Circular Economy Action Plan of Romania

29 November 2023

This project is carried out with funding by the European Union via the Technical Support Instrument and in cooperation with the Directorate General for Structural Reform Support of the European Commission (DG REFORM)

Contract details

European Commission - DG Reform

Technical support for the development of the circular economy strategy and establishing a monitoring mechanism

Specific Request Nr 143 under Framework Service Contract No SRSS/2018/01/FWC/002

Presented by

Trinomics B.V.

Westersingel 34

3014 GS Rotterdam

The Netherlands

Authors

Corina Haita-Falah (Trinomics)

Josefine Koehler (Trinomics)

Timea Pal (Trinomics)

Koen Rademaekers (Trinomics)

Stella Sluciakova (Trinomics)

Simona Anghel (Stratos)

Victor Caplescu (Stratos)

Raluca Gheorghias (Stratos)

Luminita Rosca (Stratos)

Elena-Simina Lakatos (IRCEM)

Andrea Szilagyi (IRCEM)

Sorin Cebotari

Alexandru Laibăr

Ben Mehedin

Contact person

Koen Rademaekers

E: koen.rademaekers@trinomics.eu

Date

Rotterdam, November 23

Acknowledgement

This study was carried out with funding by the European Union via the Technical Support Instrument and in cooperation with the Directorate General for Structural Reform Support of the European Commission.

Table of Contents

List of abbreviations

B&A	Batteries and accumulators
CDW	Construction and Demolition Waste
CE	Circular Economy
CEAP	Circular Economy Action Plan
CEI	Circular Electronics Initiative
CES	Circular Economy Strategy
CSOs	Civil society organisations
CMUR	Circular material use rate
CP	Circular Procurement
DG Reform	Directorate-General for Structural Reform Support
DMC	Domestic material consumption
EC	European Commission
EEE	Electrical and Electronic Equipment
EoW	End of Waste
EPR	Extended Producer Responsibility
GDP	Gross domestic product
GHG	Greenhouse gases
GPP	Green Public Procurement
ICT	Information communications technology
IWMS	Integrated Waste Management System
LCA	Life-cycle assessment
MEWF	Ministry of Environment, Waters and Forests
MEET	Ministry of Economy, Entrepreneurship and Tourism
MS	Member states
MSW	Municipal solid waste
NGO	Non-governmental organisation
OECD	Organisation for Economic Co-operation and Development
PAYT	Pay as you throw
POM	Put on market
PRO	Producer Responsibility Organisation
R&D	Research and Development
(N)RRP	(National) Recovery and Resilience Plan
RMC	Raw Material Consumption
SDG	Sustainable Development Goals
SIATD	Sistem informatic de Asigurare a Trasabilitatii Deseurilor (Waste Traceability Information System)
SME	Small and Medium Enterprises
SPI	Sustainable Product Initiative
STE(A)M	Science, Technology, Engineering (Arts) and Mathematics
UN	United Nations
VET	Vocational Education and Training
VCC	Voluntary collection centre
WBA	Waste batteries and accumulators

WEI+	Water Exploitation Index Plus
WEEE	Waste electrical and electronic equipment

Foreword

[TO BE WRITEN BY THE BENEFICIARY]

Executive Summary

Circular economy measures offer the opportunity to deliver on climate commitments and other sustainability objectives, while also contributing to economic growth and job creation. According to recent studies,[1] applying circular economy principles can spur economic growth and generate new jobs. Romania has already launched some initiatives to encourage the circular economy but is still at an early phase of the circular economy transition process[2]. More needs to be done to promote, enable and facilitate changes across all economic sectors and societal fields within its domestic context.

The Circular Economy Action Plan (CEAP) is part of recent governmental efforts to accelerate the transition to a circular economy in Romania. It builds on and complements the Circular Economy Strategy (CES) adopted through Governmental Decision 1172 from September 21, 2022. The rationale behind the CEAP and mission it aims to reach in the current context of circular economy of Romania are explained in greater detail in the first three chapters. In essence, while CES provides general directions and objectives to be pursued through subsequent policies, the CEAP introduces concrete actions to reach these goals and advance the transition towards circular economy.

