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EU4Environment
Green Economy in Eastern Partner Countries

BOOSTING CIRCULAR ECONOMY IN GEORGIA 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



- 01 ➤ Background
- 02 ➤ The RECP process
(from technical assessment
to adoption)
- 03 ➤ EU4Environment monitoring
results
- 04 ➤ Learning from our partner's
experiences
- 05 ➤ The way forward
- 06 ➤ The participating SMEs:
Testimonials

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 minimise the environmental impact of their operations and cut their resource use while raising their productivity.

With these goals in mind, an RECP Demonstration Project was established in Georgia in 2012 under the “Greening Economies in the European Union’s Eastern Neighbourhood” (**EaP GREEN**) programme (2012–2017), 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 110 Georgian Small and Medium-sized Enterprises (SMEs) received tailored RECP recommendations to help them improve their environmental performance, lower production costs, and boost productivity. In addition, almost 30 national experts were trained in the RECP methodology.

This brochure highlights the direct impacts of the RECP methodology on the SMEs part of the EaP GREEN and EU4Environment programmes in Georgia.

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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. CE is a new way of creating value and prosperity by extending a product's lifespan through improved design and servicing and relocating waste from the end of the life cycle to the beginning.

To achieve this, Resource Efficient and Cleaner Production (RECP) is a vital component of sustainable industrial development. It encourages enterprises to use materials efficiently, extending the use of resources to maximise value, and repurposing waste from the end of the life cycle into valuable resources. Since the mid-1990s, 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 (including Georgia), which aimed to preserve natural capital, enhance environmental well-being, and create opportunities for green growth. Georgia recognises the importance of supporting green economic growth in its high-level planning documents, with specific provisions for SMEs. However, the communication with SMEs needs to be more concise and targeted, with practical examples and success stories to encourage businesses to invest in RECP practices.

The RECP process

Georgia has over 41,000 manufacturing companies, with more than 85% being classified as small, and another 9% as medium-sized. According to the National Statistics Office of Georgia, SMEs account for more than 67% of employment and 61.5% of gross value added. In this sense, EU4Environment has demonstrated that Georgian enterprises are interested becoming sustainable by reducing energy, materials, and water consumption, and contributing to a cleaner environment. Since material and energy costs represent a significant portion of production costs, the inefficient use of natural resources not only wastes money but also contributes substantially to climate change and environmental degradation. Overall, 112 companies received RECP guidance and coaching within the EaP GREEN and EU4Environment programmes. The former accounted for 83 companies (32 part of the RECP Clubs, and 50 as Demonstration Companies), whilst EU4Environment comprised 30 companies (20 within the RECP Clubs, and 10 Demonstration Companies). 396 RECP recommendations were identified and proposed for companies to implement, based on their specific needs, resources, capacity, and priorities. Awareness-raising activities were also conducted, and national service providers were trained, and; through a consultative process, an RECP primer was developed to embed the RECP logic within SMEs.

The EU4Environment team analysed data from 10 SMEs to identify appropriate actions. **The recommended RECP measures achieved the following annual resource savings under the EaP GREEN programme:**

- Total investment of 159,572 EUR
- Total cost savings of 99,541 EUR per year
- Total electricity savings of 1,615,234 kWh per year
- Total water savings of 7,394 m³ per year
- Total materials savings of 16.25 tonnes per year
- Total reduction of 217 tonnes of CO₂-eq emissions per year

