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BOOSTING CIRCULAR ECONOMY IN THE REPUBLIC OF MOLDOVA 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.

With these goals in mind, an RECP Demonstration Project was established in the Republic of Moldova (hereinafter Moldova) in 2013 under the "Greening Economies in the European Union's Eastern Neighbourhood" (**EaP GREEN**) programme (2013-2017), 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 100 Moldovan 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, over 60 national experts were trained on the RECP methodology.

This brochure highlights the direct impacts of the RECP methodology on the Moldovan SMEs part of the EaP Green and EU4Environment programmes in the country.

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) encourage enterprises to use materials efficiently, extending the use of resources to maximise value, and repurposing waste. In the last decade, UNIDO has supported industries in upgrading organisational practices, investing in new business models, and promoting innovative technologies and green investments. This includes regional EU-funded programmes for the EU's Eastern Partnership (EaP) countries (of which Moldova is a part), which aimed to preserve natural capital, enhance environmental well-being, and create opportunities for green growth. For Moldovan enterprises to grow sustainably, they must receive support to reduce energy expenses, material and water usage, and learn to contribute to a cleaner environment. Material and energy costs are significant components of production costs. Inefficient resource use wastes money and significantly contributes to climate change, accelerating environmental degradation.

The RECP process

Overall, 109 companies received RECP guidance and coaching within the EaP GREEN and EU4Environment programmes. The former accounted for 81 companies (64 part of the RECP Clubs, and 17 as Demonstration Companies), whilst EU4Environment comprised 28 companies (13 within the RECP Clubs, and 15 Demonstration Companies). 184 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. Additionally, through a consultative process, an RECP primer was developed to embed the RECP logic within SMEs.

As the RECP implementation and adoption phases continued from EaP GREEN to EU4Environment, it became possible to evaluate the application of the recommended RECP measures. In 2023, an in-depth analysis was conducted to assess the implemented results, lessons learned, and challenges faced over more than 10 years since the introduction of RECP in the country. The EU4Environment team analysed data from nine SMEs to identify appropriate actions which could potentially be scaled nationwide.

The recommended RECP measures achieved the following annual resource savings under the EaP GREEN programme:

- Total investment of 43,780 EUR
- Total cost savings of 132,836 EUR per year
- Total electricity savings of 3,019,136 kWh per year
- Total water savings of 213 m³ per year
- Total materials savings of 59 tonnes per year
- Total reduction of 688 tonnes of CO₂-eq emissions per year

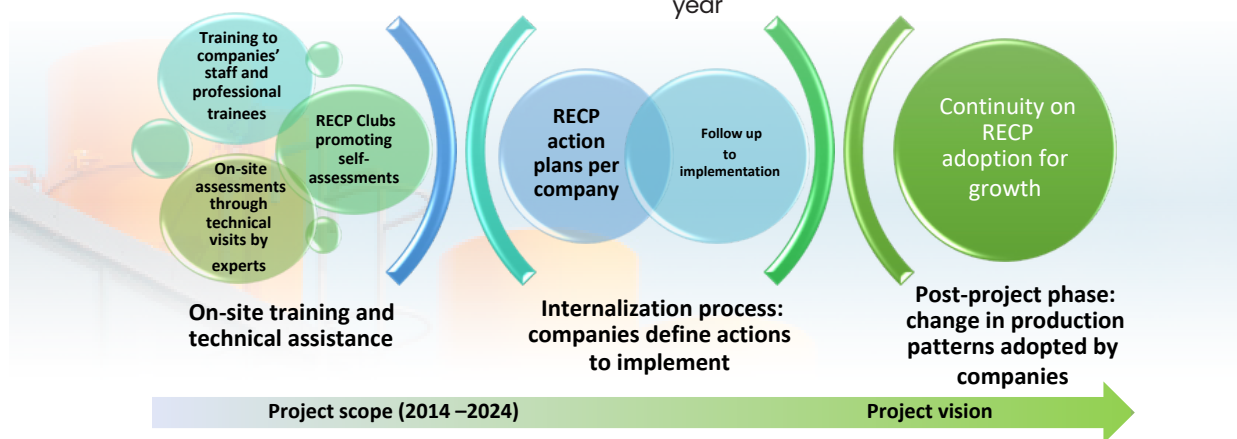
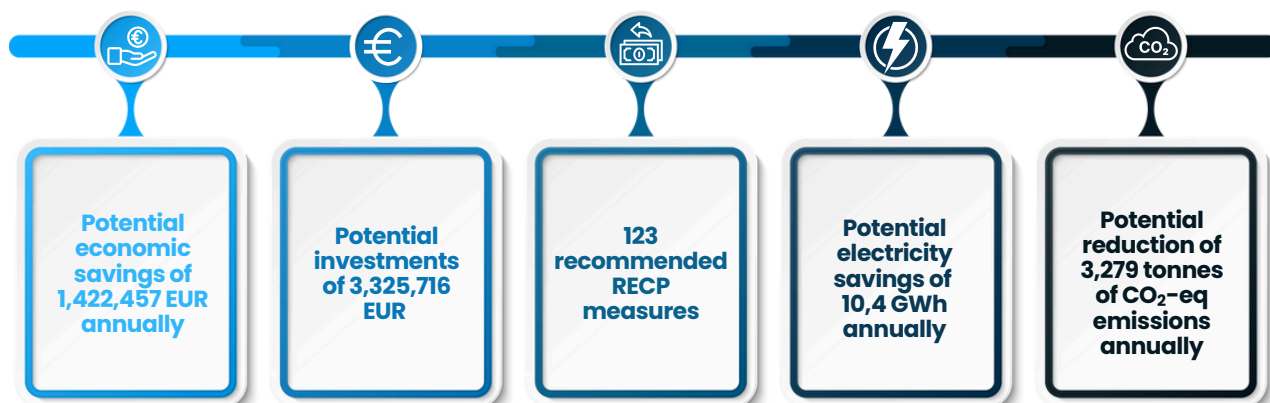


