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

ABCO United for Plastics and Chemicals

Chemical sector

Context

Number of employees:	1000
Key products:	HDPE and PP bottles and jerry cans from 60 ml to 25 l
Main markets:	Local and export (6%)
Management standards:	ISO 9001, ISO 14001, OHSAS 18001, FSSC 22000

ABCO United for Plastics and Chemicals is a private sector shareholding specialized in the production of plastic containers with different sizes for both food, motor oil and household/industrial purposes.

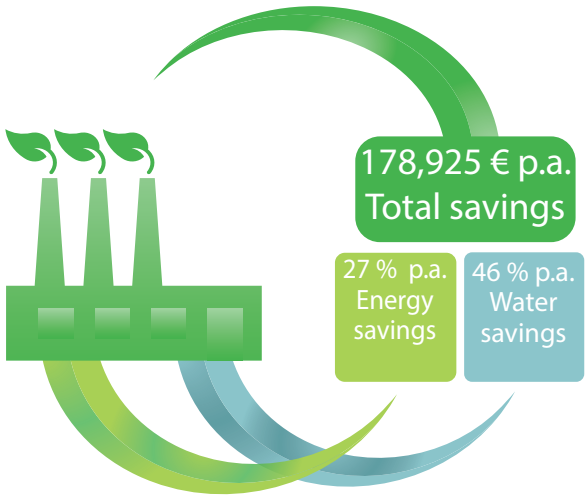
In 1979, ABCO became the first company in Egypt to manufacture plastic containers for motor oil that quickly replaced tin-plate containers. It has grown consistently since then and is now the largest HDPE blow moulder in Egypt catering to mostly multinational clients.

ABCO joined the MED TEST II project to identify opportunities for increasing resource efficiency and reducing waste generation.

"The MED TEST II project and methodology brought significant added value and focus to our existing efforts towards improving our plant's efficiency with respect to available resources."

Samy Awad
Chairman

Benefits



Graphic: UNIDO

The MED TEST II project has identified annual total savings of 178,925 euros through electricity and water savings and efficient production planning with an estimated investment of 283,269 euros. The average payback period is 1.6 years. These savings will be achieved through 12 resource efficiency measures, four of which are already implemented, one measure is under implementation, three further measures are planned for implementation and one measure is retained for study.

Savings at ABCO are mainly achieved by reducing electricity consumption by about 27%, which results in a 27% reduction in CO_2 emissions. Also, water consumption would be reduced by about 46% through optimized water conservation and reusing measures and by maintaining and increasing production machine efficiency.

The company gained valuable insights through the Material Flow Cost Accounting (MFCA) tool used in the TEST methodology as an efficient tool to identify the priority flow for resource losses.

Also, the MED TEST II project linked ABCO with other projects that provide technical assistance to facilitate the implementation of LED replacement measures, which shall be pipelined for financing through available financing mechanisms.

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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
Water conservation and reuse	1,635	2,434	0.7	8,543 m^3 of water	-	
Improving production planning	0.0	33,969	Immediate	-	-	
Compressed air system optimization	28,869	38,938	0.7	-	1,013	Total: 1,711 t of CO_2
Modernizing production machines and working tools	239,168	93,719	2.5	-	2,296	
Using LED lamps for illumination	13,597	9,865	1.4	-	257	
Total	**283,269 €**	**178,925 €**	**1.6**	**8,543 m^3 of water**	**3,566 MWh**	

1 Numbers based on production value from 2015

Water conservation and reuse

Applying water conservation measures by installing water aerators on water taps and reusing the drain water from cooling towers as flush water in the toilets will save on domestic water usage. The implementation of these measures will save about 46% of the total water consumption.

Improving production planning

Reducing the number of small production batches and reducing the time for mould changeovers through efficient production planning in coordination with ABCO clients. This measure will increase production by about 36.25 t/year and reduce some waste generated on start-up.

Compressed air system optimization

Five measures were identified for reducing compressed air losses by reducing the compressed air bar setting by 1 bar, minimizing compressed air usage, using automatic drain for compressed air tanks, installing VSD on the main air compressor and by maintaining the compressed air network to prevent leakage. Implementation of these measures will save about 7.6% of the total electricity consumption.

Modernizing the production machines and working tools

Some of the production machines were modernized by replacing the old inner parts that slowed down production and increased energy losses due to poor insulation.

Also, providing the workers with adequate tools for the manual trimming of part of the final product will increase the workers' performance, reduce the generated solid waste and increase productivity by approximately 6 t/year.

Using LED lamps for illumination

Replacing fluorescent lamps with LED lamps will reduce electricity consumption by about 2% and consequently will also reduce CO_2 emissions by a similar percentage.

"The Med Test II project has helped to sharpen our focus regarding the optimization of our resource utilization. It helped us to quantify numerical key performance indicators that should keep us on the path to monitor (and thus continuously improve) our consumption and waste percentages."

Samy Awad
Chairman

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