

MED TEST III Jordan

Transfer of Environmentally Sound Technologies

Food and beverage sector

Arabian Trade & Food Industries Co. (Al Wadi)

Company overview

Number of employees:

453 full-time employees

Key products:

Burgers, Breaded Meats, Frankfurter, Meatballs, Bakery, Mortadella, Cold Cuts, Luncheon, Tenderized Breast

Main markets:

Regional and local

Standards & certifications before MED TEST III:

ISO 9001, ISO22000, HALAL, FSSC

The Arab Company for Trade and Food Industries (Al Wadi) has a rich history of food distribution that began in 1978. Al Wadi prides itself on a successful and still growing energetic team that believes in making and delivering food products to ensure consumer satisfaction.

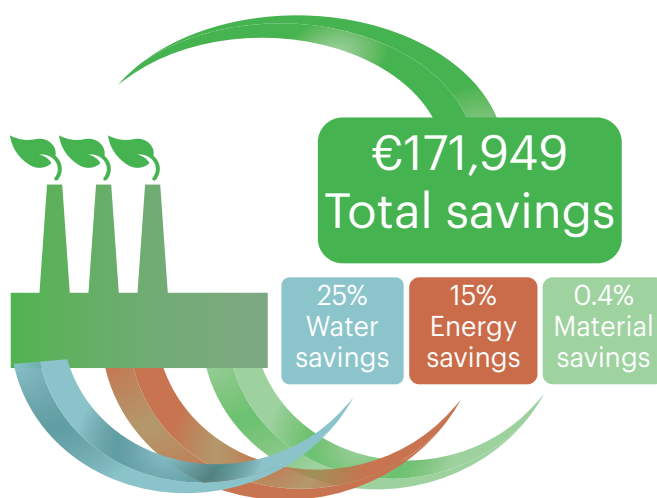
Benefits

The MED TEST III project identified total annual savings of Euro 171,949* (128,961 JOD) in energy, water, and raw materials with an estimated investment of Euro 451,213 (338,410 JOD). The average payback period is 2.6 years, and 70% of the measures are already implemented or under implementation. The top management accepted over 91% of the identified measures for implementation by realizing the same proposed measures or better alternatives. Materials consumption will be reduced by 0.4% and energy consumption by approximately 15%, while water consumption will reach a 25% reduction. Additionally, CO₂ emissions will be lowered by 17%.

The project was successful in introducing new practices for better internal communication, such as weekly meetings between all the internal teams, including production, finance, maintenance, and quality, with the participation of the top management. Moreover, energy and water teams have been established inside the factory with defined roles and responsibilities. As a result, the common understanding of resource efficiency and waste reduction has been mainstreamed in every department.

Thanks to a synergy between the MED TEST III project and another RSS project, a digitalized RECP performance monitoring model has been designed for a specific focus area utilizing the TEST approach to daily monitor via online real-time readings from IoT sensors and input data from an operator for all inputs (energy, water and material) and outputs (product and NPO) of the focus area as well as the key parameters (i.e. temperature, metal detector) that affect the product quality. This will enable the company to better manage and respond to operations, reduce losses and further continuous improvement.

Identified annual savings



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Our main goal in joining the MED TEST III project was to reduce energy and water losses, improve our processes and work environment to attain compliance with international standards. Gaining more knowledge in continuous improvement tools, such as the TEST Methodology, MFCA, and EMS, would also help us to increase our competitiveness in local and international markets.

Dr. Husein Barhoush
General Manager

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As part of the EU-funded SwitchMed programme, UNIDO demonstrates in the MED TEST III project pathways for industries in the Southern Mediterranean to become more resource efficient and to generate savings for improved competitiveness and environmental performance.

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Saving opportunities**

Actions	Economic key figures			Resource savings & Environmental impacts		
	Investment Euro*	Savings Euro* per year	Payback period years	Water & Materials per year	Energy MWh per year	Environmental impact per year
Raw materials and product recovery	-	59,985	0	35 tons	-	Total 364.7 tons CO ₂ -eq.
Cooling system	405,333	76,511	5.3	-	713	
Lighting	3,213	1,721	1.9	-	16	
Compressed air	10,667	6,002	1.8	-	56	
Steam system	9,333	7,293	1.3	-	109	
Water system	22,667	20,437	1.1	8,942 m ³ water	-	
TOTAL	451,213	171,949	2.6	8,942 m³ water 35 tons	894	

*Exchange rate 0.75 Jordanian Dinar (JOD) = 1 Euro ** Numbers based on production value from 2020

Raw materials and product recovery

Based on the results of the MFCA assessment, the chicken breast cost center represented 70% of the total raw and auxiliary materials' NPO costs in the company. The waste from chicken breast processing was due to improper cutting and transferring of material. Using proper sheets and trays, adopting a better collection strategy, to reuse the pieces removed from the remix again in other products, will reduce these losses. Other measures include better preparation and recipes and to use a scraper for collecting remaining marinade in the trolleys. A revised approach of controlling limits of net product weight from +5% to +3% was integrated into the Quality Control (QC) process to reduce the losses calculated due to the high control range.

Cooling system

Reducing the energy consumption for the cooling systems could be achieved by reducing the heat losses through fixing the air infiltration in doors, insulating the refrigerant pipes, and minimizing the door opening frequency, developing an effective preventive maintenance and SOPs, also recovering the waste heat from condenser to preheat utility water, and replacing all old low efficiency ammonia-cooling units with advanced high efficient system.

Lighting

Reducing the energy consumption for the lighting system by reducing the lux intensity in some locations that exceed the acceptable level as per the standards of the Labor Law, in addition to installing lighting control systems for unoccupied areas, i.e. occupancy sensors in cold stores and hallways.

Compressed air

Fixing a Variable Speed Drive (VSD) to the compressor and applying good practices in the operation and maintenance for compressed air system such as an effective preventive maintenance including a regular monitoring and fixing of air leakages and preventing misuse, which will lead to a significant reduction in energy consumption.

Steam system

Applying good practices in the operation and maintenance for steam system such as conducting a regular monitoring of the air/fuel ratio, eliminating steam leakages and repairing any damages of pipes insulation, all will lead to a significant reduction in fuel consumption. Additional measures include: fixing a return pipes for condensate and install an automatic blow down based on TDS and not time. Also, a heat exchanger can be installed to recover the waste heat from the boiler's flue gas for water heating purposes that can be used for cleaning and washing. The implementation of these measures will lead to a significant increase in the boiler's energy efficiency.

Water system

Introduction of good practices in water management, such as regular maintenance and monitoring of the water distribution network, and introduction of SOPs for water intense processes, will lead to significant savings in water use. The following measures will add on water savings:

- Upgrade the Reverse Osmosis (RO) unit and increase its recovery.
- Monitor the supplied water from tankers.
- Reuse the effluent water from the Wastewater Treatment Plant (WWTP) in cooling purposes.

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The project has motivated us to adopt technology as a material-saving option through the implementation of a digitalized tracing system, using block-chain and IoT for the Escalop production line. This will help to monitor and control losses of raw material and create reporting to management in real-time.

Dr. Husein Barhoush
General Manager

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