Fig. 1. The RECP promotion process conducted by UNIDO

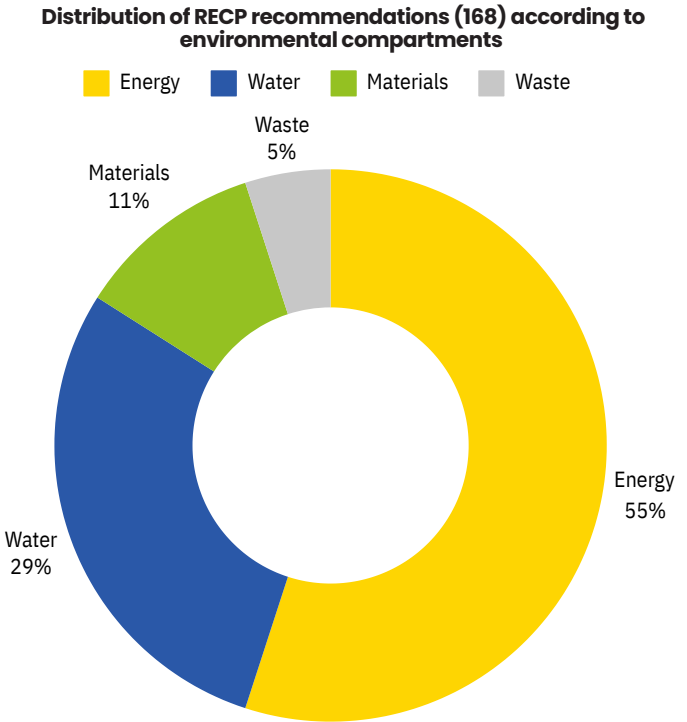
Figure 1 illustrates the instruments used during the EaP GREEN and EU4Environment programmes, which led to resource efficiency interventions in the monitored Moldovan companies. As the implementation and adoption phases advanced, EU4Environment evaluated the conditions for applying the RECP measures, 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 EU4Environment team analysed data from the SMEs to identify appropriate actions which could potentially be scaled across the approximately 60,000 existing SMEs in Moldova. The participating companies mainly operate in the construction materials industry, metal product manufacturing, and the food sector.

