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RECP Experiences at ZVEZDA-HELIOS, Gornji Milanovac

The efficient and environmentally sound use of materials, energy and water - coupled with the minimization of waste and emissions - makes good business sense. Resource Efficient and Cleaner Production (RECP) is a way to achieve this in a holistic and systematic manner. RECP covers the application of preventive management strategies that increase the productive use of natural resources, minimize generation of waste and emissions, and foster safe and responsible production. Benefits are eminent in many enterprises, regardless of sector, location or size, as demonstrated by the experiences of Zvezda-Helios, Gornji Milanovac, Serbia

Achievements at a Glance

RECP project in Zvezda Helios resulted in 9 % decrease in Energy use, 2 % decrease in water use and 29 % of decrease in waste. This helped company to achieve increase 15 % in energy productivity, 5 % in raw materials productivity and 7 % in water productivity. To this end company invested 82,000 €.

Overview

The factory was founded in 1953 under the name "Granite" for the production of stone cubes and magnesite. Under the name "Zvezda (Star)", the company for production of non-metals, paints and chemical products has been running the business since 1959 when the paints production becomes its dominant activity.
Today, Zvezda-Helios achieved a turnover of around 14 million € and 13 000 t of products.
Production program
- Consumer coatings (coatings for metal, wood coatings, building coatings)
- Industrial coatings (for the metal industry, the wood industry, the colours for plastics, powdered lacquers)
- Paints for roads
- Paints for arts (tempera, oils)

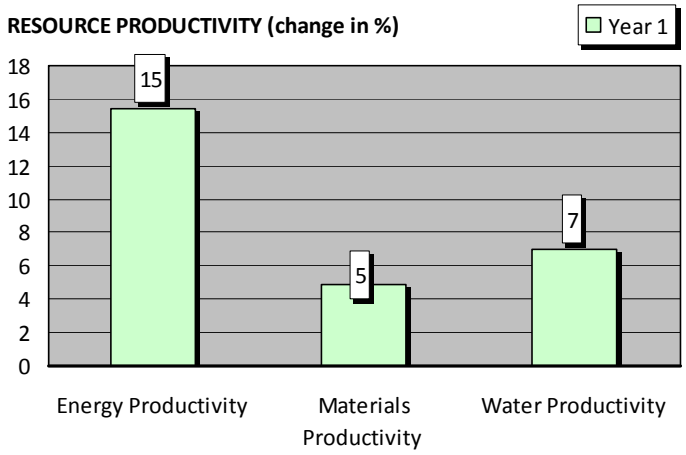
Benefits

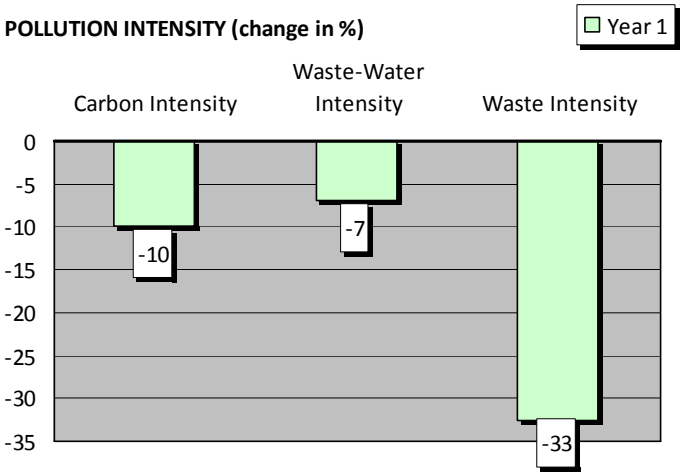
Implementation options achieved the reduction of the annual level (implementation) as follows:
- CO2 emissions for 113 tons / year
- Water consumption for 3000 m3/year
- Gas consumption for 36000m3
- Electricity power consumption 112,500 kWh
- Emissions of volatile organic solvents 2000-10, 000kg, how much will be less consumption (reduced dispersal)

Total investment for the proposed options is about 82000 EUR, and yearly savings 39 000 EUR.
Proposed options were approved by general manager and the implementation is on at present.

