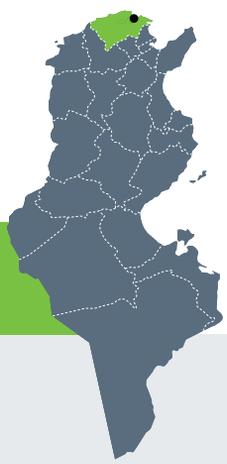
TCPP
TUNISIAN CLEANER PRODUCTION PROJECT

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.

Washing International Company (WIC)

Ras Jebel, Bizerte



Case Study **Textile Sector**

Company Overview

Washing International Company (WIC) is a textile company that employs 2200 workers and focuses on the washing, dyeing and special treatment of jeans, pants, shirts and skirts. The company's average annual revenue is of approximately 30 million €.

WIC already has repeatedly submitted itself to energy audits. It is equipped with an advanced wastewater treatment station and up-to-date technologies. The company currently adheres to strict wastewater norms (NT 106.002) and is seeking environmental management certifications ISO 14001 and OEKO-TEX 100.

WIC is one of the 20 enterprises that integrated the first phase of the Project in order to improve their environmental performance and productivity.

Source : M. Fritsch - emac

Benefits:
environment, competitiveness and capacity building

Experts identified several measures by which substantial economic and environmental gains can be made. Steps taken to monitor consumption, minimize energy loss, optimize equipment efficiency, and reuse wastewater have the potential to save the company close to 170,000 € per year with payback periods ranging from 5 months to 7 years.

Installing meters allows the company to properly gauge its production needs, start benchmarking in sight of eventual certifications and cut down its water and electricity bills.

Optimizing processes related to heat and hot water production can improve energy efficiency, leading to a significant drop in the total energy bill and reducing CO_2 emissions.

Installing a reverse osmosis machine ensures that water be fit for reuse in the dyeing process thus halving the company's overall water use.

The implementation of solar photovoltaic technology was also considered and could present long-term financial and environmental gains as well as bring the company closer to energy independence.

The proposed measures also stand to build the company's capacities in terms of best practices and use of clean technologies, while promoting a greener image.

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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 electricity meters**	9,100	12,500	1.4 years	Better resource management and consumption reduction.
2	Improvement of wastewater treatment process*	73,170	500,000 - 550,000	7 years	Reduction in water use by 180,000 m^3/year.
3	Insulation of boiler and conduits*	4,500	2,500	7 months	Reduction in fuel use by 22.33 t/year and thus CO_2 emissions.
4	Optimization of air compression systems*	11,200	To be determined	To be determined	Reduction in electrical consumption by 2.5%.
5	Improvement of boilers efficiency*	9,300	27,000	2.9 years	Reduction in fuel consumption by 40 t/year and thus CO_2 emissions.
6	Installation of an economizer	49,200	22,400	6 months	Reduction in fuel consumption by 110 t/year and thus CO_2 emissions.
7	Installation of solar photovoltaic panels	27,770	563,000	20.3 years	Reduction in the use of fossil fuels.

* Fully implemented ** Implementation initiated

Action 1
Installing 5 water and 10 electricity meters will allow a better consumption monitoring and could lead to a 2% decrease on both water and electric bills.

Action 2
The company consumes about 1200 to 1,300 m^3 of water per day and manages to recycle 30-35% of its wastewater back into the bleaching process. Using reverse osmosis to improve the quality of wastewater thus making it reusable in the dyeing process as well can lead to savings of 600 m^3 of water per day.

Action 3
In order to minimize thermal energy losses it is necessary to purge the boilers, fix leaks and insulate 17 valves as well as the condensates reservoir. These measures can save at least 10,000 L of fuel a year.

Action 4
Fixing leaks, calibrating pressure to the lowest level needed for production and investing in a suppressor for special treatment stages will optimize the air compression system and lead to a 2.5% decrease in electricity consumption.

Action 5
The site currently has 2 boilers that consume a total of 60 m^3 of water per day and run at 88% efficiency. Improving water quality through better filtration by reverse osmosis can improve boiler yield by 5% thus saving the company 40 tons of fuel a year.

Action 6
The company's boilers let off thermal energy at 250°C. Capturing this excess heat with an economizer and using it to preheat feed water could save 110 tons of fuel or 10% of the company's total fuel consumption.

Action 7
Even though its payback period remains relatively long due to the low price tag of electricity (0.06 €/kWh), the installation of solar photovoltaic panels (2,240 m^2) on the building's available roof space could offset the company's total electricity bill by around 8% while substantially reducing CO_2 emissions and improving its green image. What's more, the excess solar energy produced could be sold and produce additional revenues to the company.

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