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RECP Experiences at local Eco-Innovation project

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 local Eco-Innovation project in Korea.

Achievements at a Glance

Local Eco-Innovation aims to improve the competitiveness and environment profile through resource efficiency and cleaner production methodology. In Korea, it was introduced from Eco-profit project of Austria with UNIDO/UNEP in 2005 and 750 small and medium enterprises have participated in this program until 2014. Central government, local municipalities and the enterprises have funded all together for this project.

In 2013, 100 small and medium enterprises had joined and 8.5MIO USD was invested. This investment will affect the benefit of 30MIO USD during next 5 years. Also it contributes to reduce the greenhouse gas and other environmental burden.

Overview

Company A is located in Ullsan city of Korea and they produce the sheet and strips by copper and copper alloy. The company has 950 employees and the sales in 2011 were 1.3BIO USD.
Company S is a company in Daegu city and they produce Nylon, Poly ester and special textile. They have 70 employees and the sales in 2011 were 11MIO USD.

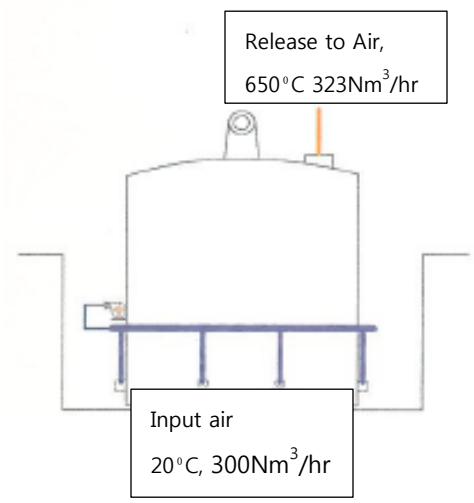
Benefits

Most of factories, especially where have the mass energy consumption facilities, are focusing on the cost saving through the energy efficiency improvement. In order to corresponding with this demand, RECP programme implement the precise energy audit and consult how to improve it. This takes a lead to not only save the cost but improve the environment profile.

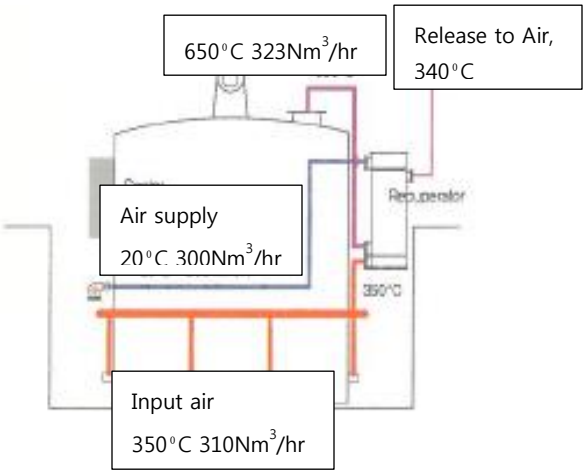
Absolute Indicator	Change Year 1		Relative Indicator	Reduction (ton) Year 1	
	Company P	Company S		Company P	Company S
Resource Use			**Pollution Generated**		
Energy Use	-13.38%	-35.48%	Air emissions (global warming, CO_2 equivalent)	-13.38%	-35.48%
Materials Use	--	-	Waste-water Intensity	-	-
Water Use	-	-35.48%	Waste Intensity	-	-

