MED TEST II
Transfer of Environmentally Sound Technology in the Southern Mediterranean Region

Jordan
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The EU funded SwitchMed program is about changing the way goods and services are produced and consumed, so that human development is decoupled from environmental degradation. SwitchMed strives to assist the Southern Mediterranean Region to switch to more Sustainable Consumption and Production (SCP) patterns, enabling the actors in this region to realize their full economic potential. It supports industries, emerging green entrepreneurs, service providers, civil society, and policy makers through demonstration activities, policy development, and networking of incubators for eco innovation in order to catalyze progress towards low carbon and climate resilient societies, and gives rise to new economic opportunities.

Enhancing productivity by integrating practices and technology that lead to greater efficiency in the use of natural resources, to a reduction of waste and energy consumption, and to opportunities for innovation and value creation, is central to the UNIDO TEST approach.

Adopting a more resource efficient and cleaner production does not only lead to a better environmental performance for the industry, it also enables businesses to operate with a better competitiveness while at the same time saving money, allowing businesses to invest and grow sustainably. But efficiency in production also contributes towards saving valuable resources, such as energy and water, for the national economy. Hence, the economic benefits of RECP extend far beyond lowering production costs for businesses as it also contributes to additional growth, a sustained job creation, and supports the long-term resource resilience of Jordan.
Although the prevailing economic and social instability in the region neighboring to Jordan is setting back Jordan’s own development, the country has in the past decades shown a consistent growth of GDP. Still, the industry of Jordan continue to face economic challenges as the country also remains reliant on expensive and carbon-intensive fossil fuels for energy, and an increasing water scarcity. Consequently, creating resource savings for the industry would not only improve the economic situation for the businesses but also contribute to ensuring resource availability to other parts of society.

The MED TEST II program, implemented in Jordan from 2015 to 2017, addresses the challenges and the barriers national industries are facing in becoming more resource and energy efficient, non-polluting and safe, and assists in producing goods that are responsibly managed throughout their life cycle, while also increasing productivity and maintaining access to international markets with good quality products that comply with international standards.

Under the patronage of the Ministry of Industry, Trade and Supply (MoITS) and the Ministry of Environment (MoEnv), the MED TEST II project in Jordan has been led by the Royal Scientific Society (RSS), in partnership with Amman Chamber of Industry (ACI). In collaboration with the Jordan Chamber of Industry (JCI) and financial institutions, such as the Jordan Renewable Energy and Energy Efficiency Fund (JREEEF) and Jordan Environment Fund (JEF), MED TEST II assembles influential organizations and institutions to mobilize funding and support for a sustained application and scaling-up of RECP in Jordan.

**Institutional partners**

- Ministry of Industry, Trade and Supply (MoITS)
- Ministry of Environment (MoEnv)
- Ministry of Planning and International Cooperation (MoPIC)
- Jordan Standards and Metrology Organization (JSMO)

**Implementing partners**

- Royal Scientific Society (RSS)
- Amman Chamber of Industry (ACI)

**Civil society**

- Jordan Chamber of Industry (JCI)
- Jordan Industrial Estates Corporation
- Jordan Enterprise Development Corporation (JEDCO)
- Association of Banks in Jordan (ABJ)

**Financial institutions**

- Jordan Renewable Energy and Energy Efficiency Fund (JREEEF)
- Jordan Environment Fund (JEF)
- Central Bank of Jordan (CBJ)
Through creative thinking and effective collaboration UNIDO’s TEST integrated approach targets all management levels of a company, involving people of different professional backgrounds and operational responsibilities, in order to enhance and sustain the efficient use of production inputs and environmental performance, encouraging a business culture where eco-innovative business solutions can thrive.

Identifying each and every business potential for resource efficiency requires a systematic assessment of the company production and the set-up of an information and management system that can monitor resource use in production for the continuous improvement of the performance of the business. The MED TEST II project in Jordan supported most of the demonstration companies by guiding them in taking the necessary steps to introduce proper monitoring systems and get prepared to obtain ISO certifications.

Connecting RECP assessments with present-day standards in environmental and energy management systems, together with the material flow cost accounting standard ISO14051, enables businesses to establish an integrated system to identify and track losses in energy, water, and raw material inputs. The TEST methodology builds cross-cutting understanding and capacities within various management areas of a company enabling a holistic understanding and support for RECP within the business.

