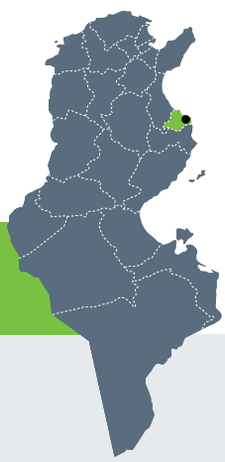
TCPP
TUNISIAN CLEANER PRODUCTION PROJECT

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.

BDS

Moknine, Monastir



Case Study **Textile Sector**

Company Overview

Part of the DEMCO textile group, BDS is an export-based enterprise that specializes in the washing and treatment of denim. The company employs 175 workers that handle 7,000 to 15,000 units a day for revenues totaling over 3 million € per year.

The enterprise has already gone through several environmental impact evaluations and is in the process of setting up an internal environmental policy in line with ISO 14001.

BDS 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 : F. Sciacca - Sofies

Benefits:
environment, competitiveness and capacity building

Experts identified several measures that can be directly implemented to drastically decrease water, energy and chemical consumption. Measures like implementing energy accounting and replacing dyeing machines can add up to 160,000 € per year and have payback periods ranging from 4 months to just under 3 years.

Proposed measures clearly aim at reducing water consumption. An automated accounting system to monitor the flows of this precious resource, an ozonation system to replace some washing steps, as well as a jet dyeing system will lead to substantial water savings. Moreover, these measures induce a decrease of wastewater discharges and reduce the amount of energy required to heat process water.

In addition, the implementation of solar photovoltaic technology was also considered and could present substantial, long-term financial and environmental gains as well as 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 such as consumption monitoring and input regulation. The company has also gained valuable experience with efficiency enhancing technologies 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	Installation of water and energy meters**	12,700	22,600	2 years	Better resource management and reduced consumption.
2	Installation of an automated accounting system	8,000 - 16,000	347,000	To be determined	Better resource management and reduced consumption.
3	Installation of two ozone generators*	To be determined	TBD	To be determined	Reduction in water consumption (50%) and in washing cycle time length.
4	Installation of two new dyeing machines (jet system)*	130,000	256,000	1.6 - 1.9 year	Reduction in consumption of water (70%), vapor (73%), chemicals (70%), and reduction of wastewater discharges.
5	Installation of solar photovoltaic panels	67,488	1,262,000***	18.7 years***	Decrease in use of fossil fuels.

* Fully implemented ** Implementation initiated *** Scenarios taking into account existing subventions

Action 1

The installation of 6 water meters, 4 gas meters, 1 vapor meter, and 4 electricity meters can allow for savings of 2% on water and energy bills. The installation of meters allows more control over consumption and reduces waste thus improving the company's productivity.

Action 2

It is advised that an automated accounting system be synced with the installed meters in order to track intake and transform the information into easily digestible reports. Thanks to this system, the company can identify optimization measures and the reports are very useful for benchmarking and eventual certifications.

Action 3

This measure is to install two ozone generators connected to four washing-stonnage machines adapted accordingly. Ozonation is a more efficient system than regular hot washing and can drastically reduce cycle time, water use (50%), wastewater quantity (50%) and quality, chemical use, and electrical consumption.

Action 4

By installing two jet-dyeing machines, bath ratios (laundry: water) can be lowered from 1:10 to 1:3 thus greatly improving the overall efficiency of the dyeing process. This will lead to decreases of 70% in water consumption, 73% in vapor consumption and 70% in chemical consumption. This process will in turn produce less wastewater, which will also be less polluted and easier to treat.

Action 5

The installation of 5000 m^2 of solar PV panels is intended to produce 1,113,000 kWh/year and cover 13% of total electricity needs. The high initial cost of installing solar PV panels is justified in the long term by the predictable increase in electricity prices and the consecutive increase of the feed-in tariff, but also by significant reductions in CO_2 emissions, and a step toward energy autonomy. Added to this are benefits in terms of corporate image and valuable experience in using solar technologies.

SOFIES solutions for industrial ecosystems
Sofies SA
Rue du Vuache 1, CP 2091
1211 Geneva 1, Switzerland
Telephone : +41 22 338 15 24
Email : contact@sofiesonline.com

Centre International des Technologies de l'Environnement de Tunis (CITET)
Bvd du Leader Yasser Arafat
1080 Tunis, Tunisia
Telephone : +216 71 206 482
Email : assistance@citet.nat.tn

Schweizerische Eidgenossenschaft
Confédération suisse
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Federal Departement of Economic Affairs,
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