TCPP
TUNISIAN CLEANER PRODUCTION PROJECT

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.

# Gonser Textile Service (GTS)

Grombalia, Nabeul

Case Study **Textile Sector**

## **Company** Overview

Part of the Gonser group, GTS specializes in dyeing, washing and treating textiles and handles an average of 8000 units a day. GTS is comprised of solid industrial real estate, the most up-to-date technology and a specialized workforce of over 500 employees.

The company, whose motto is "Tradition in progress", exhibits a warranted sensibility in the face of environmental issues and is initiating a new process of quality management with the hope of obtaining the ISO 9001 certification.

GTS is one of the 20 enterprises that integrated the first phase of the project in order to improve environmental performance and productivity.

*Source : M. Fritsch - emac*

## **Benefits:**
### environment, competitiveness and capacity building

The assessment of production processes identified several measures to improve resource efficiency, thus increasing the company's competitiveness.

The first step is to install an automated accounting system. By monitoring consumption, the company can locate leaks and inefficiencies: significant gains can thus be achieved following the implementation of optimization measures. Such a system also provides the company with essential data to benchmark or to obtain environmental certifications.

In addition, the implementation of renewable sources of energy was considered and could present substantial long-term financial and environmental gains - especially in the face of rising energy prices -, and bring the company closer to energy independence.

Overall, the measures proposed allow for the development of the company's know-how in terms of best practices and clean technologies, including resource-efficiency enhancing and renewable energy production.

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# Saving opportunities and environmental impacts

| | Action | Savings (€/year) | Investment (€) | Payback Period | Resource savings and environmental impacts |
|---|---|---|---|---|---|
| 1 | Optimization of vapor production systems | Valves: 4,750<br>Economizer: 7,000<br>Pressure and condensates: 3,900 | Valves: 1,500<br>Economizer: 37,500<br>Pressure and condensates: 4,200 | 0.1 - 5 years<br>0.3 year<br>1.1 year | Decrease in gas consumption and thus $CO_2$ emissions. |
| 2 | Optimization of air compression systems | To be determined | To be determined | To be determined | Decrease in gas consumption and thus $CO_2$ emissions. |
| 3 | Installation of water meters and an automated accounting system | 3,000 - 6,000 | 5,500 + operation | ~ 2 years | Better resource management and consumption reduction. |
| 4 | Installation of solar photovoltaic panels | 16,940 | 314,000* | 18.5 years* | Decrease in fossil fuel consumption. |
| 5 | Installation of solar thermal water heating system | 81 | 2'540* | 31.3 years* | Decrease in fossil fuel consumption. |

* Scenarios taking into account existing subventions

## Action 1

Regular maintenance in order to restore the economizer working condition coupled with the purge of vapor production boilers could cut the gas consumption by 5% for yearly savings of 7,500 € and a payback period of about a month (if the economizer must be changed, the payback period rises to 5 years). Next, the proper insulation of about 30 valves could reduce gas consumption by an extra 3%. Other measures such as recalibrating pressure and reusing condensates could reduce the company's total gas bill by 10%.

## Action 2

Air compression can be optimized by calibrating pressure levels, fixing leaks, replacing pneumatic with electric valves, and capturing surplus heat. Lowering pressure by one bar (from 7 to 6) to more accurately meet demand could lead to a 6% decrease in energy consumption. What's more, waste heat could be harnessed to preheat water for other machinery thus improving overall efficiency. Additionally, replacing the current compressor with a more efficient one could guarantee up to a 15% reduction in electrical consumption.

## Action 3

Installing 4 water meters - in addition to the electric and gas meters already in place - and linking them to an automated accounting system allow GTS to analyze flows and produce useful monitoring reports. With such a system, the company will be able to better control and therefore reduce its energy consumption by 2% and decrease water use (about 3000 $m^3$ a year).

## Action 4

Even though its payback period remains relatively long due to the low going rate of electricity (0.06 €/kWh), the installation of solar photovoltaic panels on the building's available roof space could offset GTS total electricity bill by nearly 13%. Added to this are benefits in terms of corporate image and valuable experience in using solar technologies.

## Action 5

Though it has a rather long payback time, the inclusion of solar thermal water heating is validated by its potential to decrease electricity and gas consumption and therefore $CO_2$ emissions. Such an installation could easily cover the hot water demand for jean finishing through passive preheating.


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