The **high-level objectives** adopted through the CES are:

- Prioritization of local production over imported products and materials;
- Strengthening of economic competitiveness and labour;
- Promotion of responsible and sustainable sourcing of raw materials;
- Prioritization of promoting innovation and research in circular economy;
- Preservation, conservation and sustainable use of natural resources;
- Prevention of waste generation and sustainable waste management;
- Promotion of responsible consumption and environmental education;
- Protection of the ecosystem and health of the citizens.

To facilitate the achievement of these high-level objectives, the CEAP puts forth **in Chapter 4** a series of cross-sectoral and sector-specific actions.

The cross-sectoral actions refer to measures regarding the promotion of education and training; facilitation of research, development, and innovation in relevant areas; reform of public procurement; and encouragement of digitalization in areas that are essential to facilitate circular transformation in the Romanian economy. Actions for education, training and public awareness in circular economy principles can build the necessary skills for the transition to circularity but can also assist in changing consumption and production behaviour. Research, development, and innovation measures can also play an important role in supporting circular economy, particularly with respect to novel materials and products, substitution and elimination of hazardous substances, circular business models, new production and recycling technologies, indicator development and data collection, etc. Furthermore, digitalization can help track the journeys of products, components, and materials to allow businesses to run more efficiently, reduce waste, extend the product life cycle, and lower transaction costs. Digital

[1] Cambridge Econometrics, Trinomics, and ICF (2018), Impacts of circular economy policies on the labour market: Across the EU economy has the potential to increase EU GDP by an additional 0.5% by 2030 and create around 700,000 jobs.

[2] Cramer, J. (2022). Effective governance of circular economies: An international comparison. *Journal of Cleaner Production*, *343*, 130874.

platforms can also facilitate data flows, collaboration and sharing schemes within multi-stakeholder ecosystems, reducing underutilisation of the existing assets, and enabling the accumulation of collective knowledge and diffusion of circular economy business models. Finally, green public procurement can play an important role in the transition to circularity. The purchasing power of public authorities in Romania is estimated at approximately 19 percent of the GDP.[3] Therefore, public procurement can play an important role in increasing demand and providing market opportunities for those offering more circular products and services.

The CEAP also presents **actions that are specific to the nine economic sectors** that were identified through the Strategy as the areas with the highest circularity potential in the Romanian economy. These sectors, selected based on their economic significance, environmental and health impact, circularity related problems and opportunities, are:

- agriculture and forestry;
- automotive sector;
- construction;
- food and beverages;
- packaging, combining glass, paper, plastics, wood and metal;
- textiles and apparel;
- electrical and electronic equipment (EEE), including batteries,

as well as two sectors of relevance for the entire economy and society:

- waste
- water and wastewater.

For the cross-sectoral issues and each sector, the current AP identifies **at least five priority actions** and, in most cases, introduces a set of additional measures that could also be implemented to accelerate the transition. The CEAP introduces 53 priority actions, across the ten areas (at the cross sectoral level and across the nine sectors). These actions were prioritized in function of i) the feasibility of their implementation, ii) urgency and potential to accelerate the transition to circular economy, iii) relevance for the compliance with EU directives and achieving the targets, and iv) existence of good practices in other EU member states (MS). These criteria were used to rank actions proposed for a specific sector, with the top five to six actions identified as priority actions to expedite the CE transition of Romania.

A significant part of approximately 38% of these priority actions relate to legal, regulatory and/or policy modifications that could facilitate the shift from linear towards circular economy. Other actions focus on infrastructure development, including digital (23%), financial support for the private sector (11%), education and training (9%), awareness raising (7%), regulatory enforcement (6%), and R&D&I (6%).[4]

The priority actions have been **validated through consultation interviews** with relevant sectoral stakeholders. For prioritizing and developing the actions, we conducted 59 interviews across the nine economic sectors, with at least 5 interviews per sector.[5] Our interviewees included entities such as industry associations, companies, civil society organizations (CSOs), producer responsibility organizations (PROs), and public entities. This working procedure has provided us with valuable insights

[3] AROLD, ONV LAW (2021) First National Study on the Use of Green Public Procurement in Romania. Available at: https://www.onvlaw.ro/the-1st-national-study-on-green-public-procurement-in-romania-2/
[4] These percentages ought to be considered merely indicative, to give a general sense of the types of actions proposed in the CEAP.
[5] Except for food, beverages and tabaco where, for objective reasons, we conducted 4 interviews.

that informed us about the specific challenges and barriers in the path towards circularity and helped us conceive of practical steps to address them.

