MED TEST II Case Study

switchmed

As part of the SwitchMed programme, UNIDO supports industries in the Southern Mediterranean through the transfer of environmental sound technologies (MED TEST II) to become more resource efficient and to generate savings for improved competitiveness and environmental performance.

Egypt

Future Pipe Industries-SAE (FPI-Egypt)
Chemical sector

Context

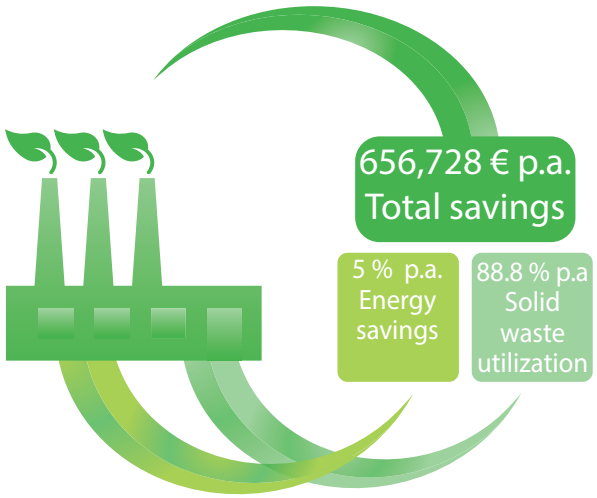
Number of employees:	550 full-time employees
Key products:	Pipes and fittings made of Glass-Reinforced Polyester (GRP), Glass-Reinforced Vinyl ester (GRV) and Glass-Reinforced Epoxy (GRE)
Main markets:	Local and export (60 %)
Management standards:	ISO 14001:2015, ISO 9001:2015

Future Pipe Industries SAE (FPI-Egypt) is considered one of the leaders in design and manufacturing of composite large diameter fiberglass pipe systems. FPI-Egypt has one of the highest capacities within the Future Pipe Group. FPI-Egypt started production in 1999 with its plant located in the new city of 6th of October outside Cairo and an area of 66,000 m^2.

"We have 12 plants all over the world and our top management already engaged in replicating the experience once the savings will be validated."

Mohamed Nabil
Plant Manager

Benefits



Graphic: UNIDO

Future Pipes Industries benefited from the MED TEST by identifying savings opportunities for reducing raw material losses and energy. A total of 15 opportunities were identified resulting in the valorization of 88.8% of the raw material losses, as well as savings of about 5% of the annual energy consumption. 80% of the identified measures were approved by top management.

Implementation of the opportunities identified at Future Pipes Industries will save 656,728 euros annually, with a total investment of around 301,823 euros. The average payback from implementing all measures is 0.5 years. Some of the identified measures will have a positive impact on job creation.

The company became aware of the necessity for a proper information system to realize further improvements and better monitoring, therefore they are in the process of installing energy submeters and introducing a detailed recording system for consumption and production.

The company already integrated RECP into its policy and ISO 14001 and is now searching for new ideas to increase efficiency and reduce company waste.

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INDUSTRIAL DEVELOPMENT ORGANIZATION

SwitchMed is funded by the European Union

Saving opportunities[1]

Action	Economic key figures			Resource savings & environmental impacts per year		
	Investment euros	Savings euros / yr.	PBP years	Water and raw materials	Energy MwH	Pollution reduction
Valorization of grinding powder in the building & construction sector	-	4,800	Immediate	24 t of waste material	-	Total: 143 t of CO_2 2,229 t of solid waste
Waste-to-energy solutions	290,000	641,337	0.4	2,205 t of waste material	-	
Compressed air optimization	9,323	8,124	1.1	-	211	
Insulation of furnaces	2,500	2,468	1		106	
Total	**301,823 €**	**656,728 €**	**0.5**	**2,229 t of waste material**	**317 MWh**	

1 Numbers based on production value from 2015

Valorization of grinding powder in the building and construction sector

Fine powder generated during the cutting and finishing of the product is being captured by bag filters and then dumped. That powder has good binding properties, as it is epoxy-based. Moreover, the fiberglass particles give the powder good strength. Introducing that powder as a filler material to artificial marble production led to the development of a new product, which is based on waste material from different industries.

Waste-to-energy solutions

Raw material waste with a high calorific value is generated during manufacturing. The amounts which cannot be further minimized can be utilized as an alternative fuel source for the cement industry. The company intends to invest its revenues from waste sales in installing an in-house pyrolysis plant, which will lead to three main outputs: pyrolysis oil, carbon black as well as some recovered fiberglass and other fibers to be reused in the process.

Compressed air optimization

The compressed air system at Future Pipe can be significantly improved by reducing the artificial demand, decreasing the set pressure, reducing leaks, installing an automatic drain on the storage tanks as well as increasing the volume of the storage tanks.

Insulation of furnaces

Furnaces at Future Pipe suffered from poor insulation and an uncontrolled burning process. This measure involves replacing the malfunctioning thermocouple as well as insulating the exposed areas of the furnaces. After implementing these improvements on the natural gas-fired furnace, the company noted an immediate savings in the monthly bill.

"We knew we had a problem with waste and our aim at the start of the project was to find solutions to minimize waste. Now we see waste as by-products and we are looking into different opportunities to valorize them and convert them into new products. Thanks to the project, we identified a tile manufacturer who is now using our grinding waste as filler in tile production and we are also looking into waste-to-energy alternatives for other waste."

Sayed Saad
Quality Manager

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