

RECP Experiences at Klas d.d. Sarajevo

Efficient and environmentally sound use of materials, energy and water - coupled with the minimization of waste and emissions - makes good business sense. Using Resource Efficient and Cleaner Production (RECP) this can be achieved in a holistic and systematic manner. RECP applies preventive management strategies to improve natural resources productivity, minimize generation of waste and emissions, and foster safe and responsible production. As experiences of Klas d.d. Sarajevo from Bosnia and Herzegovina show, benefits are obvious in many enterprises, regardless of their line of business, location or size.

Achievements at a Glance

The Resource Efficient and Cleaner Production (RECP) project in Klas d.d., a commercial bakery products manufacturing industry, will achieve annual savings of EUR 33,813 with investment of EUR 102,075 and payback time of 36 months. Implementation of all suggested resource efficiency measures will reduce electric energy consumption by 7.7% and fuel consumption by 3.6%. Total energy consumption reduction is 4% and water consumption reduction is 11%. Carbon footprint of 5,526 t CO₂/a will be reduced by 6% and amount of waste water will decrease by 21%.



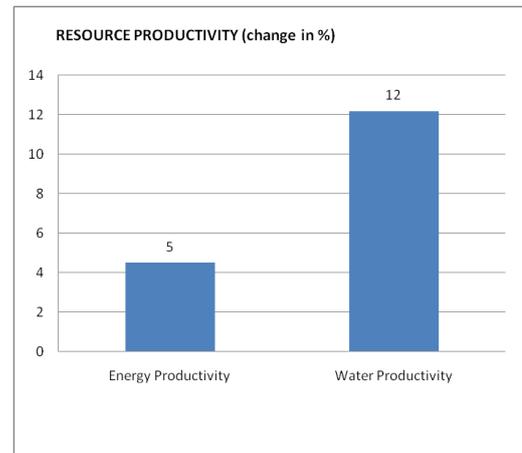
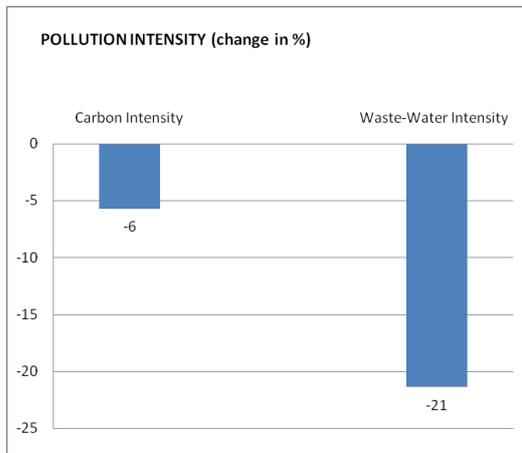
Overview

“Klas” d.d. Sarajevo develops, produces and sells grain-based food: flour, bread, rolls, pasta, confectionery products, etc. It has its own mills, bakery plants, shops and shopping centres where domestic products prevail in overall range of products. Klas offers its own products at the market for final users, industrial consumers and other bakeries, via its own retail and wholesale network. “Klas” exports its products at the markets of the region, EU, USA, and Middle East countries. “Klas” is the company whose business operations rest on the top-quality products and services through consistent application of the guidelines and requirements of internationally acknowledged systems and norms of quality management – ISO 9001:2000, ISO 14001:2004, HACCP, KRAV, HALAL.

Benefits

Absolute Indicator	Change (%)	Relative Indicator	Change (%)
Resource Use		Resource Productivity	
Energy Use	-4	Energy Productivity	5
Water Use	-11	Water Productivity	12
Pollution generated		Pollution Intensity	
Air Emissions (global warming, CO ₂ eq.)	-6	Carbon Intensity	-6
Waste-Water	-21	Waste-Water Intensity	-21
Waste	0	Waste Intensity	0

RECP profile



Resource Efficient and Cleaner Production (RECP)

Resource Efficient and Cleaner Production (RECP) entails the continuous application of preventive environmental strategies to processes, products and services to increase efficiency and reduce risks to humans and the environment.