The priority actions introduced by the CEAP are linked to the high-level objectives set in the CES. Additionally, in Annex A, for each priority action, we provide a detailed description of the challenges they seek to address, the steps to take to redress them, entities responsible and involved in their implementation, and the time horizon for their implementation. Annex B provides good practices that are relevant for each action.

The stakeholder interviews that we conducted also played an important role in solidifying our understanding of the key barriers that the implementation of the proposed actions might face. Therefore **Chapter 5** provides some general guidelines to **enable implementation of the CEAP**. This addresses trends and opportunities with respect to funding, introduces the governance framework that was set up to ensure implementation, and proposes guidelines with respect to monitoring, evaluation and dissemination of the progress achieved and/or of the difficulties encountered. The three main enabling elements are to be considered in conjunction with three priority actions included under the cross-cutting issues, that provide additional practical tips towards the realizations of the enabling mechanism. These refer to the expansion of the financial support provided for circular initiatives by the private sector, the enhancement of circular economy capacity in the public sector, and the development of a digital platform to facilitate monitoring and knowledge dissemination.

To address the **risks identified in Chapter 6**, we recommend a sequential implementation strategy. Further prioritization and the establishment of implementation sequences should be determined by the Coordination Committee for the Circular Economy of Romania – the main governing body established on December 12 of 2022 to oversee the implementation of CES&AP. The decisions regarding the sequencing of these actions should be informed by the parameters included in the action descriptions (time horizon, funding, etc), complemented by estimation of costs and additional insights from technical experts from the entities involved in the Coordination Committee and from private stakeholders it will consult with. Assessing the costs of measures proposed in the CEAP in an accurate manner, will not only inform the sequencing of the measures, but provide a better understanding of the budget required and facilitate the overall implementation process. The estimation of the costs associated with the measures proposed should therefore constitute one of the initial efforts of the Coordination Committee for the Circular Economy of Romania, perhaps through a dedicated study.

1. Introduction

1.1 Why this Action Plan?

The motivation for developing the Circular Economy Action Plan (CEAP) of Romania lies in the aim of achieving the overall goals of the European Green Deal and the objectives of the EU's Circular Economy Action Plan. The CEAP of Romania is also expected to support the implementation of the Circular Economy Strategy (CES) of Romania which was adopted by Governmental Decision 1172 on September 21, 2022.[6] The CEAP for Romania is a milestone in the National Recovery and Resilience Plan (NRRP) and it is expected to be adopted by the third quarter of 2023.

The CES&AP of Romania can increase public well-being and enable sustainable economic development by improving the quality of the environment and of human health.

1.2 The Scope of the Action Plan

The concept of the circular economy is very broad and overarches a range of related topics, including resource efficiency, shift towards renewable resources, both from the material and energy perspective. The circular economy aims at decoupling economic activity from the consumption of natural resources while designing negative externalities (waste and pollution) out of the system. The following practices and solutions across different stages of the value chain are considered to achieve the transformation from a linear system to a circular one:

- Closing material loops: the substitution of raw materials with secondary materials and new products with second-hand, repaired or remanufactured products or parts;
- Slowing material flows: extending the lifetime of products through better design, maintenance and repair;
- Narrowing material flows: using less resources per product or using fewer products to deliver the same service to society.

The sectoral scope of this Action Plan is based on the prioritisation developed in the CES for Romania and highlighted to present the highest potential to enhance circular economy in Romania. Thus, the prioritisation of sectors with the highest potential to enhance the circular economy was based on an analysis of their economic contribution, environmental and human health impacts, as well as challenges and opportunities related to circular economy in each sector. Thus, the sectors selected are:

- Agriculture and forestry;
- Automotive sector;
- Construction;
- Food and beverages;
- Packaging (combining glass, paper, plastics, wood and metal);
- Textiles;
- EEE and batteries.

[6] https://legislatie.just.ro/Public/DetaliiDocument/259668

This selection of sectors is in line with the results of the analysis performed by the World Bank[7] which reveals that EEE, food and beverages and automotives are the sectors with the highest potential for circularity in Romania. However, the present CEAP is extending on this by including four other economic sectors as presented above. Of all the sectors presented in this CEAP, the food sector, agriculture and forestry, textiles and construction and demolition (waste), together with the heavy industry, were identified as priority sectors for CE transition by a diagnostic analysis performed by the World Bank.[8] This identification was based on the specificities of the products and their value chains, on their environmental impact, particularly with respect to waste generation, and on their dependency on raw materials from outside Europe.