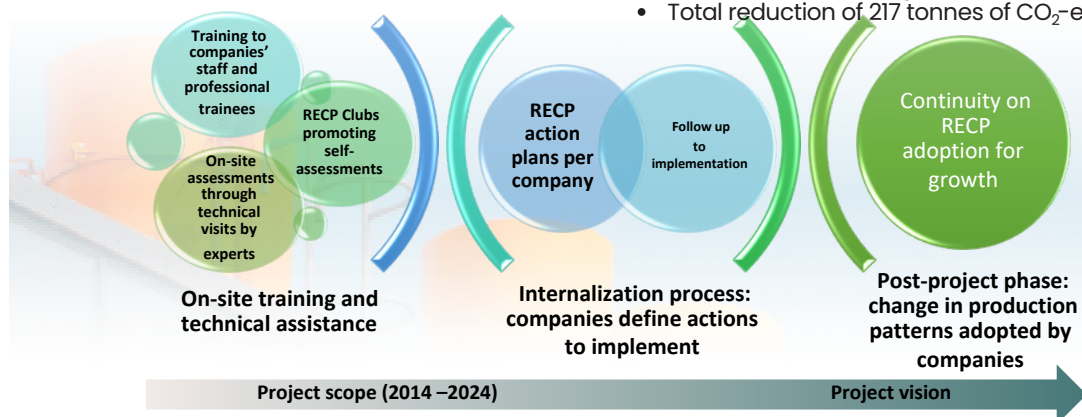
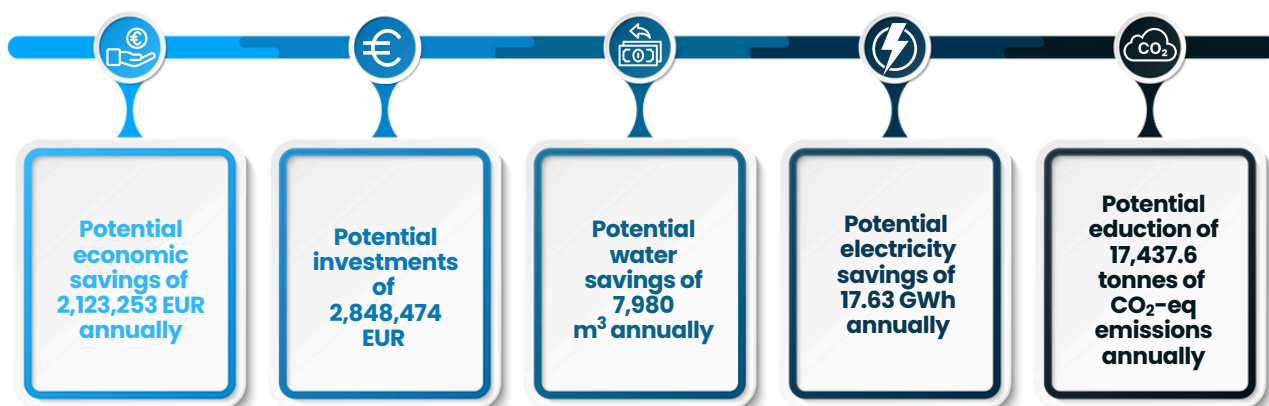


Fig. 1. The RECP promotion process conducted by UNIDO

Figure 1 illustrates the instruments used during the EaP GREEN and EU4Environment programmes, which led to resource efficiency interventions in the monitored Georgian companies. As the implementation and adoption phases advanced, EU4Environment evaluated the conditions for applying the RECP measures, in the years following the conclusion of EaP GREEN. This aimed to inform the development of a more tailored strategy to further support the expansion and replication of RECP initiatives. The participating companies mainly operate in the food and chemicals sectors.

EU4Environment monitoring results

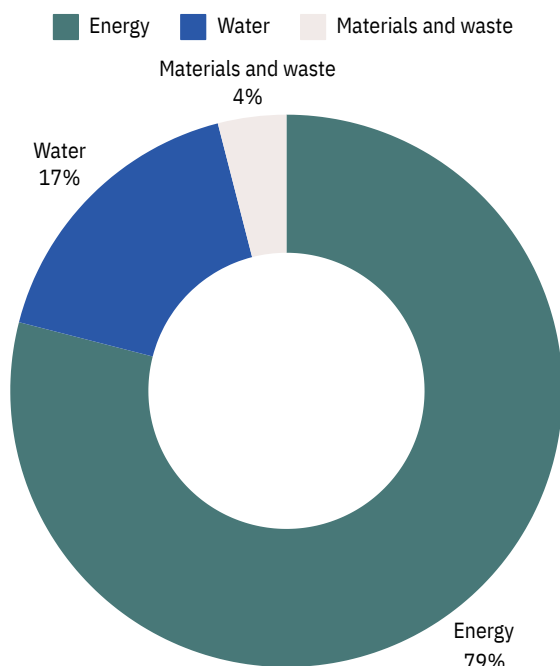
Between 2021–2024, 37 companies were monitored under EU4Environment (10 from the EaP GREEN programme, 10 RECP Demonstration Companies, and 17 companies part of the RECP Clubs). These companies have between 5 to 100 employees, and represent a variety of sectors (food production, construction materials, plastic production, alcoholic and non-alcoholic beverages, dairy production, and many others). 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:



The ten EaP GREEN companies which were monitored for implementing the RECP recommendations have 6 to 80 employees and represent a variety of sectors (dairy, beverages, pulp and paper, lubricants, metal processing). The actual implementation ratio of RECP measures was around 85%, with the average simple payback time being of 1.6 years.

