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.

Prima Life Hotel

Monastir, Monastir

Case Study **Hotel Sector**

Company Overview

The Prima Life Hotel counts 300 rooms and recorded nearly 120,000 overnight stays in 2012.

It has already initiated energy and water audit procedures, and the hotel's management remains interested in seeing how it can improve the hotel's facilities and green image.

The Prima Life 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's high energy and water consumption, mitigate pollution and instill sensible business practices.

The first measure deals with tracking consumption. Setting up a resource monitoring system has the potential to save at least 2% on water, gas and electricity bills while allowing the hotel to benchmark in view of further certifications.

By treating effluents on-site, optimizing the irrigation system and collecting rainwater the hotel can cut its water bill by approximately 15% and save upwards of 8000 € per year.

Experts also suggested implementing renewable energy technologies that can reduce the hotel's need to generate electricity and heat water using fossil fuels thus reducing its carbon footprint.

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.

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Saving opportunities and environmental impacts

	Action	Savings (€/year)	Investment (€)	Payback Period	Resource savings and environmental impacts
1	Installation of an energy and water monitoring system	4,950	27,750 to 34,250	7.3 to 8.9 years	Reduced energy and water consumption (2%).
2	Establishment of a sanitation station	5,650	20,000	3.5 years	10 % reduction in water consumption.
3	Improving the efficiency of the irrigation system	2,260	13,500 to 15,000	6 to 6.5 years	4% reduction in water consumption and preservation of groundwater.
4	Installation of solar thermal water heating system	1,820	52,500*	Scenario 1 : 14.5 years* Scenario 2 : 5.6 years	Reduction in gas consumption (12,744 Nm^3/year) and therefore CO_2 emissions.
5	Installation of solar photovoltaic panels	1,140	21,800*	12.1 years*	Reduction in the use of fossil fuels (15,000 kWh/year).

* 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 ISO14001 certification.

Action 2

Building a sanitation station in order to treat the used water coming from the rooms, kitchen, restaurant, and pool will allow the hotel to reuse this water for gardening and cleaning purposes. This measure stands to reduce the hotel's water consumption by 10%.

Action 3

The hotel can substantially decrease its water consumption by optimizing its irrigation system. Installing a weather station controlled drip irrigation system and a rainwater collection tank can help cut 4% of the hotel's total water bill. This measure has the added benefit of helping to preserve the lifespan of natural aquifers.

Action 4

Experts suggest that the hotel take advantage of Tunisia's high solar potential by installing a 150 m^2 flat-plate solar thermal system on its available roof space. Using solar energy to heat water can diminish the hotel's annual energy costs by nearly 2000 € and significantly cut its carbon footprint. Though an expensive investment, this installation is justified by probable future increases in fossil fuel prices with its payback period dropping from 14.5 to 5.6 years if Tunisian gas prices were to reach the international average.

Action 5

In order to first test the technology's feasibility, experts proposed a pilot solar photovoltaic installation of 79.2 m^2, which is intended to produce 15,000 kWh/year for annual savings of 1,140 €. Though the installation of solar PV panels has a long payback period due to the currently low cost of electricity, this measure is justified in the long term when considering increasing energy prices. What's more, such installations will bring the hotel immediate benefits in terms of image.

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

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