OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.

DISCLAIMER

FAIR USE POLICY

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

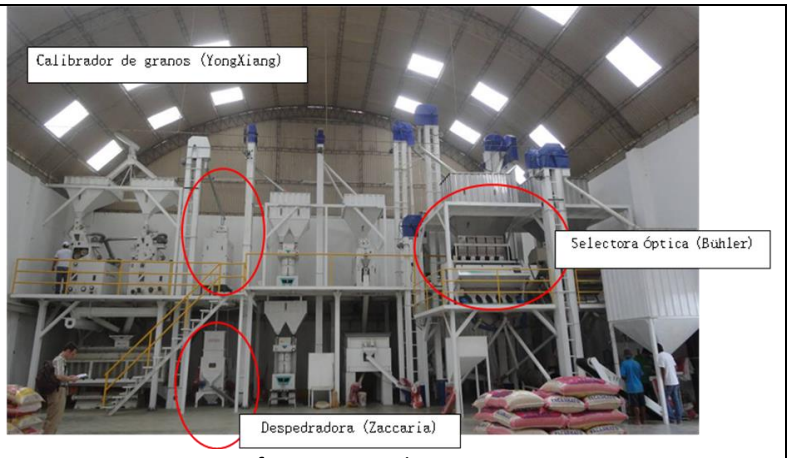
RECP Experiences at Negoperú Molinera

The Resource Efficient and Cleaner Production (RECP) implementation in the company Negoperú Molinera led to annual savings in the amount of USD 7,539, a credit reimbursement of USD 34,033, and improved product quality. While the initial intent of the company was improve the energy efficiency of its rice process and reducing the quantity of GHG emissions generated per unit of production, the RECP programme enabled the company to improve additionally its productivity through the efficiency of grinding (reducing by-products) and increased the milling service in the Region.

Negoperú Molinera has demonstrated that taking care of raw materials, energy, water, waste and emissions makes good business sense. 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.

Achievements at a Glance

Negoperú Molinera is a Peruvian mill company which changed its obsolete technologies in its rice process through the application to the Green Credit Trust given by the Swiss Cooperation (SECO). The new clean technologies implemented were a Colour selector, a Calibrator grains and a Stoner machine which improve its productivity and reduce its environmental impacts through the efficient energy consumption per ton of rice produced.

<table>
<tr>
<td>  </td>
<td> 
</td>
</tr>
<tr>
<td>Before RECP implementation</td>
<td>After RECP implementation</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</table>

60 rice sacks/hour (Calibrator grains)

110 rice sacks/hour (Colour selector)

Overview

NEGOPERU MOLINERA SAC is a company that is engaged in the planting, storage, and selection of white milled rice. It has a processing plant, located in the Panamericana Norte Km 690, San Jose, city of Pacasmayo, La Libertad road. The mill processed 3,000 tonnes of paddy rice annually, which amounts to approximately 61 331 bags of 50 kg.

The company has a grinding system composed of the Buhler (Switzerland) and Super Brix (Colombia) makes electrical processing capacity of 55 bags / hour of milled rice. The project consists of replacing the system of coach to a new electronic optical system (Bühler), and includes a gauge of grain (Yongxiang) and a stoner (Zaccaria) that allow multiple benefits being the most significant increase in its productivity to 110 bags / hour of milled rice.

Benefits

After the new clean technologies implemented the company had a guarantee for the 50% of the total amount of the loan which is US$ 226,887.50 U.S dollars and a reimbursement of the 15% of the total amount of the loan which is US$ 34,032.00 U.S dollars.

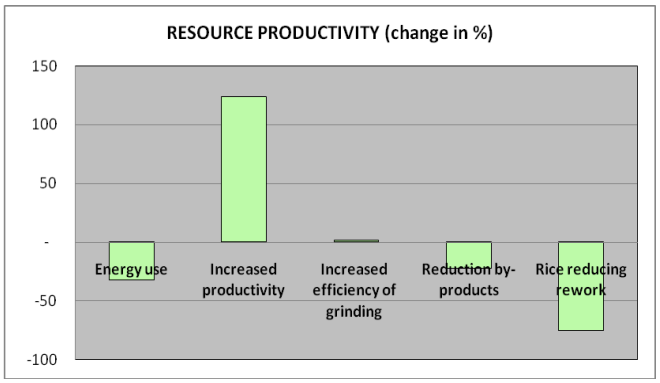
Additionally, the company had several other benefits related to its productivity and profitability. It increased the quantity of rice processed per hour, reduced the cost related the energy consumption per unit of product (equipment efficiency), reduced the rice powder generated during the process, which improved the quality and minimized of maintenance costs, but also made it possible for the company to act in a more responsible way.

