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BOOSTING CIRCULAR ECONOMY IN AZERBAIJAN THROUGH RESOURCE EFFICIENT AND CLEANER PRODUCTION

Impacts and lessons learned from
company experiences within the
decade-long legacy of RECP
under two regional programmes
funded by the European Union



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About

Resource Efficient and Cleaner Production (RECP) allows businesses to apply integrated and continuous preventive environmental strategies to processes, products, and services to increase efficiency and reduce risks to humans and the environment. In short, RECP helps companies reduce the environmental impact of their operations, decrease resource consumption, and increase productivity.

RECP has been introduced in the Republic of Azerbaijan (hereinafter Azerbaijan) since 2014. From 2014 to 2024, an RECP demonstration project was established in Azerbaijan under the "Greening Economies in the European Union's Eastern Neighbourhood" (**EaP GREEN**) programme (2014–2017), and continued through its successor programme, the **EU4Environment Action (2019–2024)**.

Within the two programmes funded by the European Union (EU), the RECP Demonstration Project has been executed by the United Nations Industrial Development Organization (UNIDO), and supported on the ground by its National Implementing Partners. Overall, more than 70 Small and Medium-sized Enterprises (SMEs) received tailored RECP recommendations, helping them improve their environmental performance, lower production costs, and boost productivity. In addition, around 20 national experts were trained on the RECP methodology.

This brochure highlights the direct impacts of the RECP methodology on the Azerbaijani Small and Medium-sized Enterprises (SMEs) part of the EaP Green and EU4Environment programmes.

Action implemented by:

Background

The inefficient use of natural resources is a key contributor to climate change and environmental degradation, negatively impacting both economic and social well-being. With a growing need to rethink material, water, and energy use, Circular Economy (CE) principles have the potential to address the industry's negative impact on the environment by reducing resource depletion and the pollution of natural areas. This is because CE is a new way of creating value and prosperity by extending a product's lifespan through improved design and servicing (relocating waste from the end of the supply chain to the beginning). To achieve this, methodologies like Resource Efficient and Cleaner Production (RECP) are a vital component of sustainable industrial development by encouraging enterprises to use materials efficiently, extending resource use to maximise value, and repurposing waste from the end of the supply chain into valuable resources. UNIDO has supported industries in upgrading organisational practices, investing in new business models, and promoting innovative technologies and green investments. This includes programmes part of the EU's Eastern Partnership (EaP) countries (which include Azerbaijan), that aimed to preserve natural capital, enhance environmental well-being, and create opportunities for green growth. Yet, increasing the RECP outreach to more enterprises remains a significant task as there are over 350,000 companies nationwide, out of which 215,000 are classified as medium-sized enterprises. The Azerbaijani Government acknowledges the importance of supporting green economic growth in its SMEs through different high-level documents.

One such document is the Azerbaijan Social and Economic Development Strategy, which includes a chapter on promoting a clean environment and green growth. Still, a significant increase in the budget allocated to support the green development of SMEs is required, alongside further dissemination of RECP and CE practices (which are heavily reliant on donor funding). Despite the Small and Medium Business Development Agency (SMBDA, or KOBIA, in Azerbaijani) playing a strong role in providing support to SMEs focusing on green initiatives, at the time of writing, statistical data related to environmental indicators about SMEs remain limited.

The RECP process

The RECP assessment revealed the following insights and limitations on the greening of SMEs

- Positive interest from companies to invest in RECP
- SMEs' readiness to learn about new technologies, resource efficiency, and circularity
- Limited continuity in the organizational development of the RECP focal points, knowledge management, technical expertise, and involvement of national consultants
- Limited technical and project management abilities of national consultants
- Need to link CE initiatives to existing infrastructure, current business models, sectoral value chains, and investments

The SMBDA is ideally positioned to reach out to SMEs and provide information on RECP and CE. Strengthening their institutional capacity is imperative for the immediate future.