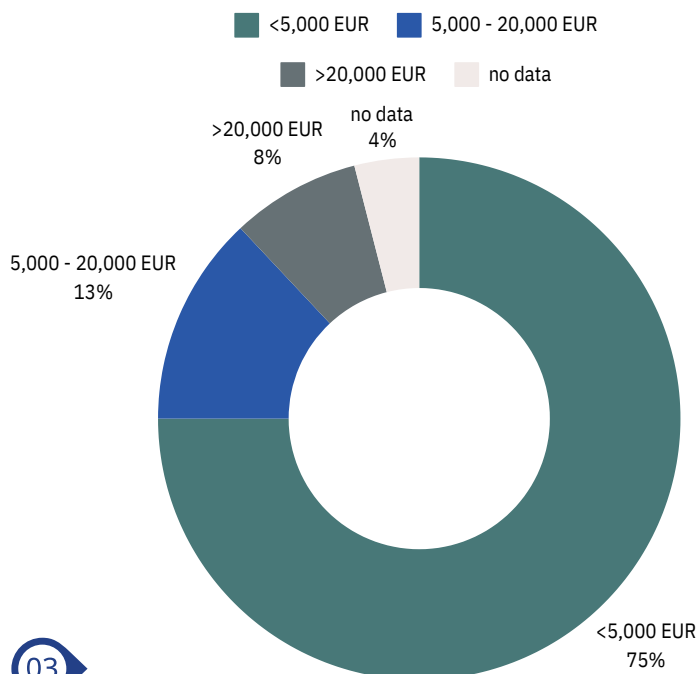
Almost 80% of the recommendations were related to energy efficiency. This focus can be explained by the high cost of energy over the monitored period, and the entailed risks in supply, together with the technical background of the national experts. Around 25% of the implemented measures were in terms of good housekeeping solutions, which do not require investment.

Distribution of the implemented RECP options, based on environmental categories



Steps to decarbonise the electric energy supply were undertaken by installing photovoltaic (PV) solar plants. Additionally, circular approaches were introduced by using by-products of the food industry, and by recycling water. Finally, although some companies were also adopting new technologies or modifying equipment, the investment levels in these areas remain small. 75% of the recommended RECP measures required less than 5,000 EUR investments.

Distribution of the implemented RECP options, based on the invested amount

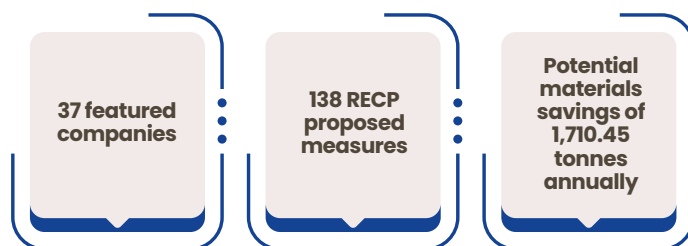


A series of 37 RECP business cases (or success stories) were developed between 2023-2024, showcasing the Georgian SMEs utilising the RECP methodology.

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



Separately from the monitoring of the 10 companies EaP GREEN companies, under the EU4Environment programme, the RECP implementation continued with 10 RECP Demonstration Companies and 17 companies participating in two RECP Clubs. For the latter two, 111 recommendations were developed by the national experts, together with company staff. 25% of the recommendations were already implemented at the end of the reporting period. Moreover, 135 national experts were trained on RECP, CE, and Product Environmental Footprint (PEF).

Overall, these cases present detailed insights into the companies, their internal production processes, recommendations, and implementation strategies. The surveyed enterprises also demonstrated a solid understanding of the role, purpose, and benefits of the RECP methodology at the senior management level.

However, although a few enterprises have retained their original RECP-trained teams, most companies experienced 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.

Learning from our partner's experiences

The existing pool of experts formed within UNIDO's national partner in Georgia, the Energy Efficiency Centre (EEC), should be further supported, and the skills of the experts should be continuously expanded with key knowledge (managerial, technical, and circular). The RECP experts should be provided with additional tools and measuring equipment to ensure the feasibility of conducting quick assessments and to apply circular strategies.

Examples should also be further provided in addition to national business cases, including study tours to lead enterprises in Georgia and Europe to become familiar and confident in developing recommendations for the national enterprises. This should be in line with the established expectations in terms of the Environmental Social Governance (ESG) indicators for banks and the regulatory taxonomy for the green and sustainable development of industries.

The way forward

Our experience

The experience in Georgia shows that 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 (previously inexistent). Entrepreneurs have increasingly shown interest in participating in programmes that provide training and technical assistance for their industrial plants and enterprises. They are also motivated by the expected benefits and the successful experiences of the RECP demonstration companies.