Absolute Indicator	Change (%) Year 1	Relative Indicator	Change (%) Year 1
Resource Use		**Resource Productivity**	
Energy Use	-9	Energy Productivity	15
Materials Use	0	Materials Productivity	5
Water Use	-2	Water Productivity	7
Pollution Generated		**Pollution Intensity**	
Air emissions (global warming, CO_2 equivalent)	-6	Carbon Intensity	-10
Waste-water	-3	Waste-water Intensity	-7
Waste	-29	Waste Intensity	-33
Production Output	5		

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

The results were achieved through the implementation of the following measures:

Principal Options Implemented	Benefits			
	Economic		Resource Use	Pollution generated
	Investment [USD]	Cost Saving [USD/yr]	Reductions in energy use, water use and/or materials use (per annum)	Reductions in waste water, air emissions and/or waste generation (per annum)
Reducing the duration of operations of pre-dispersing by recipe changing	/	2.000	.	Reducing emissions (annual VOC 2t on one type of colour)
Introduction of two-stage precipitation / increasing the distiller's work efficiency for 3%	200	4.600		Reducing residual waste quantities (0.5t/year)
Closing charge stills with foil during the next operation waiting stage	100	1.000		Reducing emissions (VOC one t/year)
Develop a system of automatic control of heating system (gas boiler room and heating substations)	30.000	10.000	Reducing gas consumption (30 000m3)	54 t/y reduction in CO2 emissions
Insulate pipelines for technological cooling water distribution	2.500	250	Reducing heating loss and electric power savings (3% - 10000kWh/yr)	
Insulate of non-insulated parts of the heating (in the primary substation) and replace of insulation on heating sections where the existing insulation decayed	10.000	2.000	Reducing gas consumption (5500m3)	Reduced CO2 emissions by 90t / yr.
Using the waste heat of compressor plant for heating working space	3.000	300	Reducing gas consumption (500m3)	Reduced CO2 emissions by 2t / yr.
Reconstruction of the installation of feeding water in a laboratory SOK(defined losses of 3 m3/day)	3.000	1.000	Reducing water consumption (1000 m3/year)	

Approach taken

The RECP Project comprised the Plant for production of liquid coatings and the accompanying facilities such as maintenance and energy – a boiler room, compressor station, cooling systems, transformer stations and other consumers of electricity and water consumers.
Supported by the leadership, a team was formed consisting of environmental staff from all organizational units important for the realization of the project. At the meeting all employees got acquainted with the purpose of cleaner production project.
During the work of the team and experts for coating plant material flows, the types and quantities of hazardous waste and recyclable materials were defined annually. At the level of the whole factory, there is the water and energy balance.

Business case

The team focused on measurement of all significant stages of material flow in product development in coatings plant. The importance of measurement is in a good control of the real situation, where we identify possible improvements and their proposals. The implementation of measures will increase competitiveness of Zvezda-Helios.

Testimony Box
National Cleaner Production Centre (NCPC)
Cleaner Production Centre of Serbia (CPCS) started to work on September 1, 2007 and it is located on the Faculty of Technology and Metallurgy, University of Belgrade as its host-institution. CPCS represents a Faculty department with an Advisory Board, composed of representatives of all stakeholders (government, academia, industry, consulting companies). The Centre, with specialization in resource efficiency, works with number of educated and highly specialized national and international experts on different projects in Serbia and in the Region. The CPCS offers a broad service portfolio, including, amongst others RECP trainings, plant assessments and audit services for companies, water and energy efficiency audits, Ecoprofit projects for municipalities using the RECP methodology, IPPC consulting servicies etc. The Serbian Cleaner Production Center has worked for over 70 companies (large enterprises and SMEs) from a variety of industrial sectors, has trained more than 60 consultants on RECP methodology and has conducted Ecoprofit Projects with two Municipalities. Furthermore, since 2010, the Centre's representatives have also been working as experts in resource efficiency and cleaner production of the International Finance Corporation (IFC) on projects in Serbia, Russia, Croatia, Bosnia and Herzegovina, Ukraine and Kazakhstan. The CPCS works with the support of the Ministry of Environment and Serbian Chamber of Commerce and has good cooperation with different organisations, academia, consulting companies etc.
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English Abstract (where applicable)

ABOUT *RECP EXPERIENCES*

Through the joint Resource Efficient and Cleaner Production (RECP) Programme, the United Nations Industrial Development Organization (UNIDO) and the United Nations Environment Programme (UNEP) cooperate to improve the resource productivity and environmental performance of businesses and other organizations in developing and transition countries. The Programme is implemented in partnership with the Global Network for Resource Efficient and Cleaner Production (RECP*net*). This series of enterprise success stories documents the resource productivity, environmental and other benefits achieved by enterprises in developing and transition countries through the implementation of RECP methods and practices.

These successes were achieved with the assistance of the National Cleaner Production Centres, which are part of RECP*net* established with support of the UNIDO and UNEP. The success stories employ the indicator set described in *Enterprise Level Indicators for Resource Productivity and Pollution Intensity*, UNIDO/UNEP, 2010. The primer with accompanying calculator tool and further case studies are available at www.recpnet.org, as well as on www.unido.org/cp and www.unep.fr/scp/cp.