RECP addresses three sustainability dimensions individually and synergistically:

- *Production efficiency*
 - > Through improved productive use of natural resources by enterprises
- *Environmental management*
 - > Through minimization of the impact on nature by enterprises
- *Human development*
 - > Through reduction of risks to people and communities from enterprises and supporting their development



Success Areas

RECP measures	Benefits				
	Economic			Resources	Waste flow
	Investment EURO	Savings (EURO/year)	Payback period		
			Reductions in energy use, water use and/or materials use (per annum)	Reductions in waste water, air emissions and/or waste generation (per annum)	
Installing thermostatic radiator valves	1,350	495	2 years and 9 months	Fuel 1,383.8 m ³	2.6 tCO ₂
Repair of pipeline and heat insulation on distribution channels of refrigeration machines, replacement of sealed tire in cold storage rooms	4,264	3,183	1 year and 4 months	Electric energy 41,504.9 kWh	65.2 tCO ₂
Installing plastic curtain for cold storage	383	2,387	2 months	Electric energy 327,2 kWh	48.9 tCO ₂
Replacement of fluorescent tube T12 with T8 in production plant; and replacement of magnetic with electric damper	7,737	2,403	3 years and 3 months	Electric energy 31,326.9 kWh	49.3 tCO ₂
Installing variable	3,579	1,254	2 years	Electric energy	25.7 tCO ₂

RECP measures	Benefits				
	Economic			Resources	Waste flow
	Investment EURO	Savings (EURO/year)	Payback period	Reductions in energy use, water use and/or materials use (per annum)	Reductions in waste water, air emissions and/or waste generation (per annum)
frequency drives (VFD) on line ones mixer at bread production line			and 10 months	16,352.0 kWh	
Automatic boiler (Toplota Zagreb) blowdown system and installing heat exchanger and tank for blowdown wastewater utilization	14,316	3,218	4 years and 5 months	Fuel 7,897.8 m ³ Water 233 m ³ vode	Waste water 272.2 m ³ 14.7 tCO ₂
Insulating condensate receiver in boiler room	92	465	2 months	Fuel 1,299.8 m ³	2.4 tCO ₂
Replacing thermal insulation of Toplota Zagreb boiler	818	1,322	7 months	Fuel 3,692.8 m ³	6.9 tCO ₂
Installing economizer in Toplota Zagreb boiler	33,234	7,725	4 years and 4 months	Fuel 21,584.4 m ³	40.2 tCO ₂
Installing high-pressure blowers for pan cleaning in Velepekara plant	511	655	9 months	Electric energy 8,541.0 kWh	13.5 tCO ₂
Installing VFD on compressors' motors	5,113	3,359	1 year and 6 months	Electric energy 43,800.0 kWh	65.2 tCO ₂
Utilization of rainwater from rooftop of Velepekara plant	20,452	5,147	4 years	Water 3,216.5 m ³	
Utilization of rainwater from silo's rooftop	10,226	2,198	4 years and 8 months	Water 1,378.0 m ³	



RECP Experiences



Approach taken

The Company participated in the National Cleaner Production Program in Bosnia and Herzegovina. The RECP assessment was performed by the company team and national experts trained in RECP methodology. The RECP assessment was supervised by international experts. The purpose of assessments made at the beginning of the project was to prepare a material balance, an energy balance and balances of water consumption and wastewater. In consultation with expert teams the company management selected the RECP measures to be implemented. Installing variable frequency drives on air compressors proved to be the major contributor to electric energy savings, and when it comes to fuel savings; installing boiler economizer is the leading contributor to fuel consumption reduction. Installing plastic curtain for cold storages is the suggested measure with the shortest payback period which, at the same time, contributes to electric energy consumption savings by 18%. Two major CO₂ reduction come from (1) installing VFD on compressors' motors and (2) repairing of pipeline and heat insulation on distribution channels of refrigeration machines, and replacement of sealed tire in cold storage rooms.

Testimony Box

National Cleaner Production Program in Bosnia and Herzegovina

The program is designed to foster expertise, service delivery capacity and implementation of RECP practices and policies in the country, building on UNIDO's experience in supporting National Cleaner Production Programmes (NCPPs) and Centres (NCPCs), in collaboration with UNEP, under the global joint RECP Programme. The program that was officially launched in 2015, contributes to improve the resource efficiency and environmental performances of businesses and other organizations in Bosnia and Herzegovina. With the application of a systematic RECP approach, the project aims at providing:

- Training to national experts on UNIDO's RECP methodology
- Assessment services to companies
- Information dissemination and awareness raising

Contact Details

National Cleaner Production Program

Podgaj 14, 71000 Sarajevo

Bosnia and Herzegovina

www.ncpp.ba

Phone: +387 33 279 100

fax: +387 33 279 108