

MED TEST III Palestine

Transfer of Environmentally Sound Technologies

Food and beverage sector

Arab Development Society (ADS)

Company overview

Number of employees:
17 Full-time employees

Key products:

Labneh, Milk, Ayran, Yoghurt, Cheese, ranging in size and volume from 150 gm up to 4,000 gm, in addition to newly developed products flavoured Ayran and Areesh Cheese

Main markets:

Local

Standards & certifications before MED TEST III:

None

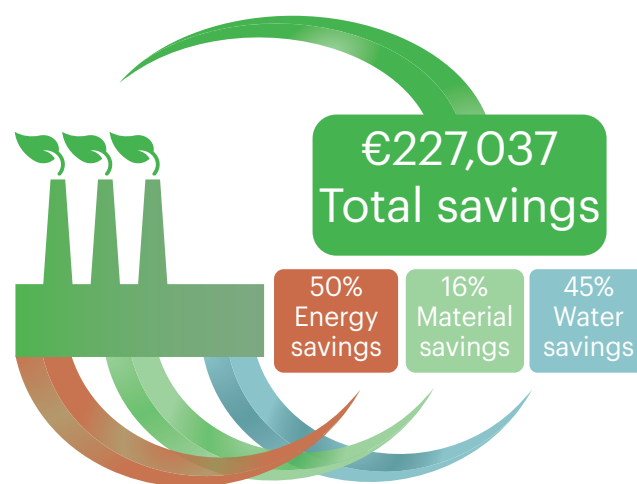
Established in 1945, the Arab Development Society (ADS) is one of the oldest non-governmental organizations working in Palestine. The ADS manages several business units such as dairy, fisheries, farms, artisan wells, agriculture, beekeeping and renewable energy facilities to service all other facilities within the company. The TEST project was implemented in the dairy factory only, which is considered a stand alone business unit of ADS group.

Benefits

The MED TEST III project identified total annual savings of 227,037 Euro* (837,765 NIS) in energy, water and raw materials with an estimated investment of 328,916 Euro* (1,213,700 NIS). The average payback period is 1.5 years, and the top management accepted all of the 19 identified measures for implementation. Of the 19 identified measures, 37% will be implemented in the new facility that is under construction and will have a five times bigger capacity than the old one. 6% of the identified measures were implemented immediately, whereas 57% will be implemented according to the action plan.

Thanks to the valorization of whey into a new product 16% of the raw material consumption will be saved, while the energy consumption (electric and thermal) will be reduced by approximately 50%. There is also potential for renewable energy production to cover about 75% of electric consumption of the baseline year. Implementing all accepted measures will also reduce CO₂ emissions by 212.3 tons per year.

Identified annual savings



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Projects like the MED TEST III, could help reduce our production costs, increase productivity while improving our environmental performance and eventually prepare ADS to better compete in the market. Therefore, ADS decided to participate in the MED TEST III project to review its production and develop more sustainable production practices in its factory.

Mr. Omar Bisharat
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
Valorization of whey into new products	43,360	107,055	0.4	190 tons 140 m ³	-	Total: 212,3 tons of CO ₂ 997 m ³ wastewater
Reuse of water and chemicals	5,881	4,705	1.2	3,2 tons 510 m ³	-	
Electricity and thermal energy conservation	58,266	29,810	2	400 m ³	264,7	
Renewable energy production	75,881	25,372	3	-	164,2	
Upgrading of machines and maintenance	145,528	60,095	2.4	9 tons 53 m ³	-	
TOTAL	328,916	227,037	1.5	202 tons 997 m³	428,9	

*Exchange rate as 1 Euro = 3.69 NIS (New Israeli Shekel) ** Numbers based on production value from 2021

Valorization of whey into new products

Analysis showed that whey material resulting from cheese production and Labaneh was thrown into drainage without any use or treatment, leading to significant losses and the generation of organic water pollution. About 320 tons of whey is produced annually as sweet and acidic whey. As a result of the MED TEST III Project, ADS converted all sweet whey into a new, sellable product called Areesh Cheese, which has already found its way to local markets and is highly appreciated by consumers. The remaining acid whey will be utilized in the new facility in the form of Ayran products. In case the quantities of sweet whey increase, it can also be utilized to produce spreadable cheese.

Reuse of water and chemicals

The significant measures within this group are the reuse of cooling water from homogenizers and from the Cleaning In Place (CIP) operations. Reuse of CIP waster can lead up to 50% reduction of chemicals. Other measures include good housekeeping practices in the manual filling and packaging processes, which also translates into material savings. Water conservation contributes little to cost savings due to its low price; however, water is considered a scarce resource in Palestine. The saved water can be used in irrigating agricultural fields considering that water in the underground wells is getting more salinized in Jericho.

Electrical and thermal energy conservation

ADS depends mainly on electricity from the national electricity provider JDECO. Some of ADS's energy needs come from using LPG gas imported to the company. It is worth mentioning that Jericho, as the lowest spot in the world, has sunny days mostly all over the year; hence, solar energy can be utilized and used widely. The following energy-saving measures were recommended to the company:

- Lighting System Upgrading and Replacement.
- Industrial Cooling System Upgrading and maintenance will reduce not only power consumption but even water.

For more information contact:



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- Thermal insulation, reduction of pasteurizer temperature and improving the pasteurizer Heat Recovery Ratio (HRR).
- Retrofit heating system. The old inefficient steam boiler is used for pasteurization to 94°C and to produce hot water for cleaning. Instead, a new steam boiler can be used as a backup for a new solar water heating system – which is highly feasible in Jericho's climate.

Production of renewable energy

Installing an on-grid Photo Voltaic (PV) renewable energy system with Jerusalem District Electricity CO will allow for covering the electricity demand: the capacity of the proposed PV system can be about 100 kW system..

Upgrading of machines and maintenance

The current plant is old and performs on a very small-scale production capacity. Nevertheless, specific machine upgrades can lead to numerous improvements, as specified below:

- Installing automatic filling machine for plastic bottles.
- Installing automatic filling machine for plastic boxes.
- Installing a cream separator to utilize the excess fat percentages.
- Proper and continuous maintenance of the Labaneh filling boxes.
- Continuous maintenance for the energy-related parts of the factory.



This project helped us to identify areas of improvement in our production, and we are adopting the suggested measures in the current and also in our new planned facility. ADS is now committed to further use the project methodology in the company management, which helps us to determine causes of inefficiencies and train and motivate the team to create saving ideas.

Mr. Omar Bisharat
General Manager

