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EU4Environment
Green Economy in Eastern Partner Countries

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.

"Lukashin" Agricultural Association CC

- Consumer Cooperative -

Company overview

Address: 8 Building, Hunan Avetisyan St.,
Lukashin community, Armavir Marz, 0927, Armenia
Key products: processing and preserving fruits and vegetables
ISIC: 1030
No. employees: 134 (55 women and 79 men)
Main markets: Armenia, Russian Federation, the EU
Founding year: 1995

"Lukashin" CC was founded as a community-based small enterprise (SME) consisting of 42 farmers. Its main activity is the production of dried fruits of technical grade and quality (apricots, peaches, plums, apples, pears, figs, and grapes). The fruits are grown by farmers from the Lukashin rural community located in the heart of the Ararat Valley. The average production capacity is 14,000 kg/year of finished products (dried fruits) which are mainly consumed on the national market and partly exported to the Russian Federation and European Union countries. Motivated to achieve more energy-efficient production, 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 14 RECP options**
- **Electricity consumption reduced by 21 %**
- **Natural gas consumption reduced by 12 %**
- **Total annual production costs reduced by 13 % (in one production season)**
- **Improved environmental performance, working practices, and product marketability**
- **Installed more energy-efficient facilities and solar technology for heating and drying processes**

The project's approach

The RECP assessment examined the production site and identified several RECP options. The company then used a step-by-step approach to implement them from the chemical-free production cycle to improving the air circulation system and changing the technology for drying the fruits. This solved issues with the raw materials and reduced the consumption of water and energy whilst minimizing waste pollution. The gradual policy for implementing RECP started with low and medium-cost measures and finished by installing solar energy facilities in the process. The following RECP measures have been implemented in line with the RECP expert audits:

1.Implementation of good housekeeping to improve resource management

2.Elimination of chemicals and harmful effluents allowing wastewater reutilization

Nitrogen is used instead of sulphur in product packaging (a new technique of packaging for preserving finished products). This substitutes the use of 25 kg of sulphur as a fumigation agent per year, reducing SO_2 emissions and production costs. The elimination of caustic soda in the preliminary processing of some fruits has reduced the harmful effluents and production costs. Third-rinsing water is now re-used for the preliminary washing of raw material (fresh fruits). This resulted in a reduction of water consumption by 30% for the washing process. The wastewater is used for irrigation of the company's infield and gardens.

3.Reduction of energy consumption by improving the process technique/modifying the equipment

By shortening the length/heights of the ventilation pipes (twice) the drying process was speeded by 20%, and energy consumption (electricity, gas) was reduced by 20%, overall. The installation of a two-tier electric meter, together with better controls to take advantage of the dual tariff, resulted in an 8% annual saving on electricity consumption. Three convective solar dryers and a solar water heater have also been installed, avoiding the use of non-renewable energy.

4.Utilization of waste

The unavoidable plant waste (stalk, peel, pit, seeds, pulp), is used as fresh forage for livestock. The kernel of apricots is used, locally, in confectionery. Other agricultural waste is also utilized in composting.

5.Improvement of product marketability

Saving achievements

MAIN IMPLEMENTED ACTIONS

In total, **14 RECP options** have been implemented in two phases. They focused on good housekeeping, elimination of chemicals and harmful effluents, reduction of energy consumption and waste, and improving product marketability

ECONOMIC KEY FIGURES

	Investment *(Euro)*	Saving *(Euro/year)*	Overall payback period *(years)*
14 RECP options:	4,620	1,470	3.1

RESOURCE SAVINGS

	Energy *(kWh/year)*	Water *(m^3/year)*	Materials *(t/year)*	Waste *(t/year)*	CO_2 *(t/year)*
14 RECP options:	34,500	1,500	0.3	0.2	0.3

Other opportunities

Besides economic and environmental benefits, the RECP methodology brought forth improvements in the working practices and the overall image of the company. Lukashin CC started implementing RECP in 2014 with a focus on improving its use of resources to enhance the production technique and reduce energy consumption, whilst eliminating harmful emissions and effluents. The use of solar energy also became an important sustainable strategy for the company. The concept proposal developed by the RECP experts to incorporate solar heating technology allowed Lukashin CC to access financing through the Small Grant Programs supported by GEF/UNDP. This experience creates a precedent to replicate the technique with other producers of dried fruits and build capacities for a culture of "green" production. Moreover, the potential to extend the current PV solar capacity to generate an additional 14,995 kWh/year (10 kWp) has been assessed during the monitoring phase, constituting a next step toward reducing traditional energy dependency, in this case, saving an important portion of the company's electricity consumption.

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, "Lukashin" CC 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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