

The Tunisian Cleaner Production Project (TCPP) is an initiative based on an approach laid by the United Nations Industrial Development Organization (UNIDO) with technical and financial support from Switzerland. The TCPP is co-financed by Switzerland's State Secretariat for Economic Affairs (SECO) and Tunis International Center for Environmental Technologies (CITET). CITET is in charge of its implementation with help from the Swiss environmental consulting firm, SOFIES.

With a budget of approximately 2.5 million €, the project is set to last 5 years (2010-2015). The TCPP's objective is to build national capacities in terms of environmental engineering tools, methods and technologies while strengthening the competitiveness of Tunisian companies.



SNBG

Grombalia, Nabeul



Case Study

Agri-food Sector

Company Overview

The Société Nouvelle des Boissons Gazeuses (SNBG) produces and distributes juices and soft drinks in PET bottles, glass bottles, barrels, and cans. It is a subsidiary of Sonobra and is partly owned by Heineken.

SNBG is certified ISO9001 since 2001, takes part in an OHSAS18001 program since 2005 and recently initiated a plan to reach ISO14001 standards. The factory also has an HSE director that is in charge of producing annual reports on the company's health, environment and safety procedures.

SNBG is part of a group of 20 enterprises that integrated the first phase of the Project in order to improve environmental performance and productivity.



Source : M. Fritsch - emac

« SNBG joined the TCPP to rationalize water and energy consumption, solve existing problems and improve the environmental management system. The project has greatly contributed to achieve these objectives.»

Sofiène Ben Ali,
Site Director SNBG

Benefits :

environment, competitiveness and capacity building

The team of experts has identified several measures that primarily target the company's electric, gas and water consumption while mitigating pollution. Suggested measures include monitoring consumption in order to detect waste and gauge optimum inputs, optimizing or replacing inefficient machinery and using renewable energy production systems. Combined, these measures have the potential to generate annual savings of 150,000 € and have an average payback period of 3 years.

In addition to energy efficiency, the most drastic cuts in resource consumption stem from recycling water within the bottle washing process, saving water and also leading to a reduction of wastewater effluents and in the use of chemical. Moreover, the use solar thermal energy was also considered and could present substantial, long-term financial and environmental gains as well as bring the company closer to energy independence while improving its green image.

Overall, the measures proposed do a great deal in terms of improving the skills and know how of SNBG's employees. They also reduce the overall production cost, and therefore increase the competitiveness of the company.

Saving opportunities and environmental impacts

Action	Savings (€/year)	Investment (€)	Payback Period	Resource savings and environmental impacts
1 Optimization of the boiler*	To be determined	To be determined	To be determined	Better energy efficiency, lower consumption of natural gas and reduction in pollutants.
2 Monitoring and management of water and energy consumption*	58,334	145,000	2.5 years	Water/energy consumption: 10% reduction. Reduction in chemical use and wastewater production.
3 Reuse of bottle washing water for the prewash of filters	19,710	69,150	3.5 years	Reduction water consumption and wastewater production: 60 m ³ /day. Reduction in chemical use.
4 Optimization of the stretch blow molder**	10,080	42,500	4 years	Reduction in electricity consumption: 168 MWh/year. Decrease in defective bottle production and therefore waste.
5 Installation of solar thermal panels to heat sanitation water	4040	70,000***	2.5 or 11.5 years***	Reduction in gas consumption and therefore CO ₂ emissions. 0.26 t CO ₂ /MWh avoided > 81 t/year

* Fully implemented ** Fmplementation initiated ***Scenarios taking into account existing subventions and an annual 5% raise in energy prices

Action 1

The team of experts recommended the installation of a new boiler to increase the efficiency of water heating by 24%. SNBG finally installed economizers and a new water tank, which has reduced gas consumption by recovering energy from the burner to heat the water.

Action 2

Experts suggest that the company install a monitoring system consisting of counter flow switches, temperature sensors, pressure sensors, and electricity meters, to reduce the company's water and energy consumption by 10%. Resource consumption monitoring can also reduce chemical consumption and develop a company spirit of constant improvement.

Action 3

The company's bottle washing system currently consumes 100 m³ of water per day. Recycling moderately polluted water from the washing and rinsing stages to prewash the osmosis filters can cut the water use by 60 m³ per day, while reducing chemical use and minimizing effluents.

Action 4

The stretch blow molder currently uses high-pressure compressed air (40 bars) and 2000W ultraviolet light bulbs to create plastic bottles. It is recommended that the high-pressure compressed air be re-injected into the preblowing circuit (4-16 bars) and that 80 light bulbs be replaced with 1700W bulbs. Resulting energy savings could add up to 10,080 € per year. This measure will also diminish the amount of defective bottles.

Action 5

The installation of 200 m² of solar thermal panels could provide 20% of the thermal energy needed to wash bottles. The high payback period of 11.5 years is due to current gas subsidies, but if gas prices were to meet the international average, this installation's payback period would drastically decrease to 2.5 years. This measure remains interesting given Tunisia's high solar potential and the expected increase of gas prices.