the methodology, the company team was able to tackle their losses in the packaging material, and developed additional measures that saved on packaging.

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

Action	Economic key figures			Resource savings & environmental impacts per year		
	Investment euros	Savings euros / yr.	PBP years	Water and raw materials	Energy MWh	Pollution reduction
Cooling system (chillers) optimization	38,500	30,492	1.26	-	792	Total: 429 t of CO <sub>2</sub>
Improvements to the Steam system	5,500	2,102	2.6	-	137	
Introduction of LED lighting	10,000	1,728	5.79	-	44.9	
<b>Total</b>	<b>54,000 €</b>	<b>34,322 €</b>	<b>1.57</b>	-	<b>974 MWh</b>	

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

### Cooling system (chillers) optimization

The company has 10 ammonia compressors (chillers) serving the cooling system whose full capacity is not always used. The identified measure includes installation of VFDs at certain compressors to control the compressors load, rather than the bypass control approach. This modification shall save around 30% of the annual consumption of the chillers.

### Improvements to the Steam system

Three measures were identified targeting optimization of steam system. Identification and fixing thermal energy leakage spots resulted in 2 % savings of natural gas consumption. These leakages were located mainly at the valves and piping connections. Other steam optimization measures included waste heat recovery from the boiler stack in order to pre-heat the combustion air therefore increasing the air temperature by 40 °C and saving 2 % of natural gas consumption. Two of the measures are retained for further investigation, and the only accepted measure is boilers continuous tune up.

### Introduction of LED lighting

Lighting represents approximately 3 % of electricity consumption and replacement of old lighting by LED can save 1.5 % of total company electricity consumption.

*“We will apply the TEST methodology to all leakage elements in our plant to maximize our profits and reduce our production cost ”*

Eng. Ahmed Fayed  
Q.A. Manager of ICAPP

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