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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.

ASHTARAK DZOO LLC - Food production -

Company overview

Address: Aragatsotn Marz, Aghtsk, Armenia
Key products: poultry for egg production
No. employees: 82 (42 women and 40 men)
Main markets: Armenia
Founding year: 2007



"ASHTARAK DZOO" LLC is a leading egg producer in Armenia, covering over 8% of the national market. Since its foundation in 2007, the company continuously expanded; currently, it has five aviaries (one for chick breeding, and four for laying hens). The growth plans envisaged for 2015-2016 extended the facilities for three more aviaries, increasing the current capacity to a total of 275,000 laying hens. The facilities are equipped with highly automated systems such as feeding dispensers, water supply, manure removal systems, ventilation, climate control, and egg collection and packaging. 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 2021, four years after the programme ended.

Benefits

- Implementation of 6 RECP options
- Reduced mortality waste and increased specific rate of egg production by 5% (due to the improved internal climate and feed distribution regime)
- Reduction in specific energy consumption of 3% for electricity and 2% for natural gas per 1,000 eggs
- Reduction of 23 tonnes of CO₂ per year (as a result of a more energy-efficient production)

Action implemented by:



The project's approach

The RECP assessment examined the production site and identified 10 RECP options, out of which 5 were implemented. "ASHTARAK DZOO" LLC decided to focus on the optimization of its production processes, the installation of new equipment to recycle resources, and on reducing its energy use.

RECP option 1. Optimization of the chicken feed distribution regime and the environmental parameters of the aviaries. This update was achieved by improving the controlling systems and facilities to maintain adequate parameters for temperature, relative humidity, luminosity, etc. In turn, this positively affected the production and quality of eggs. Through the optimization, the company witnessed a better use of resources in general, as well as waste reduction, and increased productivity.

RECP option 2. Heat recovery from the ventilation system of the aviaries. The ventilation technology for heat recovery helped harness the thermal energy to feed pre-heated fresh air to improve energy efficiency, mainly during the winter seasons and mild seasons' flocks.

RECP option 3. Energy source/heating switch. The electrical energy heaters in the aviaries were replaced with natural gas ovens.

RECP option 4. Replacing internal and external lighting with more efficient alternatives. The internal, incandescent bulbs were replaced with LEDs, while the external, metal halogen ones got exchanged for high-pressure sodium ones (sodium-vapour lamps). This option helped reduce overall electricity consumption.

RECP option 5. Improved thermal insulation of the aviary buildings. Several measures to eliminate the heat exchange between the internal and outdoor environments were implemented, reducing the excessive and unnecessary use of energy.

Saving achievements

Other opportunities

MAIN IMPLEMENTED ACTIONS

5 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)
5 RECP options:	23,490	8,380	2.8

RESOURCE SAVINGS

	Energy (kWh/year)	Materials (t/year)	Waste (t/year)	CO ₂ (t/year)
5 RECP options:	109,000	2	2	23



"ASHTARAK DZOO" LLC adopted RECP measures that focused on production optimization, recycling, and the reduction of energy use (amounting to 78,400 Euros per year). Additional benefits comprised social and environmental factors and the improvement of working practices and occupational health. The suggested RECP measures also included the organization of the egg powder production, the usage of waste materials, the production of flour forage fodder, the systematic optimization of the chicken feed distribution regime, and the upgrade of the energy systems. These aspects can help the company reach larger markets, and achieve more benefits in terms of business, social, and environmental performance. Solar energy (PV panels for an on-grid solar system) was also suggested during the monitoring phase as it would bring a cost-saving potential of 703,978 kWh per year (39,087 EUR per year, with a payback period of approximately 7 years). In turn, the annual electricity consumption would be reduced by 65 %.

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, ASHTARAK DZOO, 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 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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