EU4Environment monitoring results

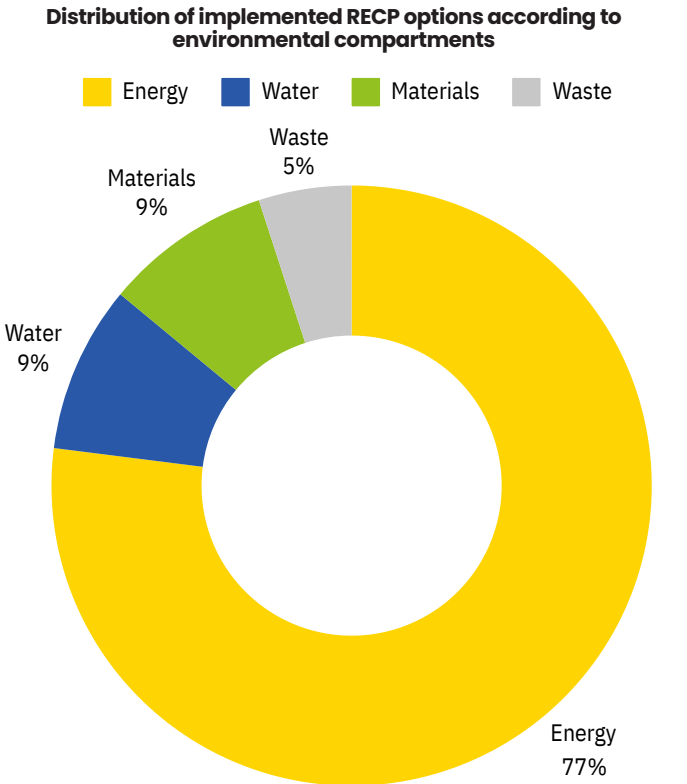
37 companies were selected to monitor the outcomes of the RECP recommendations from both programmes. These companies, spanning various sectors (including bakery, food processing, print shops, waterworks, and carpet manufacturing), employ between 9 and 200 individuals. Notably, in addition to the significant savings in water and energy, the implementation of RECP measures can potentially enhance the companies' profitability through tangible cost savings:



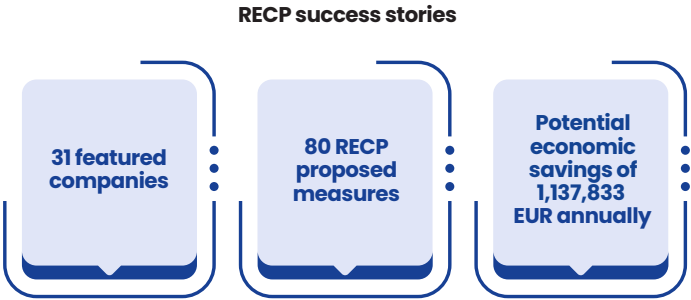
Energy-related recommendations make up 55% of the total, with 77% of these options being successfully implemented. This focus on energy can be attributed to the high energy costs during the reporting period, and the associated supply risks. Additionally, 33% of the original recommendations involved good housekeeping solutions that require no investment, with 42% of these options being successfully implemented. Efforts to decarbonise the electric energy supply include the installation of photovoltaic (PV) power plants. Additionally, circular approaches have been introduced through the utilisation of by-products from the food industry and the implementation of water recycling initiatives.



Despite companies adopting new technologies or making equipment modifications, investment levels in these areas remain modest. At the time of these assessments, the participating companies did not have access to grants or green credit lines offering subsidized interest rates.



A series of 31 RECP business cases (or success stories) were developed between 2023-2024, showcasing the Moldovan SMEs using the RECP methodology. These include three EaP GREEN companies, 15 Demonstration Companies, and 13 RECP Clubs. These cases present detailed insights into the companies, their internal production processes, recommendations, and implementation strategies. For more information, please scan the QR code.



Overall, the surveyed enterprises demonstrated a solid understanding of the role, purpose, and benefits of the RECP methodology at the senior management level. However, while a few enterprises have maintained 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 using their own funds. However, relying solely on internal funds may have limited the SMEs' capacity to undertake more substantial technological changes.

Faced with escalating energy costs, these companies prioritised energy efficiency within their RECP action plans, with the potential economic savings of implementing all RECP options being of 1,137,833 EUR annually. However, there is considerable potential to enhance material efficiency, promote recycling, and generate marketable by-products, areas that have received minimal attention thus far.

While companies are embracing new technologies and making equipment modifications, investment levels remain relatively modest. The potential for more substantial, high-impact solutions remains largely untapped. Notably, some larger companies that export to Europe deviate from this general trend.

Learning from our partner's experiences

ODA, the national agency for SME support in Moldova, administers the Eco-innovation grant with funds from the EU. Currently, ODA offers free specialised training for companies to learn about resource efficiency and green growth, paving the way for them to apply for individual grants (up to 500,000 MDL). It was noted that over 120 SMEs were already enlisted for the next training sessions, but finding suitable experts to conduct these sessions has been challenging.

