

MOUSTADAMA'S ENERGY MANAGEMENT SYSTEM ON-THE-JOB TRAINING

FIRST CYCLE, JULY 2021 – FEBRUARY 2022

ACCELERATING INDUSTRIAL ENERGY EFFICIENCY

The State of Palestine is facing substantial challenges to provide industries with an affordable, reliable, and sufficient energy for maintaining and expanding their operations. The geopolitical situation, which is impacted by blockade on movement and circulation of goods and the physical separation of West Bank and Gaza, makes infrastructure and policy development complex. More than 90% of energy is imported, with only 2% of the country's energy generated from renewable sources, primarily in West Bank. Energy prices are among the highest in the region, while electricity shortages are frequent all over the country and particularly in the Gaza Strip, which averages 10 hours of electricity per day and is still recovering from the 2014 and 2021 escalations on its electrical infrastructure. Industries are highly affected by energy insecurity: around 40% of their production costs is spent on energy. On the contrary, only the 11% of energy production is consumed by the industrial sector: a very low percentage, which is suggesting that the limited availability of energy is impeding the country's industrial development and growth.

Carbon Emissions Targets

The State of Palestine has joined the United Nations Framework Convention on Climate Change (UNFCCC) with the status of "Party" in March 2016. Committed to reduce its emission pathway in line with the objective to stabilise greenhouse gas (GHG), Palestine announced in 2021 its engagement to enhance energy security by deploying renewable energy sources and increasing energy efficiency solutions, including those of the industrial sector. Its Nationally Determined Contribution (NDC), updated in October 2021, is aiming at an emission reduction target of 17.5% by 2040 (increased from the 2016's 12.8%) compared to business-as-usual and a 26.6% conditional target in an independence scenario where Palestine would be able to exercise full control over its resources.

CHALLENGES AND OPPORTUNITIES FOR A SUSTAINABLE ENERGY FUTURE IN PALESTINE



THE MOUSTADAMA PROGRAMME FOR AN ENERGY SUSTAINABLE

PALESTINIAN INDUSTRY

Launched by UNIDO in 2019 in partnership with the Ministry of National Economy (MoNE) and in cooperation with the Palestinian Energy and Natural Resources Authority (PENRA) with funds from the European Union, the MOUSTADAMA Programme is aimed at strengthening the energy resilience of the Palestinian industries through tailored energy efficiency measures and renewable energy interventions.

The second of its four synergic components – which are dedicated respectively to RE/EE policy upgrade, capacity building, creating demand for clean energy technologies and providing support to

cleantech entrepreneurship - is specifically focusing on local capacity development for RE/EE projects in the industrial sector. In its four-year implementation time frame, the Programme is expecting to train through its different energy programs over 400 RE/EE national experts, technicians, and industrial enterprise staff to ensure that specialized expertise is available to support the development of the local RE/EE industry in Palestine.

Capacity Building through the EnMS training

The first cycle of the EnMS training was launched in July 2021. The partnering industrial enterprises were selected among the food, beverage, and plastic factories for West Bank, and among the construction, food/agribusiness, and beverage factories for the Gaza Strip. As

a UNIDO Palestine assessment had previously highlighted, these sectors represent a significant portion of the Palestinian industrial output, employment, and economic activity, and present a high potential for major energy optimization that can lead to enhanced competitiveness and significant GHG reduction. The partnering industrial enterprises were selected through a Call for Application shared among partnering institutions and private sector organizations. The EnMS training represents a win-win solution for both the trainees and the industries: trainees learn how to build their capacities to design, customize, maintain, and install innovative energy efficiency solutions and support the implementation of EnMS system aligned with ISO 50001 inside the host industrial enterprises, while industrial host plants get the chance to identify and assess energy efficiency opportunities, and then implement those saving solutions and apply EnMS System within operations and productions under the continuous expert advisory of UNIDO Palestine experts.

“I learned how to establish, implement, maintain and continuously improve an energy management system in line with the requirements of ISO 50001. The UNIDO EnMS Training is the beginning of a great breakthrough in my career.”

Heba Temraz, Head of Subscribers' Services Department at Gaza Electricity Distribution Company



The UNIDO Palestine intervention for EnMS:

- Securing the commitment of the company's top management towards the EnMS;
- Raising awareness about energy efficiency and EnMS benefits amongst all employees;
- Creating an internal energy team inside host plants to effectively implement EnMS;
- Establishing clear roles and responsibilities among team members towards the EnMS system's implementation;
- Establishing the energy policy and set energy savings target;

- Conducting energy reviews, establish baselines and energy performance indicators for tracking progress and energy savings;
- Specifying and assess the significant energy uses and the relevant production processes affecting energy consumption;
- Identifying EE opportunities for improving the energy performance;
- Implement action plans for EE interventions to achieve those targets;

- Creating tools and methods to monitor and evaluate the energy performance;
- Conducting internal audits for the implemented EnMS to check the performance, effectiveness and continuous improvement;
- The 6 host plants that participated in the EnMS Training Program were able to implement various EE measures and technologies, and to the EnMS system complied with ISO 50001 and ready for certification.