The important next steps worth considering are:

- Strengthening the capacity of EEC Georgia and similar institutions as RECP/CE implementing agencies
- Strengthening the RECP/CE eco-system by actively involving stakeholders
- Embedding RECP/CE in higher education programmes
- Piloting feasible technological investments
- Strengthening capacity for financing and green credit mechanisms
- Supporting locally made technology

These steps are crucial for further enhancing the local environment for RECP adoption in Georgian SMEs.

Recommendations

Raising awareness of RECP and CE opportunities

Promoting the connection between RECP adoption and opportunities for accelerating growth in SMEs is crucial. The development of green markets, recycling initiatives, green product design, and other strategies rooted in the continuous adoption of RECP should continue in Georgia. To build a self-stabilising eco-system, more stakeholders can be actively involved. This may include industry associations, governmental bodies, non-profit organisations, women entrepreneurs, and members of academia. Forums for collaborative discussions and knowledge-sharing among stakeholders are also needed. To enhance outreach to SME, a diverse plethora of intermediaries can be utilised (including sector-related business associations, local governments, and financial service providers). Repeated, targeted awareness campaigns can help educate businesses, regulatory bodies, and the public on the benefits and importance of RECP/CE, creating a culture of environmental responsibility. RECP and CE principles shall be consciously integrated, aligning them with broader environmental perspectives which lead to a holistic and sustainable approach.

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 emphasising the CE practices implemented through RECP.

Educational initiatives

A future programme can support the development of a RECP/CE course and textbook for universities. However, these efforts should be permanently integrated into both the academic and vocational training sectors. Especially in food processing and construction, there is a high potential for RECP and CE, and targeted training, preconceived tools, and recommendations could increase the RECP outreach and application. Based on the digital literacy of the involved stakeholders, different learning paths shall be developed for national experts and company representatives using digital learning as much as possible digital to increase outreach.

It is crucial to continue supporting companies to cope with changes in top management or ownership (e.g., the design of a targeted learning experience for SME owners/managers on RECP and CE) and with secondary problems during the implementation of RECP recommendations

Capacity building

The following measures are recommended to encourage wider adoption of RECP in Georgian companies:

Extended national capacity via continuous education and training: integrating the RECP methodology into academic and vocational programmes in Georgia to enhance the companies' access to qualified professionals capable of implementing RECP projects

More involvement in monitoring, follow-up procedures, and certification applications: necessary to embed RECP into the core strategies of businesses

Introducing environmental management system: to form a stable base for continuation in spite of the frequent changes in technical staff disrupting the implementation schedule of RECP measures

Literacy in ESG, taxonomy, and Eco-design: to help companies understand and follow environmental regulations and trends

Investing in incentive mechanisms

To embed RECP in company management systems, various incentive mechanisms such as recognitions, awards, national and international certifications should be developed. These incentives have the potential to provide platforms for companies to innovate and encourage them to integrate RECP into their management practices. This requires advanced cooperation models between consultancy and service providers to ensure the continuous training of industry staff (such as the institutionalising RECP Clubs or comparable capacity-building programmes and strengthening the capacity of REC Caucasus).

Piloting feasible technological investments

Entrepreneurs can be encouraged to prepare more ambitious RECP action plans by preselecting technologies, and providing recommendations to invest in RECP pilot projects which demonstrate the profitability and risk management of RECP. This includes sector specific technologies, the application of digital tools, recycling, and new technologies which can form the basis of more circular business models.

Supporting locally made technology

This includes investing in educational programmes and technology-related start-ups to provide appropriate, adapted, and cost-effective advanced equipment along with support for innovation in local machinery and information technology (IT) industries would mean a more efficient and cost-effective national technology market.

Strengthening financing and green credit tools

While the need for green credits has been recognised for several years, bridging the gap between supply and demand remains challenging. This is why green credit mechanisms need to be tailored to the SME context. Additionally, SMEs often lack the capacity to enhance their creditworthiness and effectively present business plans for RECP/CE investments. Other incentive mechanisms, such as non-refundable grants, guarantee funds, start-up funding, and technology development funds, should be made available to reduce risks and costs for SMEs. Communication between banks and SMEs can be improved by investing in practical accounting, financial analysis, and relations to ESG and green taxonomy.

