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.

The Sultan Hammamet

Hammamet, Nabeul

Case Study **Hotel Sector**

Company Overview

The Sultan Hammamet Hotel, which employs 200 staff members, counts 266 rooms spread out over 10 buildings.

The hotel is certified ISO 9001 as of 2008 and ISO 22000 as of 2005. It has also put in place an environmental management policy and submitted itself to energy and resource efficiency audits.

The Sultan Hammamet Hotel is part of a group of 20 enterprises that has integrated the first phase of the Project in order to further 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 target the hotel significant energy and water consumption, mitigate pollution and instill sensible business practices.

The first measure deals with tracking consumption. Setting up a monitoring system has the potential to save 2% on water, gas and electricity bills while also helping to minimize waste and fine-tune process performance.

By improving the energy efficiency of its cooling systems - specifically air-conditioning and refrigeration - the hotel stands to make substantial savings in terms of its electrical consumption and cut nearly 40 t of CO_2 emissions. Additionally, the use of renewable energy can drastically decrease the hotel's reliance on fossil fuels.

Besides, water consumption can be reduced by 14% by switching to ozone for pool water treatment and revising the irrigation system.

Beyond the economic and environmental benefits, the proposed approaches allow the hotel to adopt more responsible practices, improve its green image and generally become more competitive.

TCPP
TUNISIAN CLEANER PRODUCTION PROJECT

The Sultan Hammamet
Hammamet, Nabeul

Saving opportunities and environmental impacts

	Action	Savings (€/year)	Investment (€)	Payback Period	Resource savings and environmental impacts
1	Installation of a consumption monitoring system	3,950	12,900	~4 years	Reduced energy and water consumption (2%).
2	Installation of solar photovoltaic panels	990	20,800*	12.9 years*	Preservation of primary energy resources and cuts in CO_2 emissions.
3	Improving water system efficiency (ozone machine and irrigation)	12,519	44,000	3.5 years	Preservation of water resources (6'700 m^3/ year) and decrease in the use of chemicals.
4	Improving the cooling system	3670	4,404	1.2 years	Reduction in electrical consumption and thus CO_2 emissions.
5	Improving the thermal efficiency of the kitchen's preparation stations	a) 560 b) 115/190 c) 186 or 83	a) 1,250 b) 300/none c) 1,350 or 570	a) 2.2 years b) 2.6/immediate c) 7.3 or 6.9 years	Reduction in electrical consumption and thus CO_2 emissions.

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

Action 1

The installation of an automated accounting system (including an interactive dashboard and 10 water, 18 electricity, 5 gas meters) allows for constant monitoring of resources to identify leaks, losses and the potential for process optimization while helping the hotel benchmark in view of achieving the ISO 14001 certification.

Action 2

In order to first test the measure's feasibility, experts proposed a pilot solar photovoltaic installation of 79 m^2, which is intended to produce 15,000 kWh/year for annual savings of 1,140 €. The high initial cost of installing solar PV panels is justified in the long term by probable increases in fossil fuel prices, and a greener image for the hotel.

Action 3

Experts suggest installing an automated, weather-based irrigation system to cut water use by 20% as well as ozone machines with which to treat pool water. This can greatly improve pool water quality, completely cut chemical use for its treatment and reduce the need to rinse filters.

Action 4

Setting limits on the hotel's thermostats to prevent excessive heating or cooling can decrease the hotel's yearly electrical consumption by about 25,000 kWh. Additionally, incorporating automated frequency controls on chiller units to regulate usage by turning them on only when necessary can cut another 43,000 kWh per year. In total, this measure can save the hotel 3,670 € a year and cut 31 t of CO_2 - the equivalent of driving 19 cars for a year.

Action 5

Actions suggested to decrease the kitchen's electrical energy consumption include: installing 10 strip curtains (a), 1 air curtain and a better refrigerator configuration in the storage area (b), and more effectively insulating the separation between the food preparation stations and the refrigerated storage area (c, 2 options: added insulation layer or double paned windows). This measure has the potential to save up to 940 € a year and cut 8 t of CO_2 emissions per year.

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
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Departement of Economic Affairs,
Education and Research EAER
State Secretariat for Economic Affairs SECO

UNIDO