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.

VACPA

Béni Khalled, Nabeul

Case Study **Agri-food sector**

Company Overview

Created in 1982, VACPA is a leader in packaging and export of dates. It employs between 800 and 1000 employees and has reported 19 million € in average annual sales.

The enterprise is currently certified ISO 9001, ISO 14001, ISO 22000, IFS, and BRC. However, the management wishes to further advance the company's performance in terms of energy and resource consumption.

VACPA 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 team of experts has identified several measures that primarily aim to diminish electric and gas consumption. By increasing the energy efficiency of its processes, recycling waste into biomass fuel and installing renewable energy systems, the company can save around 74,000 €€per year.

Directly applicable measures include the installation of air curtains and speed doors that will help maintain adequate store room temperatures. Other measures focused on the revalorizing of waste boiler heat as well as waste product such as branches and seeds have great potential in terms of cutting energy consumption.

The experts also suggest the implementation of solar photovoltaic and solar thermal technologies. Such installations could present substantial, long-term financial and environmental gains, also bringing the company closer to energy independence - especially in the face of rising energy prices.

Beyond the economic and environmental benefits, the proposed approaches allow the company adopt best practices and deliver higher quality products, while also strengthening its capacities in terms of green technologies.

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Saving opportunities and environmental impacts

	Action	Savings (€/year)	Investment (€)	Payback Period	Resource savings and environmental impacts
1	Installation of air curtains and high-speed doors*	16'220 - 24'325	Air curtains: 5'000 Speed doors: 120'000	2.7 - 5 years	Reduction in electrical consumption: 10-15% (260,506 - 390,759 kWh).
2	Installation of an economizer	1'770 or 4'950	20'000 or 48'000	9.7 or 11.3 years	Reduction of gas consumption and environmental burden.
3	Installation of solar photovoltaic panels	953	14'570**	12.5 years**	Reduction in fossil fuel consumption and decrease in CO_2 emissions (~8 t/year).
4	Energetic valorization of biomass waste	6'640 - 40'112	74'000 - 150'000	2.7 - 11.3 years	Reduction in gas consumption and environmental burden. Recovery of organic waste on site.
5	Installation of solar thermal panels	3'665	41'250**	1.6 - 9.3 years**	Decrease gas consumption and therefore CO_2 emissions (73 t/year).

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

Action 1

Significant energy losses result from high traffic into and out of the refrigerated storage area. Following the experts' suggestions, 7 high-speed doors and 15 air curtains have been installed. With an additional 15 air curtains and 12 high-speed doors, the company can decrease its electrical consumption by 10-15%, saving upwards of 24,000 € per year and contributing to optimal product quality.

Action 2

Installing an economizer on the boiler, the company can valorize waste heat by using it to pre-heat the water feeding into the boiler from 100°C to 150°C or to heat water to 60°C for washing purposes for annual savings of 1769 € or 4947 €, respectively. Though the payback periods are high due to national gas subsidies, the company remains eager to take on one of these solutions in prevision of higher gas prices.

Action 3

To exploit the roof space and the great solar potential they measured, experts propose a pilot solar photovoltaic installation of 79 m^2, leading the company to gain valuable experience with renewable technologies.

Action 4

The company produces waste in the form of pallets of wood, small branches and date seeds that have an energetic potential of 1,660 MWh annually. Experts identified two ways to reuse this "free" energy: burning wood and branches to heat water at 60°C in washing process (saving 6'640 €/year), producing biodiesel from seeds (saving 34,000 €/year), or reusing waste in a boiler to produce steam at 6 bar to be fed back into the production line (saving 40,000 €/year).

Action 5

Experts have proposed the installation of a 150 m^2 pilot solar thermal array that would provide 40% of total hot water demand. This measure can lower the company's annual energy costs by 3,500 € and cut related emissions by 73 t per year. The high payback period of 9.3 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 1.6 years.

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