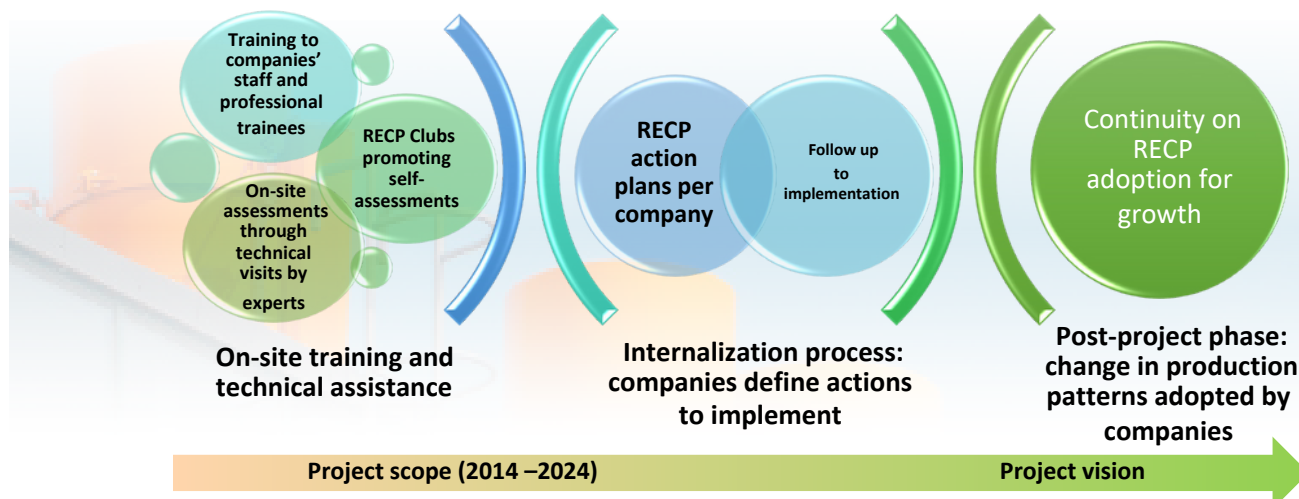
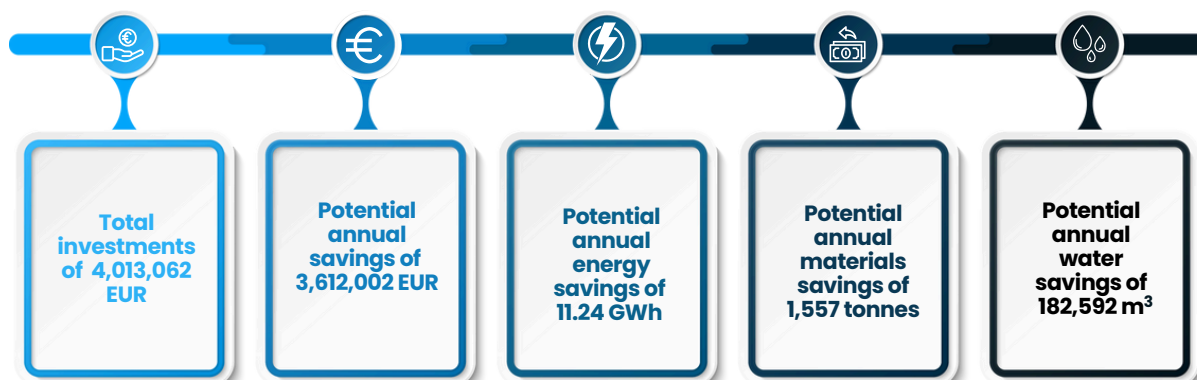


Fig. 1. The RECP promotion process conducted by UNIDO

Figure 1 illustrates the instruments used during the EaP GREEN and EU4Environment programmes, which led to resource efficiency interventions in SMEs from various sectors (including food processing, chemical, and construction materials). As the implementation and adoption phases advanced, EU4Environment evaluated the conditions for applying the RECP measures in the assessed Azerbaijani companies, aiming to inform the development of a more tailored strategy to further support the expansion and replication of RECP initiatives. Additionally, through a consultative process, an RECP primer was developed to embed the RECP logic within SMEs.

