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.

LAND'OR

Ben Arous, Ben Arous

Case Study **Agri-food Sector**

Company Overview

Land'Or is a company that employs around 450 workers and produces nearly 22 t of cheese products daily.

The company is already certified HACCP in adherence to the Danish norm DS 3027. It is also in the process of developing and integrating a management system for the food safety (ISO 22000).

Land'Or is part of a group of 20 enterprises that has 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

Electricity consumption (75% of the total energy bill) and wastewater management are major production costs for the company. The team of experts has identified several measures to improve this situation.

The first such action deals with installing a monitoring system for water and energy consumption. Through an optimized management of these flows, the company stands to save 10% on its water and electricity bills.

Next, the company can decrease its electrical consumption by 30% and ensure better product quality by improving the use of refrigerated areas to control airflow and limit the use of air conditioning. Experts also suggested the implementation of solar photovoltaic technology to replace a portion of the fossil fuel-based electrical supply.

In addition, the rehabilitation of the pre-treatment plant would ensure that the wastewater meets the standards and can be reused for agricultural irrigation instead of being evacuated by tanker.

Overall, these measures can help build internal competencies by raising awareness among employees, while the use of more efficient equipment and renewable energy production can be used in the company's marketing strategy.

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Saving opportunities and environmental impacts

	Action	Savings (€/year)	Investment (€)	Payback Period	Resource savings and environmental impacts
1	Installation of consumption monitoring system**	22,500	78,000	3.5 years	Water/energy (gas + electricity) consumption: 10% reduction.
2	Rebooting pretreatment plant***	112,500	190,000 + maintenance and operation	~4 years	Wastewater recovery. Lower transportation costs (by truck) and related impacts.
3	Installation of air curtains and high-speed doors*	28,300	126,000	4.5 years	Electricity consumption: 30% reduction for air conditioning. Potential savings of 843'144 kWh/year.
4	Installation of solar photovoltaic panels***	900	20,800****	13.6 years****	Reduced fossil fuel consumption and avoided CO_2 emissions (8 t/year).

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

Action 1

It is suggested that the company put in place a system of 27 (water, electricity and vapor) meters to monitor and regulate water and energy consumption. Direct energy savings, as a result of better monitoring, are valued at 10% of annual consumption, which corresponds to approximately 22,500 € per year. Consumption monitoring can also decrease the quantity of wastewater produced and chemicals used.

Action 2

Currently, the company's pretreatment plant is neither operational nor connected to the national sanitation office's purification station (STEP). Wastewater is therefore stocked on site before being transported daily by truck to the STEP, costing the company approximately 150,000 € per year. The recommended solution is to build an on site biological pretreatment plant that would allow the company to treat its wastewater in a manner that adheres to national standards. The company would subsequently be able to reuse the said wastewater in its internal processes or for irrigation.

Action 3

Significant energy losses result from high traffic into and out of the refrigerated storage areas. Experts therefore suggest that the company install 12 high-speed doors and 12 air curtains in order to decrease by about 30% the amount of electricity used for air conditioning (a process that accounts for 60% of total electrical consumption). Such a measure has the potential to save the company over 28,000 € per year while also ensuring higher quality products.

Action 4

Taking into account the management's desire to first analyze the costs and feasibility of renewable options before making a decision, experts proposed a pilot solar photovoltaic installation of 80 m^2. Such an installation is intended to produce about 15,000 kWh/year for an annual savings of about 900 €. It can also help avoid 8 t of CO_2 per year (the equivalent of taking 5 cars off the road for a year). Though the installation of solar PV panels is costly and has a long payback period, this measure is justified by Tunisia's high solar potential and, in the long term, increasing energy prices.

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