THE EAP GREEN ALUMNI COMPANIES - monitored in 2022-2024

- | | | | | | |
|---|--|---|---|----|--|
| 1 | Askaneli LLC
beverage production | 5 | NEOPRINT LTD
paper recycling | 8 | QARTULI FERMA
dairy production |
| 2 | LAGI LTD
non-alcoholic beverages | 6 | Ecoil LLC
lubricants production | 9 | Sarini LLC
constructions |
| 3 | KINDZMARauli LLC
alcoholic beverages | 7 | Panta LLC
briquettes production | 10 | Sinali LLC
aluminium |
| 4 | GEORGIA'S NATURAL - AROMA
PRODUCT LLC , fruits and vegetables | | | | |

THE RECP DEMONSTRATION COMPANIES (ASSESSED UNDER EU4E)

- | | | | | | |
|---|--|---|---|----|--|
| 1 | LAGODEKHAVTOGZA LTD
asphalt production | 5 | VAZIANI LTD
wine production | 8 | TSIVIS KVELI LTD
cheese production |
| 2 | CHATEAU MUKUZANI LTD
wine production | 6 | TITANI LTD
plastic bags
production | 9 | NEKTARI-2008 LTD
soft-drinks
production |
| 3 | BIODIESEL GEORGIA LLC
biodiesel production | 7 | TELETI POULTRY
FACTORY LTD
poultry & eggs
production | 10 | GEO-ORGANIC LTD
dried fruits production |
| 4 | GIAM GROUP LLC
tangerine juice production | | | | |

THE RECP CLUBS COMPANIES

- | | | | | | |
|---|--|----|---|----|--|
| 1 | BI PLAST LLC
plastic production | 7 | GEO PROVISION LLC
pet food production | 12 | MEGAPLAST LLC
plastic production |
| 2 | CAUCASPACK LLC
PET and PP films | 8 | KALO
eggs production | 13 | MARIAMI LLC
dairy production |
| 3 | TSALKA MILK PRODUCTS
LLC , dairy production | 9 | SAGAREJO-2009 LLC
eggs production | 14 | MSHENEBELI-2019 LLC
asphalt production |
| 4 | R.JANASHVILI
dairy production | 10 | KAU TIVI LLC
chemicals production | 15 | POLIEDRO LLC
PP stretch film |
| 5 | GEKA LLC
eggs production | 11 | LIDER PLAST LLC
plastic production | 16 | NATURAL PRODUCT -
CEZAR LLC
dairy production |
| 6 | KASPI ELECTRO APARAT LLC
steel production | 17 | CAUCASUS ORGANIC FRUITS LLC
dried fruits production | | |



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Testimonials



“ We were trying to reduce energy consumption and the generation of waste. Thanks to the EU4Environment RECP component, our company now plans to improve production, increase staff awareness, and improve waste management to decrease annual energy costs and minimise organic waste and CO emissions. Insofar, the RECP project has inspired us to be open to new ideas and approaches regarding the implementation of RECP measures in the future, said the manager of CHATEAU MUKUZANI LTD, Mr. Zaza Dolmazashvili. ”

“ Our company was motivated to join the EU4Environment RECP component to learn about efficient means to address the excessive power consumption in the cooling units. As well, the company staff noted an inefficient and irrational consumption of electricity which they aimed to rectify. The RECP experience revealed the importance of regular inspection and monitoring of all production processes to identify issues in a timely manner. We now plan to improve the production capacity and the overall management system, said the Director of "Kindzmarauli" LLC, Mr. Tamaz Konchoshvili. ”

“ Our main goal was to curb the excessive electricity consumption and tackle the high annual energy costs. Thanks to EU4Environment RECP component, we learned about the potential benefits of installing PV solar panels and how to successfully proceed with the recommended measures, said the director of NEKTARI-2008 LTD, Mr. Davit Dalakishvili. ”

“ We were motivated to join the EU4Environment RECP component to tackle our high energy consumption and energy costs. Before this project, two key challenges for our company were energy efficiency and wastewater management. The main lesson learned was to commit to periodically upgrade our technology and to boost awareness within the management team. Another added value brought forth by the RECP experience was the confidence to work and improve the quality of our production and increase production capacity, said the Chief Engineer of ASKANELI LLC, Mr. Zaza Shoshitashvili. ”

“ Our company recorded high energy and water consumption, so we were looking for advice on how we could better use these resources in a rational and efficient way. The results exceeded our expectations, as the implementation of the suggested RECP measures led to a decreased energy and water usage, and a significant reduction of waste, said the Chief Engineer from QARTULI FERMA, Mr. Roman Ishkhneli. ”

“ Our company was using an inefficient technological system which led to excessive energy consumption, especially in the production processes that required thermal energy. Thanks to the EU4Environment RECP component, we learned to systematically upgrade our technology and invest in awareness raising among the management staff, said the technical consultant of BIODIESEL GEORGIA LLC, Mr. Kakha Karchkhadze. ”



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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