EU4Environment monitoring results

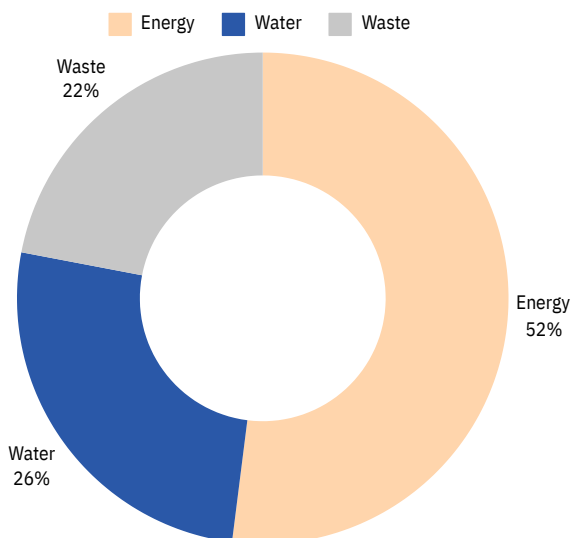
Overall, 56 RECP options were identified within the 27 companies assessed under EU4Environment, demonstrating the effectiveness of UNIDO's RECP approach in reducing the consumption of resources, energy, and water. Awareness-raising activities were also conducted, alongside the training of national service providers, attracting over 130 participants. Notably, in addition to the significant savings in water and energy, the implementation of RECP measures can potentially enhance the companies' profitability through tangible cost savings:



When considering the companies selected for monitoring the outcome of the RECP recommendations, it is worth noting that these companies have 7 to 500 employees and represent a variety of sectors (flour production, meat production, canned fruits and vegetables, poultry, dairy, tea production, mattresses). Highlights of the monitored savings include a 40% reduction in electricity consumption in one food processing company, 70% reduction in another, 50% reduction of water per tonne consumption in a poultry company, or 50% reduction of water per tonne consumption in one company producing packaged food.

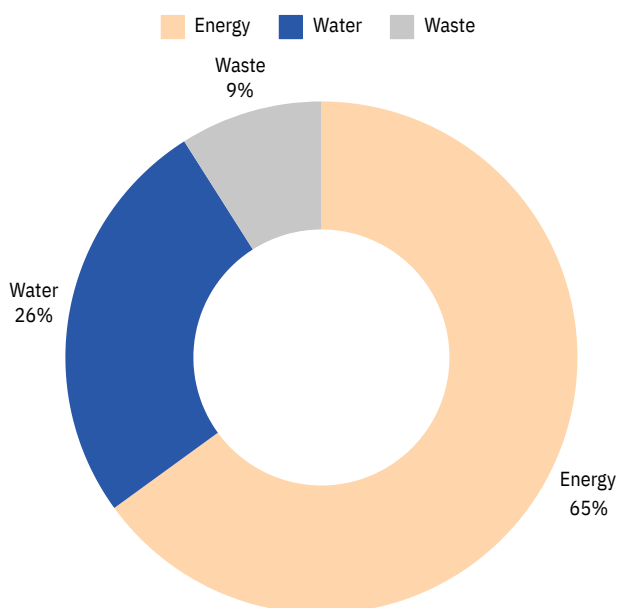
Over 50% of the RECP recommendations were related to energy. This focus can be explained by the high cost of energy over the period and the entailed risks in supply. 25% of the measures were focused on water saving, and 22% on reusing waste as by-product (e.g. as animal feed).

Distribution of RECP recommendations according to environmental compartments



However, although companies are adopting new technologies or modifying equipment, investment levels in these areas remain small. 65% of the RECP recommendations require investments less than 5,000 EUR.

Distribution of implemented RECP options according to environmental compartments

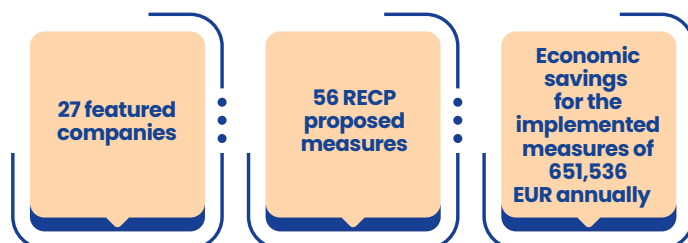


Additionally, RECP Clubs with 10 companies were introduced in two regions. A potential investment of 1,569,433 EUR was identified, which would result in annual savings worth 698,756 EUR, as well as savings in terms of materials (450 tonnes), water (182,592 m³), and electricity (287,546 kWh).