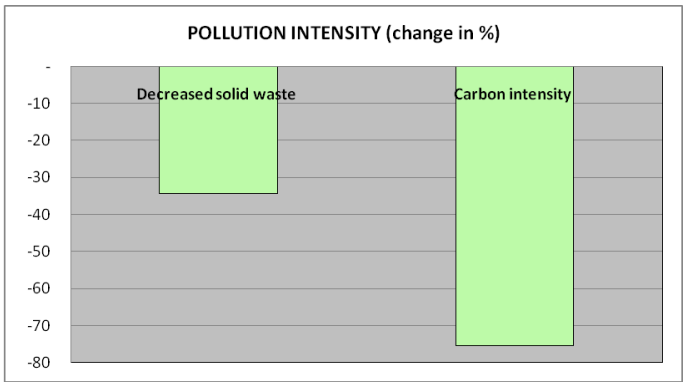
Performance	Before implementation	After implementations	Improvements	%
Resources Use				
Energy Use	**43.64 kWh/t rice produced**	**29.7 kWh/t rice produced**	**- 13.94 kWh/t rice produced**	**-31.96%**
Increased productivity	**3.33 t / hour**	**7.46 t / hour**	**+ 4.13 t / hour**	**+ 124.02%**
Increasing Efficiency of grinding	**67.04%**	**68.13%**	**+ 1.09%**	**+ 1.63%**

Reduction by-products	**3.26%**	**2.54%**	**- 0.72%**	**- 22.09%**
Rice reducing rework	**22.24%**	**5.46%**	**- 16.78%**	**- 75.45%**
Decreased solid waste	**16.14%**	**10.60%**	**- 5.54%**	**- 34.32%**

Note: The *absolute indicators* provide a measurement of how much resource use/pollution output has changed in absolute terms e.g. units of energy used or tons of rice produced. A negative percentage indicates a decrease and a positive percentage indicates an increase. The *relative indicators* provide a measurement of changes in resource use/pollution in relation to production output. *Resource productivity* provides a measurement of how much product output can be produced per unit of resource use, from a sustainability perspective, productivity should increase. *Pollution intensity* provides a measurement of how much pollution is generated per unit of production output, from a sustainability perspective, intensity should decrease.

Resource Profile





Note: The RECP profile provides a visual overview of resource productivity and pollution intensity shown as change in % compared to the baseline values. Environmental performance is improved when resource productivity increases and when pollution intensity decreases.

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

Additionally the new equipment allowed milling system:
- Reduce emissions of solid waste (rice powder).
- Reduce volumes ñelen, arrocillo ½ and ¾ arrocillo and increase volumes of whole white rice.
- Reduce dust emission of rice to the environment, because the new mill has eliminated cyclone dust generation.

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)
Energy use	US$ 226,887.50	7,538.82 US$/year*	13.94 kWh/t whole while rice	7,538.82 US$/year*

*Referential change rate (February 2015): US$ 1 American dollar = PEN S/. 3,056.00

Approach taken

The managers of Negoperú Molinera were worried about the energy consumption and wastes of their rice process. For this purpose the managers wanted to implement clean technologies that improved their productivity, reduce the impact related to the energy consumption and waste as a result of rice process. The company got the approval of the Green Credit Trust (a credit supported by the Swiss State Secretariat for Economic Affairs, SECO) in Mayo 2014 to implement these improvements.

In order to get the credit, the company carried out a Cleaner Production programme to fulfill the requirements of the Green Credit Trust. The credit was for 226,887.00 USD and due to the great environmental performance the company got a reimbursement of USD 34,033.05.

RECP is a great cost-saving tool that has enabled the company to reduce the waste of raw materials and energy. Through the implementation of measures, the company has been able to improve the operating efficiency of the plant, improve product quality and recover a part of materials that were wasted. The work at the company illustrates the principle of Pollution Prevention Pays especially since the investments needed to achieve improvements had short payback times (a few months to 1 year).

Business case

Although the programme was mainly focused in energy efficiency, a direct positive consequence was also obtained in the milling process, which has increased the value of the final products. RECP not only allows companies to achieve savings from decreased resource use, but also decreases pollution to the environment, which benefits the surrounding employees and community.

Testimony Box
National Cleaner Production Centre (NCPC)
The CER Peru was established in 2002, and is hosted by the non-governmental organization Grupo GEA. The centre offers services in the areas of Resource Efficient and Cleaner Production (RECP), Corporate Social Responsibility (CSR) and carbon neutral markets. By mid-2010, the centre had conducted cleaner production assessments, including carbon footprint measurements, in 55 enterprises and helped 28 enterprises with CSR related strategic planning. The centre was is actively working with ministries and local governments and participates in the administration of the Green Credit Trust Fund (supported by the Swiss State Secretariat for Economic Affairs) which has financed investments in 23 enterprises - amounting to a total of USD 8.75 million.
Contact Details
Centro de Ecoeficiencia y Responsabilidad Social – CER/Grupo GEA Address: Av. Chorrillos 150. Chorrillos. Pone number: +51 467-1802 Anexo 121 -122 Web-site: http://www.cer.org.pe/ Contact: malegre@grupogea.org.pe
English Abstract (where applicable)
N/A

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.