To address this issue, ODA plans to leverage professionals already trained in efficiency and green growth, such as those trained by the UNIDO RECP experts. They could be further recognised and promoted through ODA. In this sense, it is imperative to further support such pools of experts, as their skills should be continually enhanced through management knowledge, technical expertise, and Circular Economy principles.

Moreover, tools should be provided to these experts to enable them in making quick assessments of the circularity status of various production processes and enterprises, to identify potential areas where circular strategies can be applied. To bolster their expertise, examples and study tours to Europe should be offered to familiarise the experts with best practices and instil confidence in developing recommendations for Moldovan enterprises.

The way forward

Our experience

Based on the experience in Moldova, international cooperation programmes have been pivotal over the past decade in generating knowledge and demand for services that support the uptake of RECP and CE in industries (which previously did not exist). Moreover, Moldovan entrepreneurs have increasingly shown interest in participating in programmes that offer training and technical assistance for their industrial plants and enterprises. They are motivated by the anticipated benefits and the successful experiences of the companies part of the RECP assessments. However, there is a gap between their participation and their capacity to sustain demand for RECP services using their own resources.

The important next steps worth considering are:

- Strengthening the capacity of national implementing agencies (like ODA)
- Strengthening the RECP/CE ecosystem 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 Moldovan SMEs.

Recommendations

Raising awareness of RECP and CE opportunities

Promoting the connection between RECP adoption and opportunities is crucial for accelerating industry growth. The development of green markets, recycling initiatives, green product design, and other strategies rooted in the deep adoption of RECP should continue to be implemented in Moldova. In addition, targeted awareness campaigns can educate businesses, regulatory bodies, and the public on the benefits and importance of RECP and CE, creating a culture of environmental responsibility. Notwithstanding, RECP and CE principles should be consciously integrated and aligned with broader environmental perspectives to create a holistic and sustainable approach.

To build a self-stabilising ecosystem, more stakeholders should be involved (including industry associations, governmental bodies, non-profit organisations, and academia). Forums for collaborative discussions and idea-sharing opportunities among stakeholders are needed. Enhancing outreach to SMEs through diverse intermediaries, such as business associations, local governments, municipalities, and financial service providers, is also necessary.

To ensure the continuous promotion of RECP, 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 management and address entrepreneurs. Messages should be tailored to resonate with different sectors and company sizes. Allocating a continuous budget for marketing and communication efforts ensures ongoing visibility and support for RECP and CE initiatives. This way, CE implemented based on RECP can be strongly emphasised as a relevant future economic strategy.

Educational initiatives

RECP/CE courses or textbook materials should be developed for universities. However, these efforts need to be permanently integrated into both the academic and vocational training sectors. Targeted learning experiences on RECP/CE should be designed for SME owners/managers, based on sectoral/industry interest (e.g. energy efficiency, resource management, developing and asserting ESG indicators, etc.). This is especially useful in food processing and construction, where the high RECP potential and targeted training, tools, and recommendations can quickly increase productivity.

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.

Based on the post-EaP GREEN monitoring efforts and findings, the following measures are recommended to encourage the wider adoption of RECP in Moldovan companies:

Extended national capacity via continuous education and training: integrating the RECP methodology into academic and vocational programmes in Moldova 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

Continuous support of companies: to help them in implementing the RECP methodology, despite the changes in top management or ownership

Investing in incentive mechanisms

To scale up 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 innovative companies 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 institutionalizing RECP Clubs or comparable capacity-building programmes, and strengthening the overall capacity of ODA as an SME-supporting agency.

Piloting feasible technological investments

This can be accomplished by preselecting and recommending technologies, and by investing in pilot projects focused on profitability and risk management. By doing so, entrepreneurs can be encouraged to develop more ambitious action plans.

Supporting locally made technology

There should be support for 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 long recognized, bridging the gap between supply and demand requires further efforts. Green credit mechanisms tailored to the SME context are essential. Additionally, SMEs often lack the capacity to enhance their creditworthiness and effectively present business plans for RECP 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, and improve communication between banks and SMEs. Grant programmes (such as those offered by ODA) should be linked to RECP and CE activities.