A series of 27 RECP business cases (or success stories) were developed and published, showcasing the Azerbaijani SMEs utilizing the RECP methodology. These cases present detailed insights into the companies, their internal production processes, recommendations, and implementation strategies. For more information, please scan the QR code.



RECP success stories



Industrial waste was mapped for Absheron-Khizi Economic Region (AER) and Baku Economic Region (BER). For most of the industrial waste in both pilot regions, there are established reuse or recycling routes in place. Nevertheless, only 13% of the total waste generated is reused or recycled. For most waste types, a further introduction of sorting at source at industrial enterprises would allow to increase the waste's circularity. The circular solutions for many of the selected waste types are more dependent on market stimulation than on technical feasibility.

The alternative options hypothesized in the exercise are likely to retain significant value compared with current practices. The emerging regulatory framework, will help create the necessary regulatory and financial basis to foster increased resource efficiency and help develop circular solutions for different types of waste.

Overall, the surveyed enterprises demonstrated a solid understanding of the role, purpose, and benefits of the methodology at the senior management level. However, although a few enterprises have retained their original RECP-trained teams, most companies experience rapid staff turnover. This highlights a clear need for continuous hands-on training, alongside awareness-raising activities, to ensure that the lessons learned on RECP are consistently applied.

The companies implemented the selected RECP options mostly using their own funds. Companies are adopting new technologies and modifying equipment. Investment levels remain relatively low. The potential for more costly, high-impact solutions remains largely untapped.

Learning from our partner's experiences

The existing pool of experts should be further supported. The skills of the experts should be continuously expanded by management knowledge, technical expertise and circular knowledge.

Measurement appliances and tools like checklists should be provided to the experts to do quick assessments of the circularity status and potential areas to apply circular strategies. Examples should be provided, including study tours to Europe to become familiar and confident in developing recommendations for national enterprises.

Based on the experience in Azerbaijan, international cooperation programmes have been pivotal over the past decade in generating knowledge and demand for services in industries to support the uptake of RECP and CE, which previously did not exist. The programmes strongly support the Azerbaijan Social and Economic Development Strategy

Entrepreneurs have shown interest in participating in programmes that provide training and technical assistance for their industrial plants and enterprises. They are motivated by the expected benefits and the successful experiences of demonstration companies.

The way forward

Overall recommendations

The following steps are crucial in fostering the promotion and integration of RECP practices among Azerbaijani SMEs:

- Strengthening the SMBDA
- Strengthening the RECP/CE ecosystem by actively involving more stakeholders
- Embedding RECP/CE in higher education
- Piloting feasible technological investments
- Supporting locally made technology
- Strengthening capacity for accessing finance and green credit mechanisms

These steps are vital for enhancing the local environment for adopting RECP. To build a self-sustaining ecosystem, it is essential to involve more stakeholders, including industry associations, governmental bodies, non-profit organisations, and members of academia. Forums for collaborative discussions and knowledge-sharing among stakeholders are also necessary. Outreach to SMEs should be expanded through various intermediaries, including business associations, local governments, and financial service providers.

Targeted awareness campaigns can educate businesses, regulatory bodies, and the public on the benefits and importance of RECP/CE, fostering a culture of environmental responsibility. By integrating RECP and CE principles and aligning them with broader environmental perspectives, the campaigns can create a holistic and sustainable approach to industrial development. Promoting the connection between RECP adoption and opportunities for accelerating industry growth is also crucial. So is the need to develop green markets, recycling initiatives, green product design, and other CE strategies rooted in the deep adoption of RECP. Identifying priority sectors and developing a national RECP programme for these target industries will increase the overall competitiveness of the Azerbaijani industry.

Continuous marketing through various channels (including existing materials, videos, and online platforms), should be used to reach a diverse audience. Targeted events (such as business lunches or functions) should be organised to engage directly with industry management and entrepreneurs. Messages should be tailored to resonate with different sectors and company sizes. This should be complemented by a continuous budget allocated for marketing and communication efforts to ensure ongoing visibility and support for RECP/CE initiatives. Overall, as a future economic strategy, it is essential to emphasise the CE practices implemented thanks to the RECP methodology.

