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RECP Experiences at Pashkashesh Quarry

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 Pashkashesh Quarry, Albania.

Achievements at a Glance

The Resource Efficient and Cleaner Production (RECP) project in Stone Quarrying and Crushing Industry included the Pashkashesh Quarry. RECP implementation in the Pashkashesh Quarry led to annual savings of EUR 38600, by investing EUR 15,700.

Most options were implemented in the Pashkashesh Quarry, where the improved blasting control resulted in lower drilling costs and the waste (or mullock) produced. Another implemented measure was the top-down extraction through high walls (10-12 m) per bench level. This way, the quarry was able to provide a more rational use of limestone, to clean stone selection and a more careful separation from topsoil and mullock. Furthermore, the improved haul road quality yielded savings in the order of 10% for fuel and maintenance and reduced the total cost of rejected materials by approximately 50%.



Overview

The Stone Quarrying and Crushing Industry is an important industrial sector in Albania. Actors in the sector are engaged in producing crushed stone as raw material for various construction activities such as construction of roads, bridges, buildings. The company's core business is the production of limestone, sand for plastering, concrete sand, and granulated stone 1 and 2. By applying the RECP options, Pashkashesh Quarry has clearly demonstrated that taking care of materials, energy, waste and emissions makes good business sense

Benefits

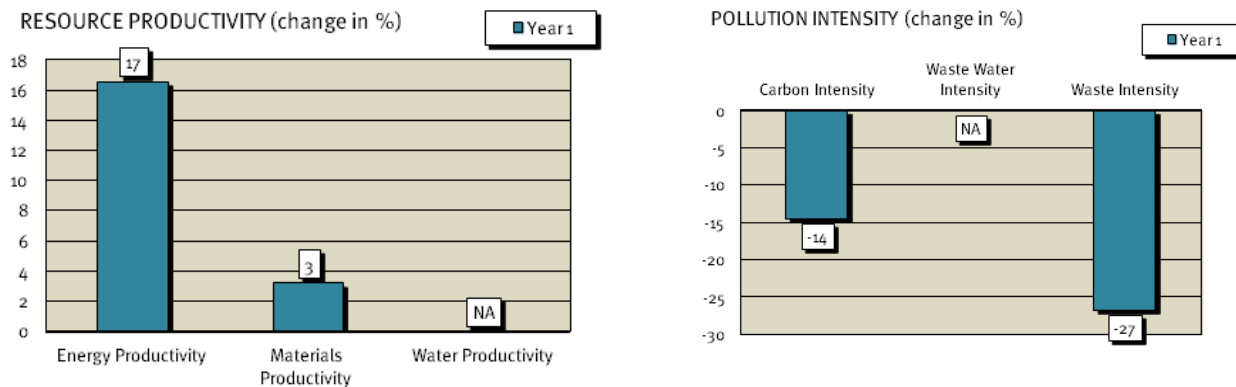
The RECP project was mainly focused on control over efficiency through monitoring. This approach has generally improved their operation through a more efficient resource use leading to significant cost reduction and improved environmental performance.

The follow-up measurements for 2011 showed that the company achieved an annual saving of EUR 38,600 as a result of implemented RECP measures.

Absolute Indicator	Change (%)	Relative Indicator	Change (%)
Resource Use		Resource Productivity	
Energy Use	32	Energy Productivity	17
Materials Use	49	Materials Productivity	3
Water Use	NA	Water Productivity	NA
Pollution generated		Pollution Intensity	
Air Emissions (global warming, CO2 eq.)	31	Carbon Intensity	-14
Waste Water	NA	Waste water Intensity	NA
Waste	12	Waste Intensity	-27
Production output	53		

In the Pashkashesh the absolute indicators are positive, which means that the use of energy, materials and waste is increased during 2011. Environmental performance is improved because the resource productivity is increased and the pollution intensity is decreased. The startup situation before implementation of RECP was recorded through monitoring of an initial baseline. Results of implemented RECP measures were monitored through follow up measurements. For energy productivity, the first follow-up measurement showed a 17% increase in productivity. For material productivity the follow-up measurement showed a 3% increase in productivity, again compared to the baseline. The pollution intensity for 2011 decreased respectively by 14% for carbon footprint and by 27% for waste.