“Identifying each and every business potential for resource efficiency requires a systematic assessment of the company production and the set-up of an information and management system that can monitor resource use in production for the continuous improvement of the performance of the business. The MED TEST II project in Jordan supported most of the demonstration companies by guiding them in taking the necessary steps to introduce proper monitoring systems and get prepared to obtain ISO certifications."
Stepping up Jordan’s capacities for a green growth

One of the core objectives of the MED TEST II program is to reinforce the local capacities of service providers on resource efficiency tools and to develop local markets for sustainable production services. By the project’s end 12 Jordanian professionals from 7 consultancy firms have been capacitated on the UNIDO TEST approach, and will now be able to continue to provide integrated resource efficiency services to the local industries. The extensive on-the-job training, combined with an evidence based best-practice methodology and technical assistance program, has been effective in bringing the industry closer to innovative knowledge networks and practitioners with hands on experience in resource efficient and cleaner production. This will enable the MED TEST II initiative to be scaled up beyond the duration of the project to the wider benefit of the industries in the food and beverage sector, and other sectors in Jordan, leveraging on the local capacities and expertise gained and adapted to guide the national diffusion of sustainable production solutions.

Following an extensive marketing campaign, entailing workshops and one-to-one company visits, 21 companies were selected for an initial assessment, out of which 12 demonstration companies from the food and beverage sector signed up for the MED TEST II project. The Jordanian demonstration companies range from SME’s with 60 employees to large companies with 500 employees located in several areas of Jordan, and covered different industrial zones in Amman including Sahab and Marka. The food sector was selected for the high “replicability” potential of the results to other similar production sites, aiming to allow ripple effects from the TEST project in Jordan. Companies were in the first place motivated by the expectation that the project could help them to reduce production costs related to raw materials, energy, and water savings, as well as enhance the awareness of their staff on RECP. Some companies were also motivated by the need to receive technical support to comply with the environmental national regulations.

<table>
<thead>
<tr>
<th>Service Providers</th>
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<tbody>
<tr>
<td>Integrated Standard Solutions</td>
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<tr>
<td>Arabtech Jardaneh</td>
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<tr>
<td>Modern Arabia for Solar Energy (MASE)</td>
</tr>
<tr>
<td>Consolidated Energy and Economic Engineering</td>
</tr>
<tr>
<td>Dar Al-Omran</td>
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<tr>
<td>Hima for Environment and Management Consulting</td>
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<td>Consolidated Consultant</td>
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</table>
Results of the TEST demonstration projects

Initial assessments in the 12 MED TEST II demonstration companies in Jordan showed clear potential to reduce consumption of raw materials, water and/or energy with an estimated potential of 10-20% savings on the total energy bill.

The TEST methodology introduced the Material Flow Cost Accounting tool (MFCA), as one of the major innovations. The MFCA analysis revealed to the company the real cost of raw material losses and inefficiencies. Through the TEST approach both monetary and volume data related to production losses have been compiled leading to “finance” and “technical” company staff working together.

This results in putting a price tag on the losses and shedding light on the savings potential in monetary value. Analysis of the data showed that in some cases the annual cost of water and energy usage was lower than the cost of the raw material losses alone. This helps the plant to choose the critical areas in which to focus its efforts to identify sources of inefficiency and improvement measures.

The table below summarizes the financial and environmental indicators of the total identified measures in the 12 demonstration companies.

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Food and Beverage sector</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Jordan Valley Food Ind. Co.</td>
<td>100</td>
<td>43,948</td>
<td>84,208</td>
<td>0.5</td>
<td>2.5%</td>
<td>0.2%</td>
<td>83%</td>
</tr>
<tr>
<td>Bahaa Eldeen Al-Bustanji &amp; Partners Co.</td>
<td>50</td>
<td>21,980</td>
<td>38,050</td>
<td>0.6</td>
<td>34%</td>
<td>0.7%</td>
<td>13%</td>
</tr>
<tr>
<td>Farm Dairy Company</td>
<td>130</td>
<td>1,048,120</td>
<td>227,180</td>
<td>4.6</td>
<td>56.5%</td>
<td>0.11%</td>
<td>30.5%</td>
</tr>
<tr>
<td>Coca-Cola Bottling Company of Jordan</td>
<td>110</td>
<td>105,767</td>
<td>453,359</td>
<td>0.2</td>
<td>15%</td>
<td>2.6%</td>
<td>33.5%</td>
</tr>
<tr>
<td>Gulf Food Products Co.</td>
<td>61</td>
<td>48,330</td>
<td>44,400</td>
<td>1.1</td>
<td>22.6%</td>
<td>0.07%</td>
<td>31.4%</td>
</tr>
<tr>
<td>International Blue Diamond for Food Industries Company</td>
<td>70</td>
<td>33,827</td>
<td>37,197</td>
<td>0.9</td>
<td>-</td>
<td>1%</td>
<td>50%</td>
</tr>
<tr>
<td>The Saudi Jordanian Industrial Development Company (Jordina)</td>
<td>500</td>
<td>104,060</td>
<td>337,890</td>
<td>0.3</td>
<td>*253 m³ Water</td>
<td>-</td>
<td>22.7%</td>
</tr>
<tr>
<td>Al-Durra for General Trading and Investment Co. LTD</td>
<td>500</td>
<td>85,820</td>
<td>76,010</td>
<td>1.1</td>
<td>*632 m³ Water</td>
<td>*2.9 tons Raw materials</td>
<td>*1,284 MwH</td>
</tr>
<tr>
<td>Nutridar</td>
<td>143</td>
<td>1,204,070</td>
<td>204,650</td>
<td>5.9</td>
<td>-</td>
<td>0.1%</td>
<td>16%</td>
</tr>
<tr>
<td>Yeast Industries Company</td>
<td>98</td>
<td>118,000</td>
<td>108,370</td>
<td>1.1</td>
<td>2.8%</td>
<td>*11.8 tons</td>
<td>9.6%</td>
</tr>
<tr>
<td>Jordan Poultry Processing &amp; Marketing Co. PLC</td>
<td>450</td>
<td>805,340</td>
<td>484,687</td>
<td>1.7</td>
<td>*14,940 m³ Water</td>
<td>-</td>
<td>*9,354 MwH</td>
</tr>
<tr>
<td>Al-Haj Mahmoud Habibah &amp; Sons Co.</td>
<td>100</td>
<td>67,460</td>
<td>50,290</td>
<td>1.3</td>
<td>-</td>
<td>2.8%</td>
<td>27.9%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>2,312</td>
<td>€3,686,722</td>
<td>€2,146,292</td>
<td>1.7 yr.</td>
<td></td>
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</table>