Concrete suggestions

Raising awareness of RECP and CE opportunities

To embed RECP in the SMEs' management systems, various incentive mechanisms such as recognitions, awards, and national and international certifications should be developed. These incentives can provide platforms for innovative companies and encourage them to integrate RECP into their management. Achieving this requires advanced cooperation models between consultancy and service providers to ensure continuous training of industry staff. Institutionalising RECP Clubs or similar capacity-building programmes, along with strengthening the SMBDA's capacity, will be crucial for this effort to become successful and long-lasting.

Educational initiatives

Future programmes can support the development of RECP/CE-based courses and affiliated materials for universities. However, these efforts need to be permanently integrated into both the academic and vocational training sectors. One suggestion is to develop a national certification scheme for RECP/CE experts.

Capacity building

The EU4Environment Action is leveraging the growing interest of the private sector to replicate and scale up successful models for capacity building in RECP. The following measures are recommended to encourage the wider adoption of RECP in Azerbaijani companies:

Extended national capacity by providing continuous education and training: Integrating the RECP methodology into academic and vocational programmes in Azerbaijan would enhance companies' access to qualified professionals capable of implementing RECP projects.

More involvement in monitoring, follow-up, adjusting the programme and certification applications is necessary to embed RECP into the core strategies of businesses.

Environmental management system: this would form a stable base for continuation in spite of the frequent changes in technical staff disrupting the implementation schedule of RECP measures

Continuous support of companies: to help them cope with changes in top management or ownership

Investing in incentive mechanisms

The existing pool of experts should receive ongoing support, to continuously expand their management knowledge, technical expertise, and understanding of CE principles. Experts should also be equipped with measurement tools and checklists to quickly assess the circularity status of SMEs and identify potential areas for applying circular strategies. Providing examples and organising study tours to Europe can help experts become familiar with best practices and gain confidence in developing recommendations for various national enterprises, regardless of the sector.

Piloting feasible technological investments

Entrepreneurs can be encouraged to develop more ambitious RECP action plans by preselecting and recommending technologies and by investing in RECP pilot projects to demonstrate their profitability and risk management benefits.

Supporting locally made technology

Support for investing in educational programmes and technology-related Azerbaijani start-ups is essential to provide appropriate, adapted, and cost-effective advanced equipment. Additionally, supporting innovation in local machinery and information technology (IT) industries would lead to a more efficient and cost-effective technology market, nationwide.

Strengthening capacity for financing and green credit mechanisms

While the need for green credits has been recognised for several years, bridging the gap between supply and demand requires further strengthening. Additionally, SMEs often lack the capacity to effectively present business plans for RECP investments, including those that meet ESG (Environmental, Social, and Governance) credit mechanisms tailored to the SME context. As such, Green credit mechanisms are essential criteria in financial decisions.

THE EAP GREEN ALUMNI COMPANIES (MONITORED IN 2022-2024)

- | | | |
|--|--|--|
| <p>1 Zagatala Tea
tea production</p> | <p>3. Davachi-Dayirman LLC
flour production</p> | <p>8. AzerSunger
foam, rubber, and mattresses</p> |
| <p>2 Quba Konserv Zavodu LLC
food production</p> | <p>4. M&T LTD
meat production & processing</p> | <p>9. Barda Yag-Pendir
dairy production</p> |
| | <p>5. PAK-NUR
flour production</p> | <p>10. Kristal LLC
food production</p> |
| | <p>6. Qafqaz Konserv Zavodu LLC
food processing & packaging</p> | <p>11. Ruzi Mill
flour production</p> |
| | <p>7. Saba OJSC
food production</p> | <p>12. Sarbal
food production</p> |

THE RECP DEMONSTRATION COMPANIES (ASSESSED UNDER EU4E)

- | | | |
|--|---|--|
| <p>1 Lachin LLC
cement production</p> | <p>6 NORM LLC
cement production</p> | <p>11 Helind Energy
alternative energy</p> |
| <p>2 Azeraluminium LLC
metallurgy</p> | <p>7 Elastic LLC
rubber production</p> | <p>12 Green-Blue
pellet production</p> |
| <p>3 Alyans Textile
textile production</p> | <p>8 Shamkhal-86 LLC
concrete production</p> | <p>13 UniPro/UNICO
furniture manufacturing</p> |
| <p>4 Bliss Group LLC
mattress production</p> | <p>9 BETEX Textile LLC
textile production</p> | <p>14 Caspian Cable Systems
cable production</p> |
| <p>5 Baku Textile Factory
textile production</p> | <p>10 Azerfloat
glass production</p> | <p>15 Rortvest Safety Uniform
textile production</p> |

