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.

Egypt

Al-Sakr Company for Food Industries

Food and beverage sector

Context

Number of employees:	100 full time employees.
Key products:	UHT milk and pasteurized juices
Main markets:	Local and international (80 % export)
Management standards:	ISO 9001 ISO 14001 ISO 18001 ISO 22000

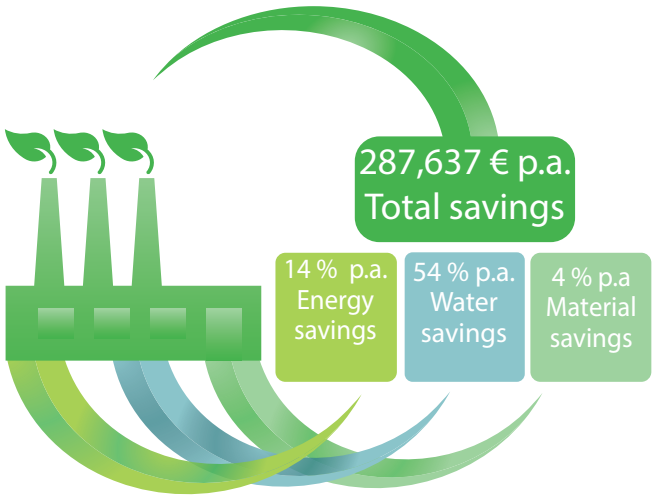
Al-Sakr Company for Food Industries is one of Sakr group which consists of three individual companies with seven factories. It is medium sized enterprise founded in 1998 as private company and specialized in the production of dairy products. The main goal of Sakr group is to produce high quality, competitively priced food products to become a brand choice for a wide range of customers. The MED TEST II project focused on the tetrapak factory producing milk and juice with a total annual production volume of 27,040 t.

The company joined MED TEST II Project in order to identify opportunities for reducing materials, water and energy consumption in addition to training its employees on resource efficient and cleaner production (RECP) concept.

"Our participation in the MED TEST II project aimed at optimizing our resources and reducing consumptions of water and energy particularly in the tetra-pak factory."

Mohamed Sakr
Executive Manager

Benefits



Graphic: UNIDO

Through the MED TEST II project the company realized total annual savings 287,637 Euros in energy, water and materials with an estimated investment of 331,958 Euros and an average payback period of 1.1 years. There were identified 15 saving measures, three of them were already implemented and five are under implementation. Four measures are planned for implementation while only three measures were retained for further study.
Material consumption will be reduced by 4% and water consumption by approximately 54%. Additionally, energy consumption will be reduced by 14% resulting in 9 % reduction in CO_2 emissions.

The experience gained during the project, especially in process optimization and information system will be applied by the company during the design and operation of the new production lines which will be installed for the extension of SAKR group factories.

Environmental benefits will also be achieved by limiting material losses drained to sewer system and by rehabilitation of the existing industrial waste water treatment plant in order to comply with emission limit values and to utilize the treated effluent in irrigation of green areas. The company is planning to implement this project with the assistance of EPAP III financing program.

The resource efficient and cleaner production policy formulated within the MED TEST II project will facilitate the company's adoption of environmental and energy management standards in the future.

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Saving opportunities[1]

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
Product Recovery	146,250	195,755.5	0.8	1,148 t materials	-	Total: 434 t of CO_2 46.25 t of BOD 147.4 t of COD
Water conservation	910	3,569	0.2	12,523 m^3 of water	-	
Clean-In-Place (CIP) Optimization	154,105	62,138	2.5	46,740 m^3 of water 0.226 t materials	-	
Steam System Optimization	36,637	20,229	1.8	3,430 m^3 of water	2,065	
Total	**331,958 €**	**287,637 €**	**1.1**	**62,693 m^3 of water 1,148 t of materials**	**2,065 MWh**	

1 Numbers based on production value from 2015

Product recovery

About 4% of raw materials could be saved through installing online transmitters to assure minimum product level inside tanks before starting CIP process, as well as installing a recovery system for the wasted product from the CIP process. In addition; adopting good housekeeping practices and waste minimization program will save in raw materials in addition to reducing pollution load within the final end-of-pipe treatment.

Water conservation

Water losses could be reduced by equipping water hoses with guns, preventing the unnecessary running water, using efficient water devices for domestic water usage and by installing water meters for better monitoring the consumption of different water users.

Clean-In-Place Optimization

The CIP system of the company is an open loop manual system, in which the water and chemicals are throw out without any recovery. As a first step, the company shall install chemicals recovery tanks in order to reuse the chemicals. It also plans to automate the whole CIP system later in order to further reduce the consumption of water and chemicals. Water used in CIP rinsing can be recycled for pre-rinsing. These measures will yield a significant water reduction of 40.5% and consequently reduce wastewater generation therefore significant reduction in pollution levels.

Steam System Optimization

Many points of steam inefficient use were identified mainly in boiler and pasteurizer. Five measures were derived to enhance efficiency of the steam system through insulating steam pipes, reusing steam condensate, installing an economizer for boiler chimney and by reducing the setting pressure of steam pressure in boilers. In addition the pasteurizer temperature will be lowered by 10° C as the pasteurization process is carried at higher temperature than necessary. Implementation of these measures will save on water, energy consumptions and the relevant CO_2 emissions.

"The MED TEST II project enhanced our understanding of resource efficient and cleaner production concept through applying simple and systematic methodology as we recognized that there is a lot of possible simple, no/low cost measures that could be implemented to reduce our use of natural resources. The experience gained from the project will help us in optimizing our new plant which development is under progress"

Mohamed Sakr
Executive Manager

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