DIRECT ACHIEVEMENTS

6



industrial host plant companies successfully building their EnMS system and reaching the energy and CO2 emissions reductions targeted by the EnMS Training Program.

NBC-Coca Cola (West Bank) obtained the EnMS-ISO 50001 certification from Third Party

	Investment	1,652,000 NIS (~ 501,670 USD)
	Energy savings per annum	804,949 kwh
	Annual financial savings	444,000 NIS (~ 134,831USD)
	Annual CO2 emissions reduction	554.61 tonnes

28



Experts trained in EnMS

18



Certified experts in the UNIDO's energy management system (EnMS)



"The Energy Management System (EnMS) helps to track your energy usage continuously over a period of time and to store this data so you can have a good view of where the savings opportunities will arise, both in terms of costs and carbon emissions.

UNIDO EnMS-ISO 50001 training is excellent for getting started on your energy savings journey."

Mohamed Alharazeen, Production Supervisor at National Beverage Company in Gaza

COMPANIES COMMITTED TO THE ISO 50001 ENERGY MANAGEMENT STANDARD

Ramallah

Golden Wheat Mills Company
National Beverage Company (Coca Cola)

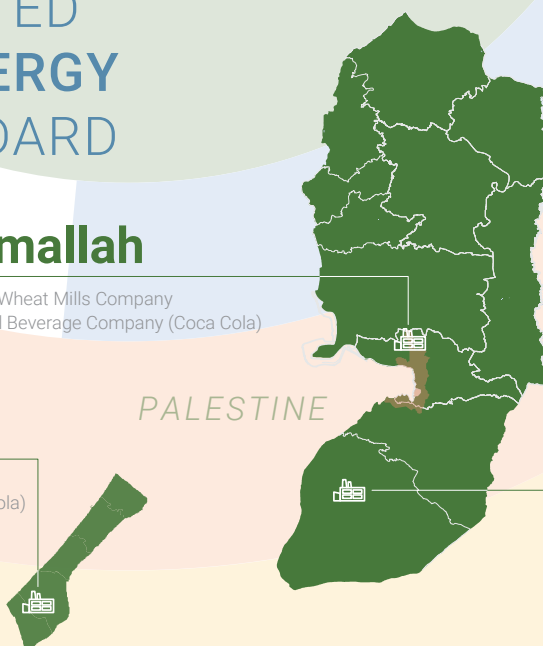
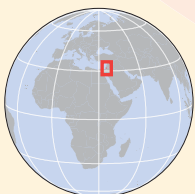
Gaza Strip

Badri and Hania Group Company
National Beverage Company (Coca Cola)
Zomord Marble Company

PALESTINE

Hebron

Royal Plastic Company



INDIRECT ACHIEVEMENTS

- Increased production due to reduced processes interruptions and planned down-time as result of better energy system control, relevant staff competency, and maintenance.
- Reduced number of defects in products or production output.
- Reduced product cost due to reduced waste from process interruptions and lowered energy cost.
- Increased overall productivity and competitiveness.
- Knowledge transferred and disseminated to other factories.



“Energy efficiency is a powerful tool to bolster energy security and fight against climate change. By reducing the cost of energy imports, we can broader macroeconomic benefits and increase the competitiveness of Palestinian industries.”

H.E. Khaled Osaili, Minister of National Economy



“A beautiful and concrete example of how the EU Green Deal translates its ambitions through external actions. With this remarkable project implemented by UNIDO, we are supporting Palestine in meeting its climate objectives.

Trained experts are helping industrial enterprises to adopt energy efficiency measures. This will increase productivity and competitiveness while reducing CO2 mission. Growth is finally decoupled from environmental degradation”.

EU Representative Sven Kühn Von Burgsdorff

“Improving energy efficiency in industry can cut short and long-term operating costs and accelerate decarbonization. The energy management experts UNIDO is introducing into the market in Palestine have a crucial role to play in supporting and animating the application of sustainable energy solutions for the Palestinian industries to increase their business growth”.

Ahmed ElFarra, UNIDO Senior Programme Officer



CHALLENGES AND LESSONS LEARNT

- Energy baseline calculation proved to be longer than expected due to the lack of available data on energy consumption and the existence of different production lines within the industrial enterprises.
- Sub meters are essential to monitor energy usage. To ensure the provision of high-quality data for both the energy audit assessment and the energy performance monitoring, sub meters supply and installment need to be provided to all the industrial host plants from the inception of the EnMS, together with access to measurement tools and under the experts' supervision.
- Despite their motivation to invest time and resources in enhancing their energy performance, industries had limited knowledge about energy conservation, and energy efficiency measures were often weak and incomplete.
- More emphasis should be placed on raising the awareness of the management on the success of the EnMS system, which is essentially related to including energy efficiency into the corporate culture.
- Empowering the technical teams and developing their technical capacities is vital to the successful implementation of the systems energy optimization inside the plants.