THE RECP CLUBS COMPANIES

- | | |
|---|--|
| <p>1 M&T LLC
meat production & processing</p> | <p>6 Gizil Eller LLC
education</p> |
| <p>2 Sempa QSC
construction materials</p> | <p>7 C.Q. PARTNERS LLC
concrete production</p> |
| <p>3 A+CO OJSC
food production</p> | <p>8 Ganja Textile OJSC
textile production</p> |
| <p>4 Gilan Textile Park LLC
textile production</p> | <p>9 Semsan LLC
metallurgy</p> |
| <p>5 Universal Construction
industrial construction</p> | <p>10 Mahmud-Topchu K LLC
construction materials</p> |



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Testimonials



“ Before joining the EU4Environment RECP component, energy saving was not our primary focus, but now it is. Regardless of our roles, we must prioritize protecting our world and minimize resource use, as every resource is finite. To achieve energy savings, we have decided to upgrade our current machines. It is our responsibility to take care of our planet and make an efficient use of our resources, said Mr. Cesur Aliyev, on behalf of Alyans Tekstil LLC.

“ We acknowledge that resource efficiency and sustainable production will continue to gain importance worldwide, setting certain requirements for producers in the future. To position itself accordingly, Azeraluminium viewed its participation in the RECP component as an opportunity to reassess production from a new perspective (a “European one”) by leveraging the expertise of professionals experienced with EU companies. This participation helped us identify potential areas for improvement, underscoring the benefits of collaboration with similar initiatives, and the need to stay updated with regulatory changes and current trends in terms of resource efficiency. Moreover, the RECP experience has highlighted key areas for improvement that can potentially bring long-term benefits, aspects already aligned with our commitment to sustainability and future growth plans, said Mr. Anvar Akbarov, the CEO of Azeraluminium LLC.

“ The primary activity of Baku Textile Factory (BTF) relies on textile production, which involves working with raw materials and demanding machinery. Our motivation for participating in this project was to improve our understanding of the continuous application of preventive environmental strategies to our processes and products, to increase efficiency and reduce risks to humans and the environment. This approach also proved to be economically viable by saving resources and improving our production process.

As a company interested in providing added value to the market and becoming a pioneer in environmentally friendly production, we sought to reduce resource consumption and set an example for other similar entities.

Hence, the EU4Environment RECP component has had a significant, positive impact. Looking ahead, we are seeking opportunities for technical and financial support to continue improving our business processes with an emphasis on environmental considerations, exploring new methodologies for energy saving and resource conservation. We are particularly interested in building a green energy plant for our factory to provide sustainable energy for our operations, and we are looking for support organizations to provide technical expertise. Additionally, we plan to promote initiatives for resource saving and energy efficiency among peer businesses. This way, we aim to create a working group to jointly discuss and improve our efforts in this field, said Ms. Sevda Huseynova, Project Manager at BTF LLC.



About

Funded by the European Union, the EU4Environment Action aims to help the Eastern Partnership (EaP) countries preserve and better use the natural capital, increase people's environmental well-being, and stimulate a greener economic growth in the EU's Eastern Partnership countries. Its initiatives help deliver policy and legislative changes, make planning and investment greener, and stimulate the uptake of innovative technologies by adopting new business models and creating green jobs.

The Action involves five implementing organizations – OECD, UNECE, UNEP, UNIDO, and the World Bank Group – that focus on producing tangible results in line with the goals, priorities, and the overall cooperation targets defined by the Partner countries. UNIDO, under Result 2 Circular Economy and New Growth Opportunities, manages the outputs 2.1 ‘Resource Efficient and Cleaner Production and eco-innovation among SMEs are scaled up’, and 2.2 ‘Concepts and tools of the EU Single Market for Green Products initiative are introduced and promoted’. For more information, please visit: www.eu4environment.org

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