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:

- Improved site layout and quarry shaping
- Quarry extraction with rationally planned benches and, haul tracks etc
- Blast management (mats etc.) to prevent damage to capital equipment Better drilling patterns and blasting techniques
- Optimization of running (bottle necks in transfer of material from pit/benches) etc
- Road maintenance in collaboration with General Directory of Roads

Principal Options Implemented	Benefits			
	Economic		Resource Use	Pollution generated
	Investment [EUR]	Cost Saving [EUR/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)
Improved site layout and quarry shaping Quarry extraction with rationally planned benches and, haul tracks etc Blast management (mats etc.) to prevent damage to capital equipment Better drilling patterns and blasting techniques	0	2,600	Reductions in materials use: lower explosives consumption	Reductions in waste generation: Reduction of the rejected material “mullock”, by 50%
Optimization of running (bottle necks in transfer of material from pit/benches) etc	0	4,000	Reduction in energy use 58 241 kWh	Reduction of 16 tons of CO ₂ /year
Road maintenance in collaboration with General Directory of Roads	15,700	32,000	Reductions in materials used: 10% for fuel	Reduction of 272.00 tons CO ₂ -eq/yr Reduction by 14%

Approach Taken

Pashkashesh Quarry commenced the Programme in 2010 and its implementation is still continuing. However, the data herewith represents monitoring results up to 2011. RECP has been achieved by performing quarry extraction with rationally planned benches and haul tracks etc. The company began by implementing no and low cost investment options such as better drilling patterns and blasting techniques and revising blast management to prevent damage to capital equipment. The company has so far achieved great economic benefits from cost-cutting measures in addition to ensuring compliance with the national legislative framework governing environmental management. Through this experience, they have learned that the top management commitment is critical to the successful implementation of RECP. Another important insight arising as a result of the Programme implemented at Pashkashesh is that since RECP is a continuous process, the savings gained from the implemented no cost options can be utilized for implementing additional RECP investment. The most important one, which is still ongoing at Pashkashesh, is related to transport as it contributes by 50% to the production cost. Further collaboration with other road users to build a new road will reduce truck wear and fuel use fundamentally. This investment will precede the use of larger trucks versus old and smaller ones and will reduce the quantity of fuel and truck wear as well.

Business Case

CP efforts resulted in a range of work including: changes to quarry morphology and benching techniques to improve logistics and improve quarrying efficiency, revision of drilling and blasting layouts to improve fragmentation and reduce product contamination, testing of new explosives for reduced waste, improved safety and improved fragmentation, consideration of road maintenance regimes to save fuel and maintenance costs, and ongoing assessment and planning to recover crusher dust as product.

Due to the RECP Programme, “Pashkashesh” Quarry has significantly improved its competitiveness by reducing production costs and improving product quality, occupational health and safety and general environmental performance. Furthermore, the management is committed to continue in the implementation and monitoring of RECP measures.

Testimony Box

National Cleaner Production Programme in Albania

Officially launched in 2010, the National Cleaner Production Programme in Albania, is established under the guidance of NCCP Steering Committee with membership of national government counterparts, UNRC, UNIDO, and UNEP. The NCCP is hosted by ECAT Tirana (Environmental Centre for Administration and Technology) established in 1995 by EU/DG Environment, German and Albanian Government to serve as an advisory body for the Ministry of Environment. ECAT has a sound experience of country-specific and capacity building projects related to energy, technical assistance, pollution, waste and healthcare waste, institutional assessment and policies.

The NCCP in Albania has a double fold purpose: to upscale RECP through plant demonstrations and industry outreach activities, and to mainstream RECP policy instruments into country’s relevant legislation.

A total of 36 companies of food, beverage, quarry and tourism benefited from practical solutions identified for cost effective reduction of energy, water consumption, waste, effluents and emissions.

A pool of 35 trainee experts coming mainly from academia and industry, have been trained and about 20 trainings have been held. In addition, UNIDO and UNEP supported the NCCP to develop into a national RECP focal point, through contribution to national workshops and conferences, industry and policy consultations (about 17 in total), as well as in development of policy instrument package to promote RECP in Albania as RECP Mainstreaming Strategy; Primer for Albanian SMEs; Sector Specific Guidelines and Success Stories

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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 (RECPnet). 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 RECPnet 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.