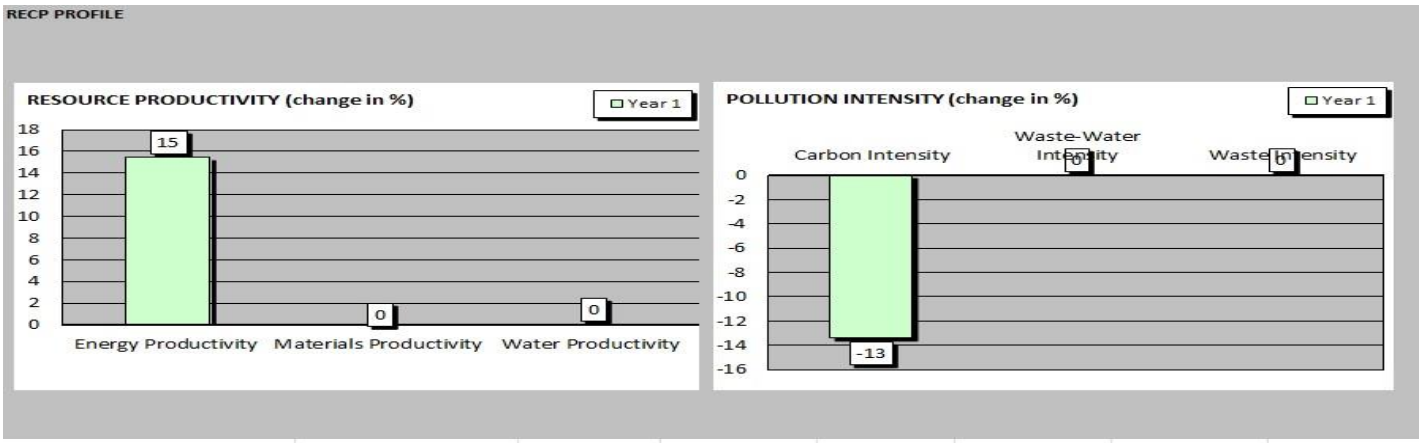
{Company P}

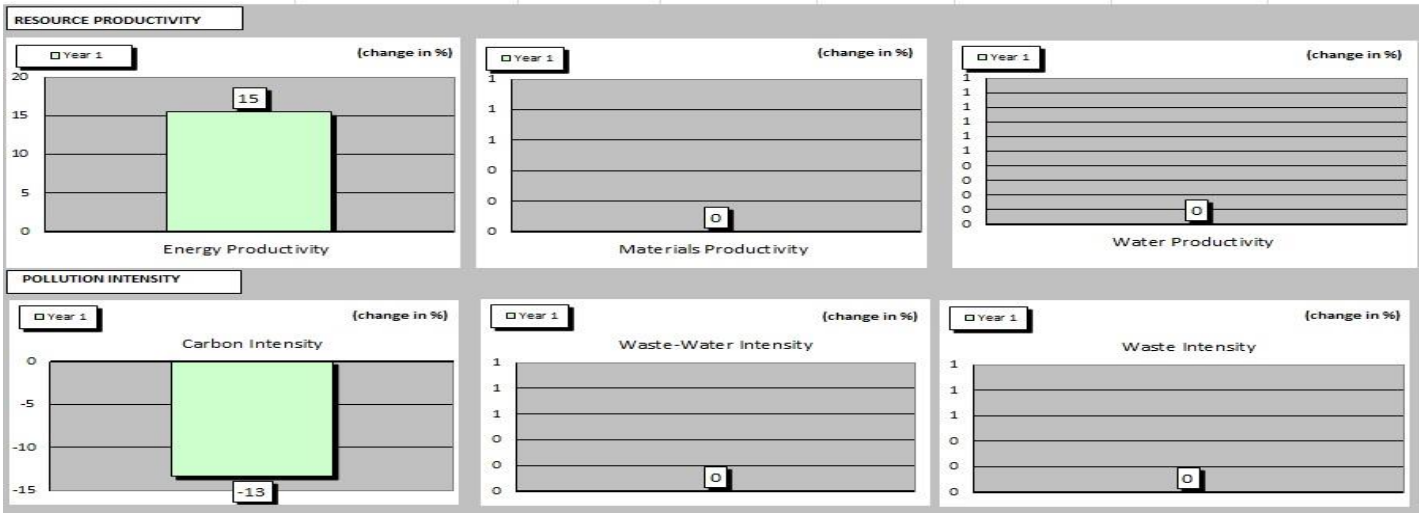
[Before heat recovery]



[After heat recovery]

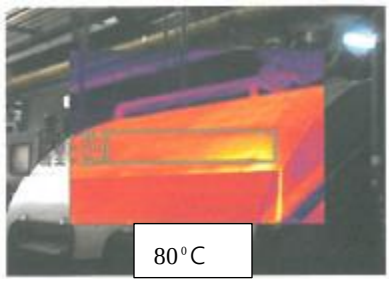






{Company S}

[Before applying heat-insulating]



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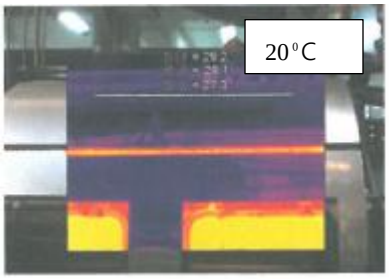
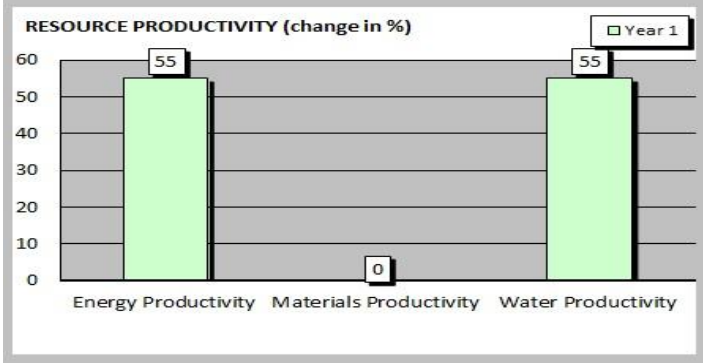
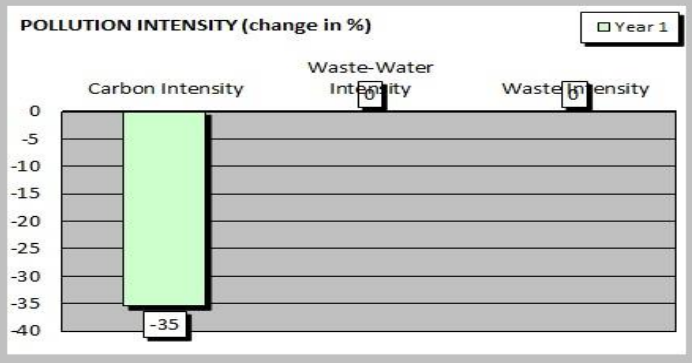
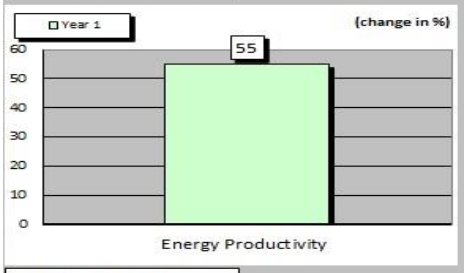


