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Advancing resource efficient and cleaner production in Azerbaijan

-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 can effectively lower production costs whilst improving the SMEs' competitive advantage and applying environmentally friendly practices. RECP is also an effective tool to introduce and promote Circular Economy principles among SMEs.

“Quba Konserv Zavodu” LLC - Food production -

Company overview

Location: Qiuba

Key products: carbonated canned fruit and vegetables, production of concentrated fruit juices

No. employees: 121

Main markets: Azerbaijan, Russia, Turkey

Founding year: 2013



“**Qiuba Konserv Zavodu**” LLC is a food producer from the Quba district (renowned for its beautiful mountain scenery and high-quality apples and other fruits), located in the northwestern part of Azerbaijan. The company produces a wide range of fruit jams, marmalades, canned vegetables, and more. Privatised in 2000, the company has been gradually expanding. In the recent years, it commissioned a new production workshop equipped with modern machinery, producing natural juices that have won prizes in international competitions. Like many other food processing companies, Qiuba Konserv Zavodu plays a vital role in the apple processing value chain in Azerbaijan. Farmers across the Quba district, which supply about 45% of all apples in Azerbaijan, deliver their harvest directly to the company. The main challenges faced by Qiuba Konserv Zavodu include the management of large variety of products and batch production, the rapid product changeovers, the seasonality of work, and the significant use of water and energy. To address these challenges, the company focused on improving production planning, reducing excess water and energy use, and enhancing process control and operational quality. These strategies are part of their RECP approach to cut production costs and reduce waste. In 2017, motivated to uncover opportunities for water and energy savings and to reduce waste generation, the company participated in the EaP GREEN programme. This publication showcases the company's experience, as monitored under the EU4Environment Action in 2022-2024.

Benefits

- Improved process control leading to reduced water consumption and energy loss
- Reduced organic waste and wastewater
- Water savings
- Reusing and recycling of organic waste

Action implemented by:





The project's approach

The production process was examined through an RECP assessment and benchmarked against good environmental practices. The assessment revealed several opportunities that benefit both the company and the environment. While some opportunities may require large investments or feasibility assessments, most are relatively straightforward, and can be implemented by the company itself (with a payback period of a few years):

RECP Option 1: Replacing the old and obsolete pumps and motors. The canning process requires significant quantities of water for rinsing, pasteurising, and cleaning. Water must be prepared, supplied, incorporated into the process, and ultimately disposed of. All water flows are controlled by pumps and motors, which the company has in varying sizes and capacities, with power efficiency differing significantly due to age, maintenance, mode of operation, and sizing. Therefore, one of the aims of the RECP assessment was to inventory all pumps and motors, evaluate their technical condition and efficiency, and prepare a staged programme for the replacement of worn and inefficient motors. This has been gradually implemented, resulting in reduced electricity usage.

RECP Option 2: Closing water circuits. Water use has not been a major issue in the past, but rising electricity costs and environmental concerns have prompted the company to be more cautious about water conservation. By inventorying water flows and their quality requirements, it was concluded that process water from the pasteuriser could be recycled for use in the rinsing process. This has minimised additional water usage and reduced electricity consumption.

RECP Option 3: Recycling of Organic Residuals. Rotten and stinking organic matter cannot be used in the production of juices and vegetables and must be disposed of. Another large flow of organic waste comes from the cores and pulps from the fruits and vegetables processed by the pressing machines. The RECP assessment identified significant material and water losses related to wastage from fruits and vegetables, and proposed suitable technology to be used on-site. The company found the option to compress its apple waste and sell it as livestock feed for cattle.

These initiatives have not only improved the efficiency and sustainability of the canning process but also generated significant cost savings for the company.

The follow-up RECP strategy

By working closely with the experts from the EaP GREEN programme in Azerbaijan, the company discovered significant opportunities to improve its energy efficiency and make economic savings at relatively low costs. As a result, the company has continued to develop and implement RECP measures, with a primary focus on water conservation and further technical upgrades to the production process. Additionally, the company plans to replace a power substation (in operation since 1961) with an updated one with modern equipment.

The company's experience

Jafar Qaribov, a representative of the company, was pleased to participate in the EaP GREEN programme, which introduced the concepts of cleaner production and resource efficiency. The programme inspired the company to closely examine its production costs and efficiency. As a result, the company now consumes fewer resources and generates less waste than ever before. Looking ahead, the company is planning to implement new RECP measures and aims to participate in additional initiatives and programmes focused on efficient production and environmental protection.

The introduction of RECP has been part of the EU-funded programmes: **EaP GREEN** (2013-2017) and **EU4Environment Action** (2019 - 2024), and executed by UNIDO. In this context, "**Quiba Konserv Zavodu**" 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 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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