

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.



Case Study

Hotel Sector

Company Overview

The Royal El Mansour Hotel in Mahdia, Tunisia has 375 rooms and over 180 employees and reported revenues of 3.25 millions € in 2011.

The hotel, aware of the importance of reducing its resource consumption, has committed to several internal changes, but has never performed an energy audit nor has received any environmental certifications.

The Royal El Mansour 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 electricity and water consumption while mitigating pollution and cutting spending. Combined, the measures can save the company close to 45,000 € per year and have average payback periods of 3.5 years.

The first measure deals with tracking water and energy consumption. Installing meters has the potential to save 2% on water, gas and electricity bills while also helping to monitor the benefits produced by other measures implemented.

Installing strip and air curtains in the refrigerated storage areas to regulate temperature variations is a worthwhile investment when it comes to reducing electrical consumption and offsetting CO₂ emissions.

Adding a weather-based, automated sprinkler system and ozone machines with which to treat pool water can diminish water consumption by 20% to 30% and lead to substantial savings.

Other measures such as composting and harvesting of solar power can lead to savings in terms of chemical and electricity consumption while reducing the hotel's environmental footprint. They also help to promote waste recovery and the use of renewable sources of energy.

Saving opportunities and environmental impacts

Action	Savings (€/year)	Investment (€)	Payback Period	Resource savings and environmental impacts
1 Installation of consumption monitoring system	24,200	5,900	~4 years	Reduced energy and water consumption (2%).
2 Installation of strip and air curtains in refrigerated areas	440	1,300	3 years	Reduction in energy consumption and CO ₂ emissions (3.5 t/year).
3 Valorization of waste by composting	To be determined	7,000	To be determined	Reduction in organic waste and use of chemical fertilizer.
4 Improving the water system (ozone machine and irrigation)	21,450	76,500	3 years	Reduction in water consumption.
5 Installation of solar photovoltaic panels	970	20,700*	13.2 years*	Reduction in fossil fuel consumption and CO ₂ emissions (8 t/year).

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

Action 1

A monitoring system including the installation of 10 electricity, 4 gas and 15 water meters have the direct potential of reducing the hotel's water and energy consumption by 2%. This measure will also allow the hotel to identify leaks, and gauge optimum water, electricity and gas consumption.

Action 2

Significant energy losses result from high traffic into and out of the refrigerated storage areas. Installing 5 strip curtains on the walk-in refrigerator doors and an air curtain over the main storage space's door in order to maintain the internal temperatures will cut electrical consumption by over 7000 kWh per year while also ensuring higher quality products.

Action 3

Experts suggest that the hotel valorize its kitchen and garden waste by composting and reusing it as natural fertilizer. The composting process requires 5 to 8 months, limited oversight and an area of 30 to 40 m² in the garden. For quicker production of higher quality compost, it is recommended that the hotel purchase a grinder.

Action 4

The hotel currently consumes a lot of water for the purpose of irrigation and pool filter rinsing. Installing an automated, weather-based irrigation system will cut total water use by 20%. Moreover, the installation of ozone machines to treat pool water can greatly improve pool water quality and cut chemical use for pool water treatment. Annually, these measures stand to save the hotel over 16,000 m³ of water.

Action 5

The hotel wants to first analyze the costs and feasibility of photovoltaic option before making a large investment. Experts thus proposed a pilot installation of 80m², which is intended to produce about 15,000 kWh/year and avoid 8 t of CO₂ per year (the equivalent of taking 5 cars off the road for a year). 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.