



MED TEST Case Study

FOOD sector — TUNISIA

Beverage industry — Cap-Bon Beverage Company (SBC)

Company overview

The Cap-Bon Beverage Company (SBC) is part of DELICE, the leading group in the Tunisian dairy industry. The site produces approximately 286,382 hl/year of beverages, divided among local brands and Coca-Cola.

To rationalize water and energy consumption, and to position itself as an environmentally responsible company towards competitors, were among the company's primary motivations for taking part in the MED TEST project.

At project start, the company did not have an environmental and safety management system, however a health and security committee was operational. The site is currently implementing the Total Coca-Cola Quality System standard, which includes an environmental facet.

Benefits

The MED TEST project has generated annual financial gains worth \$US 75,454 in raw materials, semi-finished products, water and electricity, against an overall investment of \$US 56,331. The payback period is estimated at 9 months. Most of the identified measures have been implemented in 2011.

The cost of electricity has been cut by 21%. Among the measures for electricity savings, the optimization of compressed air production yielded the highest gains. As a matter of fact, the company installed a management system and variable speed drivers that considerably reduced the electricity demand of the 40 bar compressors. The company has achieved gains of 22% on water costs through the implementation of several projects: the most relevant one was the recovery of rejects from reverse osmosis (RO) to supply a secondary RO unit.



“In subscribing to the MED TEST project, SBC has committed to maintaining its image as an environment-friendly company.”

Karim BELOUARDA, Chief of the Energy and Environment Section

In terms of wastewater treatment, the company achieved annual reductions of 25% in BOD₅ and 32% in COD. The improvement was a logical consequence of the reduction of product losses, especially for sugar and concentrate. This improvement will enable the company to renegotiate the wastewater treatment cost, currently charged by another company STIAL belonging to the group DELICE.

During the implementation of the MED TEST project, SBC has been provided with the necessary tools to ensure a good linkage between its Cleaner Production programme and an environmental management system (EMS) based on ISO 14001, that will contribute to the good management of all implemented measures and their sustainability. Within its EMS framework, the company has come to define its environmental policy and has implemented operational procedures, as well as an adequate environmental management scheme.

MED TEST is a UNIDO green industry initiative to promote sustainability and competitiveness in the private sector in Egypt, Morocco and Tunisia. TEST integrated approach includes tools like resource efficiency and cleaner production, environmental management system and accounting, cleaner technology transfer and CSR.

Learn more about TEST approach at www.unido.org

MED TEST is sponsored by the Global Environment Facility, the Italian Government and the MedPartnership.

Saving opportunities

Measure	Economic key figures			Resource savings per year	
	Savings [USD/yr]	Investment [USD]	PBP [yr]	Water, Chemicals	Energy [MWh]
Water conservation	17 602	29 738	1.7	18 310m ³ water	-
Heating ventilation and air conditioning (HVAC)	15 887	6 562	0.4	-	191
Reduction of product losses	20 170	1 381	< 0.1	16 tons sugar 300 m ³ water	-
Air compressed circuit, compressors	21 795	18 650	0.8	199 m ³ water	709
TOTAL	75 454	56 331	0.8		900

Water conservation: Several measures facilitating a reduction of water consumption have been implemented. Among them is the installation of a system that allows adjusting the rinsing water volume according to the size of contents and end products. This water can therefore be reused after filtration. Recycling reject water from reverse osmosis (RO) unit into a secondary RO unit will increase the efficiency of the water treatment process. Although this raised electricity consumption by 0.9%, the overall implemented measures have led to significant gains of 18,310 m³ water.

Heating ventilation and air conditioning (HVAC): The company has brought about a loads reduction on the air-conditioning system through the removal of a cooling unit of the blower outside the workshop, as well as the installation of heat exhaust hoods on some machines. As a consequence, the electricity consumption has been reduced by 191 MWh, which has brought about a reduction of 95 tons in CO₂ emissions.

Reduction of product losses: 4.8% of sugar, corresponding to 16 tons/year, has been recovered from the rinsing of the syrup residues between batches, as well as its reuse as supplement for subsequent fabrications. Moreover, the company has opted for using CO₂ instead of water for pushing product between pipes and equipment, thereby recovering 6.8 tons of concentrate. These measures have also reduced wastewater loads BOD₅ and COD by 32 tons/year and 60 tons/year respectively.

Air compressed circuit, compressors: The 40 bar compressors use 35% of the annual electricity consumption. These machines were running in on/off mode with a 500 litre buffer balloon, which led to a reduced performance due to frequent starts and stops. This problem has been solved by installing variable speed drivers on the compressors motors. This has cut down electricity consumption by 15% and chilled water demand to cool compressors. Moreover, flow meters and kWh meters have been installed at compressors allowing for real-time detection of malfunctions and helps to prevent their return. This good practices measure has had a positive environmental impact, also engendering electricity savings of 48 MWh.



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