THE EAP GREEN ALUMNI COMPANIES - monitored in 2022-2024

- | | | |
|---|--|---|
| 1 Bons Offices LTD
chemical sector | 2 Covoare-Ungheni LLC
carpet production | 3 Glorin Engineering LTD
carpet production |
| 4. APĂ CANAL Ungheni LLC
water management | 5. CATOL-L LTD
chemicals and auto accessories | 6. Cookies LTD
confectionery production |
| 7. FARMAVET LTD
animal feed and veterinary medicine | 8. LEOVIN
wine production | 9. AGROEMAX LTD
food production |

THE RECP DEMONSTRATION COMPANIES (ASSESSED UNDER EU4E)

- | | | |
|---|---|---|
| 1 Arama R LLC
furniture production | 6 Cunac JSC
apparel production | 11 Loz Textil LLC
apparel production |
| 2 Art Granit LLC
stone processing | 7 Finplast-Prim LLC
plastic processing | 12 Maican-Com LLC
apparel production |
| 3 Azamet Pro LLC
agro-processing | 8 Frații Frunze LLC
pasta production | 13 Monicol LLC
dried fruits production |
| 4 Cahul Pan JSC
bakery products | 9 Hîncești Winery LLC,
wine production | 14 Răilean-Plus LLC
animal food production |
| 5 Cartnord LLC
paper and cardboard
packaging production | 10 Kriss Grup LLC
textile production | 15 Turnaconstruct LLC
metallic constructions
production |

THE RECP CLUBS COMPANIES

- | | | |
|---|--|---|
| 1 Anrai Grup LLC
apparel production | 6 Petru Balan PE
fruit storage | 11 Tromigou Print LLC
wood-based souvenirs
production |
| 2 ICS Steaua Reds PLC
apparel production | 7 Fabrica de Sănătate LLC
juice concentrate
production | 12 IM Coval & Co LLC
canned food production |
| 3 Biyaz Salkim LLC
fruit storage | 8 Factory My Denim LLC
apparel production | 13 Evenco Construction LLC
construction panels
production |
| 4 Cebotaru Doinița PE
apparel production | 9 Flavorya Com LLC
fruit snacks production | |
| 5 Dinomax Group LLC
porcelain and ceramics
production | 10 Apă-Canal Cantemir
supplier of drinking
water | |



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Testimonials

“Our company joined the project to reduce its impact on the environment, especially by switching towards renewable source of energy. Thanks to EU4Environment RECP component, we learned that there is a need for conducting a systematic analysis of the efficiency in both our production and energy systems. As we plan to continue making our business greener and become energy-self sufficient, the RECP Project has inspired us to come up with new ideas and approaches regarding implementation of RECP measures in the near future, said the owner of Arama R, Mr. Igor Aramă”

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“The escalating prices for centrally supplied heating services have forced the management of our enterprise to consider new ways to reduce costs, which was a key motivation for our company to participate in this project. Thanks to the EU4Environment RECP component, we understood that the problem of high heating costs could be solved by utilising the energy that is already available. As our company plans to invest in further developments to reduce the consumption of energy, the RECP project has inspired us to come up with new ideas and approaches regarding the implementation of RECP measures in the near future, said the executive director of “ICS STEAUA REDS” JSCO, Ms. Violeta Cojocar. ”

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“We joined the EU4Environment RECP component with the goal of repurposing our generated waste and minimising heat loss. Thanks to the RECP Clubs programme, we are equipped with the ability to analyse resource efficiency in our product manufacturing and identify technological measures for enhancing the organisation of our production processes. As we plan to expand and double the capacity of our company, the RECP Project has inspired us to come up with new ideas and approaches regarding the implementation of RECP measures in the future, said the manager of “EVECO CONSTRUCTION” LTD, Mr. Zahari Dolomanji. ”

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“We expressed our interest in joining EU4Environment due to the substantial increase in energy prices over the past few years. Thanks to the EU4Environment RECP component, we learned that there are always opportunities for technical and organisational improvement of our operations, despite our facilities being constructed with the latest technologies. Additionally, we understood how to respond to economic challenges and analyse the efficiency of resource use in the process of storing apples. As our company plans to further improve its technological processes and optimise energy consumption, the RECP project has inspired us to come up with new ideas and approaches regarding the implementation of RECP measures in the future, said the director of “PETRU BALAN” PE, Mr. Petru Balan ”

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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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