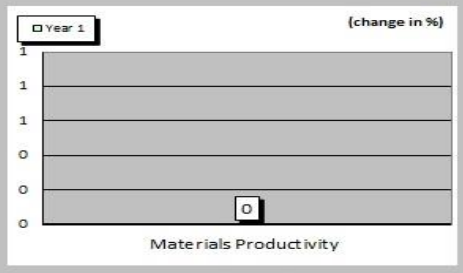
RECP PROFILE

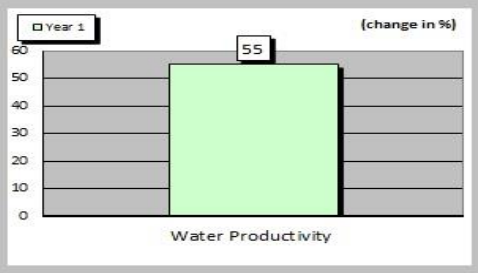




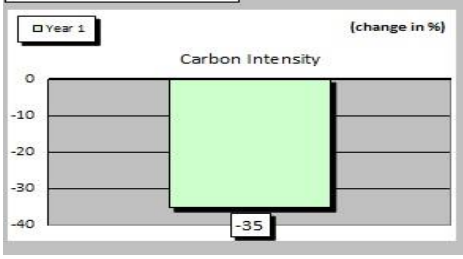
RESOURCE PRODUCTIVITY

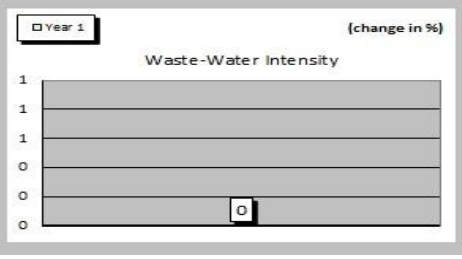


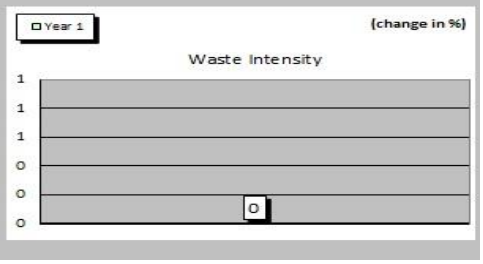




POLLUTION INTENSITY







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 team which consists of the experts of process and energy audit conducted the thorough investigation to list the improvement area and interviewed with CEO and the employees to prioritize the action which can reduce the production cost and improve the working condition and environment profile.

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)
[Company P] Recover the hot exhausting gas to pre-heat the air for combustion	112,713	67,351	Energy Use : 3,952,863 MJ	200.58tons of CO^2
[Company S] Reduce the heat exposure by the reinforcement of insulation on the surface of Jigger dying machine	20,945	30,295	Energy Use : 4,518,529MJ Water Use : 1,541.76m3	349.73tons of CO^2

Approach taken

[Company P] Production manager wanted to get the idea for energy savings through the precise energy audit conducted by RECP team. While the energy audit was conducted, he found out that the exhausted gas of 650°C was released to air in the bell furnace. Through the investigation on the initial investment and return on investment analysis, RECP team proposed to install the recuperator to reuse the exhausted gas.. They could increase the temperature of input combustion air from 20°C to 350°C and reduce the LNG consumption by 90,622 Nm^3 per year.

[Company S] This company uses many facilities that consume mass energy. Especially Jigger dying machine requires the use of steam and it reaches 80°C on the surface of machine that are made by the stainless steel. This increased the temperature of site by 40°C. This also caused the quality issue by condensate water on the machine. Through the installation of insulation cover on Jigger dying machine, they could decrease the surface temperature by 20°C and prevent the condensate water. This company could reduce the steam consumption by 398tons and provide the pleasant working environment to the employees.

Business case

Although the RECP programme was focused on the reduction of resource (fuel) use, there are additional benefits such as the reduction of greenhouse gas emission and improvement of working environment.

Testimony Box
National Cleaner Production Centre (NCPC)
KNCPC was established in 1999 under Korea institute of Industrial technology supported by Ministry of Trade, Industry and Energy. The center implements diverse projects amid at establishing cleaner production systems and sustainable industrial development such as establishing the technical foundation for cleaner production, developing industrial environmental policies, disseminating a green management system and an industrial infrastructure for resource recycling and providing comprehensive support for internal environmental regulations for companies and so on.
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English Abstract (where applicable)
N/A