



MED TEST Case Study

## FOOD sector — TUNISIA

# Beverage industry — Société Nouvelle de Boissons (SNB)

### Company overview

SNB, a leading carbonated soft drinks producer, is part of the Tunisian holding “Société Frigorifique et Brasserie de Tunis (SFBT)”. The company produces approx. 635,000 hl/year of its own brands and Coca-Cola licensed beverages for the local market and for export (50%).

The company was motivated to join the MED TEST project to identify opportunities for increasing resource efficiency and productivity, reduce pollution loads in order to minimize investment/operational costs of the planned wastewater treatment plant.

At project start-up the company was already certified ISO 9001, ISO 22000 and had completed the design of its EMS according to the ISO 14001 and of its occupational health and safety system in line with OSHAS 18001 standards.

### Benefits

The MED TEST project identified annual total savings of \$US 194,600 in electricity, natural gas, water, raw materials and product savings with an investment of \$US 29,200. The simple pay-back period is less than 2 months. All the measures have been implemented by the company in 2011.

Energy costs have been reduced by 14% by implementing heat recovery at syrup preparation unit, installing a frequency variator on compressors and a compressed air recovery system at PET bottle blowing machine. CO<sub>2</sub> emissions were reduced by 464 tons/year.

Water costs decreased by 12% through optimizing Cleaning in Place (CIP) and applying several conservation measures to reuse high-grade rinsing water into second-grade applications (e.g. washing of sand and carbon filters at the water treatment unit).



**“MED TEST has enabled SNB to implement a culture of rationalization of the use of natural resources for the good of the company and of the environment.”**

Lasaad MZEH, Director General

Additional environmental benefits have been achieved in terms of wastewater pollution loads reductions, corresponding respectively to 17% BOD<sub>5</sub> and 10% COD annual loads, mainly resulting from improved management of return goods from clients and online product recovery. These have reduced the investment and operational costs of the wastewater treatment plant at design stage.

In parallel to the identification of saving opportunities, the site has designed an EMS system according to ISO 14001 standard, fully integrating resource efficiency into company policy, action plans and internal procedures. This will ensure the sustainability of all identified actions at company level, as well as the development of new projects. Top management already started to capitalize on the experience gained by engaging its own internal team in replicating TEST at manufacturing sites within the holding group.

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](http://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]
Expired, damaged and out of specs products	66 000	-	-		
CO <sub>2</sub> supply and distribution system	35 000	2 700	< 0.1	80 tons CO <sub>2</sub>	99
CIP and water savings	53 400	10 000	0.2	9 300 m <sup>3</sup> water	
Heat recovery in syrup preparation	6 600	3 300	0.5		338
PET bottle blowing	1 100	-	-		8
Distribution pumps, compressed air	32 500	13 200	0.4		359
<b>TOTAL</b>	<b>194 600</b>	<b>29 200</b>	<b>0.1</b>		<b>804</b>

**Expired, damaged and out of specs products:** The implementation of a management system for on-time sorting of returned goods from clients has recovered 0.4% of product and has reduced by 95% the volumes of non conforming products sent to drain. As a result COD and BOD<sub>5</sub> loads were reduced respectively by 27 tons/year and by 21 tons/year. An on-site segregation procedure and a storage system have been put in place to valorize expired/damaged products as animal feed.

**CIP and water savings:** The site implemented several measures for optimizing the levels of water and chemical consumptions and recover product (0.15%). These included: recovery of final CIP rinse of the filling machine and of rinsing PET bottles/cans into the water treatment system for washing of sand and carbon filters and for production of softened water; installation of on-line conductivity/pH transmitters for product recovery during in-line transfer between tanks and equipment; soda recovery after cleaning of the PET and can lines. These measures resulted in reduction of 9.7 tons/year COD and 7.6 tons/year BOD.

**CO<sub>2</sub> supply system:** 10% of the CO<sub>2</sub> consumption corresponding to 80 tons/year has been recovered and reused at the cans filling lines. In addition, the evaporation of liquid CO<sub>2</sub> has been performed using heat recovery from the water inlet (40°C) to the cooling tower, by installing a company designed heat exchanger.

**Heat recovery in syrup preparation:** Water with sugar mixture is pasteurized at 85°C before filtering and cooling down to 22°C. Chilled water used for cooling has been replaced by process water installing a heat exchanger to recover calories into the next batch and reduce cooling demand. This option will increase production capacity and reduce 10% of total gas consumption.

**PET bottle blowing:** Manufacturing of PET bottles is a key electricity consumer with multi stadium compressors at 40 bars. Part of the compressed air had already been recovered by the company at the PET blowing line in the pre-blowing stage. The project identified a significant saving opportunity for recovering excess compressed air back to the compressors that would reduce electricity consumption of the line by 40%. This option requires some investments for modifying the compressors. In the meantime the company started to recover the excess compressed air into the utility circuit at 7 bars, without any investment.

**Distribution pumps, compressed air:** Implementing variable speed drivers at two 7 bars compressors and in the cooling tower will reduce electricity consumption by 338 MWh/year. Reducing the pressure level at distribution systems of compressed air from 36 to 32 bars and from 7 to 6.7 bars, has resulted in saving additional 21 MWh/year.



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