(1) Data from the production year 2015
(2) Data from the production year 2016
(*) Absolute annual value
Over a total of 214 resource efficiency measures were identified by the TEST team in the 12 demonstration companies, out of which 161 measures, corresponding to approximately 75% of the total, were approved by companies’ management and incorporated into the action plan for implementation in 2017.

In the 12 plants a potential saving of over 1.6 Million JOD (2.1 million euros) annually was identified, resulting in energy savings of 22,181 MWh/yr; water savings of 63,844 m3/yr; 404 tons of raw material savings, and 83 tons of landfilled solid waste avoided.

Whilst substantial savings were identified, the majority of the measures had a Payback Period (PBP) of less than half a year (48%), with a required investment below 7,000 JOD (9,300 euros), and around 23% of them are good housekeeping measures, showing the high profitability of these measures.
A profitable solution for industry and environment in Jordan

Thanks to the strategic partnership with financial initiatives in Jordan which was initiated within the scope of the MED TEST II project, companies were assisted in accessing green financing instruments for the high investment needing solutions. For instance two demonstration companies applied for the Jordan Renewable Energy and Energy Efficiency Fund (JREEEF). Also, all the companies prepared their EMS policy statements and were provided with specific guidelines to integrate RECP in their EMS system. And during the project implementation period, one of the companies designed RECP integrated EMS system, conducted the environmental audit/measurements, and applied for Lloyd’s audit to get ISO 14001 certification. Moreover, companies with high potential for water savings but did not have meters, realized the importance of monitoring water in a systematic way, and have decided to install meters for key water consumers. Additionally, three companies changed their accounting systems to achieve better tracking of materials and losses.

Implementing SCP practices is crucial to ensure we preserve a planet good enough for our children. The project was a huge success and achieved very important results in energy, material, and water saving and reduced greenhouse gases, which reduced production costs and increased local industries’ competiveness with imported similar products while having a positive social and economic impact.

Basel Alnobani/National Focal Point-Ministry of Industry, Trade and Supply

In our work, we aim to power the national economic development, social progress and environment protection, accordingly our areas of work shall support the long-term sustainable development of Jordan by providing relevant technical services such as implementing MED TEST II project in the Jordanian industries.

Royal Scientific Society – Cleaner Production Unit

Scan the QR code or visit www.switchmed.eu to download the individual company case studies from the MED TEST II project:

<table>
<thead>
<tr>
<th>Water Savings (M³/yr.)</th>
<th>Energy Savings (MwH/yr.)</th>
<th>CO₂ Reductions (tons/yr.)</th>
<th>Waste Reduction (tons/yr.)</th>
<th>COD Reductions (tons/yr.)</th>
<th>BOD Reductions (tons/yr.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>63,844</td>
<td>22,181</td>
<td>8,086</td>
<td>82.64</td>
<td>1.2</td>
<td>0.7</td>
</tr>
</tbody>
</table>
To share our vision of a system wide change towards Sustainable Consumption and Production in the Southern Mediterranean requires the efforts of all society actors. The MED TEST II demonstration project in Jordan has revealed that with the integrated approach of TEST, additional economic or environmental benefits can be gained from the RECP methodology, without interfering in the business operations of the industries. Moreover, the MED TEST II project has reinforced the capacities of the local RECP Service Providers, to help develop solutions for Jordan that increasingly decouple production from the consumption of finite resources.

“The astonishing findings and figures that appeared in the 12 Jordanian participating companies lead to one positive fact: TEST methodology is one of the best approaches that our industries should adopt as a tool for reducing costs and increasing competitiveness.”

Amman Chamber of Industry

National Team


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