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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.

"KAVASHEN" LLC

- slate production company -

Company overview

Address: Shahumyan Str., 5, Ararat City, Region Ararat, Armenia, 0602

Key products: corrugated asbestos cement roof covering materials

No. employees: 45

Main markets: Armenia



The production of **"KAVASHEN" LLC** is at around 65,000 slates per year, based on orders. In Armenia, the product is mostly consumed in rural areas, where 80% of the roofs are made of asbestos slate. As the slates' main element is extremely durable, it is often used as a reinforcement component in glues, mortars, and finishing cements. In addition, being resistant to corrosion and weathering, it is also used to protect roofs against extreme temperatures. In most cases, asbestos only comprises 15-30% of a roofing product, where it is mainly added as a reinforcement material. The final product is thus a mixture of 15% asbestos powder, 5% water, and 80% cement. The typical life expectancy of a single roof is about 30 years, with some exceeding 50 years old whilst still being in good condition. In addition to private households, the company's clientele also includes local self-government and state authorized bodies. Motivated to achieve a 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 2022, five years after the programme ended.

Benefits

- Implementation of 6 RECP options
- Electricity consumption reduced by 9.5 %

Action implemented by:



The project's approach

The RECP assessment examined the production site and identified several RECP options. From the eight RECP options recommended in the assessment report, six were implemented at the end of the monitoring period. These helped the company increase resource efficiency by making its product more competitive while ensuring and improving the company's economic, social, and environmental performance.

Some of the suggested RECP measures also focused on the systematic repair of workable machines and mechanisms, and the restoration of the recovery unit (resulting in a reduction of energy and heat loss, and in an improved calibration of the electricity system). "Kavashen" LLC also faced problems with the lighting and heating of its premises. To upgrade the lighting and heating systems into modern, energy-efficient ones, the RECP experts recommended using reservoirs for additional insulation, including in the pipelines. The installation of a 40 kW solar PV panel also helped the company reduce energy costs and minimize the no-load losses through a smaller capacity transformer.

By implementing the RECP methodology through a dedicated RECP action plan, "Kavashen" LLC gained access to viable economic and environmental solutions while being introduced to the latest production technologies and approaches in its field. The measures also helped improve the organization's overall performance and implement good housekeeping measures to boost marketability. Additional opportunities were also discovered during the RECP assessment. These namely centred around the additional installation of solar PV panels of up to 500 kW to cover the total annual consumption and create an option for the grid-connected PV solar power plants. In the future, such an investment would entail that the company's autonomous power generators could operate without a license to produce electricity on the net metering basis, with the electricity produced in summer being available for use in the winter time.

Saving achievements

MAIN IMPLEMENTED ACTIONS

In total, **6 RECP options** have been implemented in two phases. They focused on good housekeeping, better process control, equipment modification, technology change and product modification.

ECONOMIC KEY FIGURES

| | Investment (Euro) | Saving (Euro/year) | Overall payback period (years) |
|------------------------|----------------------|-----------------------|-----------------------------------|
| 6 RECP options: | 28,900 | 7,926 | 3.6 |

RESOURCE SAVINGS

| | Electricity (kWh/year) | Waste (t/year) | CO ₂ (t/year) |
|------------------------|---------------------------|-------------------|-----------------------------|
| 6 RECP options: | 87,844 | 20 | 35.1 |



Other opportunities

Thanks to the RECP Demonstration Programme, "KAVASHEN" LLC significantly improved product quality, occupational health and safety, as well as its general environmental performance. The company is now invested in opening a new factory to increase slate production, and, on par, to renovate the old production equipment and rethink general production, as well as upgrade the energy consumption systems and take advantage of the available source of renewable energy.

Together, such investments will help "KAVASHEN" LLC increase its production and access to larger markets. By systematically implementing the RECP measures (such as good housekeeping, better process control, equipment modification, technology change, or product modification), the company is already reaping long-term benefits in terms of business, social, and environmental performance.

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, "KAVASHEN" LLC 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 EaP 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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