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-The RECP methodology-

Resource Efficient and Cleaner Production (RECP) is the integrated and continuous application of preventive environmental strategies to **processes, products, and services** to increase efficiency and reduce risks to humans and the environment. RECP is all about producing with fewer resources while minimizing environmental impacts and increasing overall productivity. For **Small and Medium-sized Enterprises (SMEs)**, the RECP methodology is an effective instrument to lower production costs and improve the SMEs' competitive advantage by applying environmentally friendly practices. RECP is also an effective tool to introduce and promote Circular Economy principles among SMEs.

"COVOARE - UNGHENI" LTD - CARPETS AND RUGS PRODUCTION -

Company overview

Address: Ungheni
Key products: carpets and rugs
No. of employees: 200
Main markets: Moldova, Romania, EU, USA, Japan
Exportation quota (%): 96
Founding year: 1980
Certifications: ISO 9001



"Covoare-Ungheni" was founded in 1980 and modernized after being privatized in 1998. The basic production of the factory consists of: the preparation of fibres, spinning fibres into cotton yarn, finishing fabrics, and the manufacture of carpets and rugs, following strict quality guidelines, in line with international standards. The production lines are equipped with modern and efficient machines. Within Moldova, there are four company stores in Chişinău, Bălţi, Ungheni, and Cahul. The enterprise also owns a network of 30 company stores in Romania and it has about 400 wholesale partners on five continents. To optimize current production process and minimize expenses, Covoare-Ungheni invested in means to reduce energy consumption and optimize annual technological losses, as well as to develop the ISO 9001:2000 quality management system. Motivated to achieve a more energy and resource-efficient production, the company joined the EaP GREEN programme (2013-2017). This publication shows the company's experience reported during the EU4Environment programme, seven years after the programme ended.

Benefits

- **Implementation of 5 RECP options (focused on energy efficiency)**
- **Required investment payback period of less than one year**
- **Reduction of natural gas consumption of: 16%**
- **Reduction of electricity consumption of 1,670 kWh/year**
- **Energy savings that generated a reduction of 575.46 tonnes of CO₂-eq/year**

Action implemented by:



The project's approach

As part of the technical assistance provided under EaP GREEN, the RECP assessment examined the production site and identified five options to improve production, all of which the company successfully implemented:

RECP option 1. Reusing the heat from the discharged water from the dyeing process: this measure consisted of recovering the thermal energy from the hot water used in the dyeing process via two heat exchanges connected in a counter-current. Then, the preheating of the inflow of the freshwater was used in the same process, instead of directly discharging the water into the industrial sewer for the treatment.

RECP option 2. Reusing the heat from the water discharged from the bleaching processes

RECP option 3. Insulating the steam-carrying pipes and taps around the dryer: this measure consisted of insulating the pipes with polyurethane foam to reduce heat losses into the environment.

RECP option 4. Checking and fixing leaks in the compressed air system: this measure helped minimize the losses of compressed and reduce the consumption of electricity in the air compressors.

RECP option 5: Collecting the condensate and reusing it in the boiler: this measure focused on replacing the worn heat exchanger and recovered the condensate by returning it to the technological steam production process.

Saving achievements

MAIN IMPLEMENTED ACTIONS

Option 1: Reusing the heat from the discharged water from the dyeing process

Option 2: Reusing the heat from the water discharged from the bleaching processes

Option 3: Insulating the steam-carrying pipes and taps for the dryer

Option 4: Checking and fixing leaks in the compressed air system

Option 5: Collecting the condensate and reusing it in the boiler



ECONOMIC KEY FIGURES

	Investment (Euro)	Saving (Euro/year)	PBP (years)
Option 1&2:	10,000	33,450	0.3
Option 3:	190	580	0.3
Option 4:	50	150	0.3
Option 5:	1,000	54,000	0.02
Total:	11,240	88,180	-



RESOURCE SAVINGS

	Electricity (kWh/year)	Natural gas (m³/year)
Option 1&2:	-	105,102
Option 3:	-	1,800
Option 4:	1,670	-
Option 5:	-	199,000
Total:	1,670	305,902

TOTAL POLLUTION REDUCTION

Total: CO₂-eq
(t/year)
575.46



Company insight

The management of the company is continuously looking for, and implementing solutions to optimize its technological processes and reduce the consumption of energy and resources. The technological process is a large consumer of thermal and electrical energy. So, the basic strategy was the optimization of thermal energy consumption, that is, the reduction of thermal energy losses through the surfaces of technological equipment, pipes, valves, and the reuse of low-potential thermal energy paired with the recovery of condensate.

Also, the company achieved other less tangible benefits by improving its relationship with suppliers, customers, and other stakeholders when it comes to social responsibility in Ungheni, as well as by training staff and building internal capacities to manage and support the implementation of RECP measures.

The introduction of RECP has been part of the EU-funded programmes: **EaP GREEN** (2013-2017) and **EU4Environment Action** (2019-2024) executed by UNIDO. In this context, **Covoare-Ungheni** joined the RECP training and assistance programme under EaP GREEN, and was monitored under EU4Environment. Follow-up visits have also been conducted under EU4Environment, to check on the implemented RECP options after the EaP GREEN Programme ended. EU4Environment helps the Eastern Partnership countries preserve their natural capital and increase people's environmental well-being by supporting environment-related action, demonstrating and unlocking opportunities for greener growth, and setting mechanisms to better manage environmental risks and impacts. For more details, visit: www.eu4environment.org

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