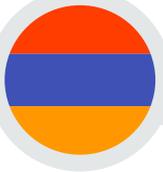




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Advancing resource efficient and cleaner production in Armenia

-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 whilst improving the SMEs' competitive advantage and applying environmentally friendly practices. As well, RECP is considered an effective tool to introduce and promote Circular Economy principles among SMEs.

ROZFROOD LLC - Food production -

Company overview

Address: 1a/1 Hakobyan Street, Vanadzor, Lori Marz, Armenia

Key products: Natural vegetable preserves, frozen vegetables, compotes, jams, and natural juices

No. employees: 46

Main markets: Armenia

Export: EU Member States, Russia, USA

Founding year: 2005



"RozFrood" is a small company dedicated to processing vegetables and fruits, in which it elaborates a wide variety of conserves and natural products. Among them are conserves and frozen vegetables, natural jams and compotes, juices and nectars. The raw materials are all supplied locally. The company's market has steadily expanded and currently includes exports to the USA, Russia, and several European Union countries. Since its very beginning in 2005, "RozFrood" had a philosophy - to provide natural and healthy products without any added chemicals, by focusing on quality and fresh products. These advantages led to additional opportunities for growth (and resulted in an increased capacity, three times larger than the initial production site). Motivated to improve its environmental performance and optimize its resource usage (materials, water, energy), the company participated in the RECP demonstration project under EaP GREEN (2013-2017). This publication shows the company's experience reported after the monitoring exercise conducted in 2021, four years after the programme ended.

Benefits

- **Implementation of 13 RECP options**
- **Total economic savings of 13,792 EUR/year**
- **General payback period of 7 years**
- **Reduction of baseline consumption per processed kg:**
Electricity: 14.3 % | Natural gas: 26 % | Water: 29 %
- **Emission reduction of 77.6 tonnes of CO₂-eq/year**
- **Installed energy-efficient facilities and solar technology for electricity, heating, and washing processes**

Action implemented by:



The project's approach

The RECP assessment examined the production site and identified 13 RECP options. These were then prioritized and gradually implemented by the company staff:

Reorganization of the production line. The production flow was restructured to optimize continuity, capacity balance, and resources. This reduced production time and electricity, gas, and water consumption were minimized thanks to the reduction of idle time and interruptions (losses of raw materials and final products were also eliminated).

Replacement of worn-out process equipment with a modern one of adequate capacity. The substitution of the equipment was not only based on new pieces of machinery, but also on keeping the adequate balance between the production capacity and the demand for high efficiency.

Replacement of the old steam boiler. A new boiler with higher efficiency was installed, allowing for the implementation of a condensate return from the steam used in the process (saving also fuel). With the new boiler in place, improvements in the feed water treatment system are also envisioned to generate additional savings.

Installation of a solar water heater: The hot water achieved with solar energy is now used to meet the domestic production demands, reducing the need for gas or electricity.

On-grid PV solar system: With a capacity 103.5 kWp, the company reduced its electricity consumption from the national grid, and improved its carbon footprint.

Replacement of internal and external inefficient lighting with LED lamps: Alongside the evident energy-saving benefits of this measure, the lighting conditions for workers have also improved.

Reduction of material and waste generation: The improvement of parameters (such as temperature and ventilation in the raw material storage) have been crucial to reducing waste. The company bought refrigeration equipment and is continuously working to improve its thermal isolation and the airflow in the storage rooms. The defective metal caps are also collected and recycled, free of charge.

Saving achievements

Other Opportunities

MAIN IMPLEMENTED ACTIONS

13 RECP options have been implemented by the company staff at the end of the monitoring period.



ECONOMIC KEY FIGURES

	Investment (Euro)	Saving (Euro/year)	Payback period (years)
Energy optimization:	86,150	11,915	-
Water & material optimization:	11,000	1,729	-
Waste minimization:	-	148	-
Total:	97,150	13,792	7



The benefits achieved by "RozFrood" LLC after continuously implementing RECP measures include production process optimization, the installation of new equipment, and the reduction of energy use (including by means of renewable energy). The internal water recycling system and other recommended measures (higher optimization of insulation and ventilation in storage rooms) are also being addressed by the company, although they were not fully implemented at the time of writing this publication. The application of RECP was especially useful for processing frozen fruits and vegetables, as this production line requires internal climate control and high demand for energy resources. These, in turn, have been optimized by upgrading the company's energy systems. RozFrood's proactive study of resource optimization clearly denotes the successful adoption of RECP principles in its operations and management.

RESOURCE SAVINGS

	Water (m ³ /year)	Material (t/year)	Waste (t/year)	Energy (kWh/year)	CO ₂ (t/year)
Energy optimization:	-	-	-	229,446	77.6
Water & material optimization:	1,290	8	-	-	-
Waste minimization:	-	-	1.35	-	-

The introduction of RECP has been part of the EU-funded programmes: **EaP GREEN** (2013-2017) and **EU4Environment Action** (2019- 2022) executed by UNIDO. In this context, "ROZFROOD" LCC 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 the implemented RECP options after the EaP GREEN Programme ended. EU4Environment helps the six EaP partner 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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