Additionally, the CEAP also proposes measures for the general cross-sectoral level, as well as waste and water sectors that are of relevance for the entire Romanian economy and society, and could contribute to furthering the circular model across all sectors. Finally, the CEAP also considers how other sectors mentioned in the Strategy interconnect with the actions proposed.

Some of the actions proposed in this Action Plan, particularly those that entail the building or modernization of physical infrastructure, will have to be implemented without negatively affecting the biodiversity, natural ecosystems, or the protected areas in Romania. For example, new infrastructure should be built in areas that are already dedicated for construction and do not require alteration of the landscape. Other actions, such as regulatory or R&D&I actions, could also have indirect implications on natural ecosystems and they must, therefore, be undertaken in such a way as to avoid any negative impacts. Hence, all projects related to the actions proposed in this plan should be accompanied by a careful environmental assessment and should respect the Do-No-Significant-Harm (DNSH) principle.[9]

1.3 Methodology and Definitions

The CEAP of Romania has been developed through a sequential methodology including three main steps. The first step entailed the prioritization of sectors for the CEAP to focus on, based on the CES of Romania. During the second step, for each priority sector we proposed approximately 10-15 actions to promote circular economy, based on comprehensive desk research. Finally, the third step consisted of the prioritization of 5 to 6 actions per sector based on the following criteria:

- Implementation feasibility in the short to medium term;
- Urgency and potential to accelerate circular economy;
- Relevance for the compliance with the EU legislation and achieving the targets;
- Existence of best practices in other EU MS; and
- Funding availability.

Following the suggestion of the Ministry of Environment, Waters and Forests (MEWF) the prioritization also considered impact on human health, the environment and compatibility with existing environmental laws and policies. The list of priority actions was consulted upon and empirically

[7] The World Bank Group (2022), "Squaring the Circle: Policies from Europe's Circular Economy Transition"
[8] World Bank (2023): "Diagnostic Analysis for Circular Economy Interventions in Romania": https://documents1.worldbank.org/curated/en/099231501302323614/pdf/P17459604d612e0790a5ea028ec22975b1a.pdf
[9] "'do no significant harm' means not supporting or carrying out economic activities that do significant harm to any environmental objective, where relevant, within the meaning of Article 17 of Regulation (EU) 2020/852." (https://knowledge4policy.ec.europa.eu/glossary-item/do-no-significant-harm_en)

validated through a series of interviews carried out with representatives of business associations, economic entities, non-governmental organisations (NGOs), and public authorities. We conducted approximately 60 interviews, with at least 5 interviews per sector. The list of stakeholders was compiled together with the beneficiary organizations, informed by great familiarity with the domestic context.

Thus, the CEAP provides for cross-cutting issues and each sectoral area:

- List of actions to be implemented,
- Detailed descriptions of the priority actions, including examples of good practices,
- Institutions responsible for and expected to take part in implementation,
- Information on possible funding sources.
- Implementation periods and stages, and
- Performance indicators.

These are intended to complement the vision, high-level objectives, and directions, introduced in the CES and reiterated in the CEAP. In addition, we also provide high-level introduction of an overall implementation strategy of the CEAP, and an analysis of the possible risks that might emerge during the process.

1.4 Reading Guide

The structure of CEAP follows the requirements prescribed by Governmental Decision 379/2022 for the development, implementation, monitoring, evaluation and updating of government strategies.

This CEAP is structured as follows:

- **The context of the circular economy in Romania, introduced in Chapter 2,** provides an overview of the current state of the circular economy in Romania, of the policy landscape and its gaps.
- **Chapter 3 presents the vision and mission of the CEAP**, building on the high-level objectives and policy directions developed in the CES of Romania.
- **Chapter 4** provides a shorter high-level overview of **objectives and actions per priority sector**, including the context and rationale behind them, links to high-level objectives and policy directions from the Strategy. One priority action is often linked to more than one high-level objective.
- We then overview some of the key **elements that will enable the implementation** of the CEAP in Chapter 5, that includes a discussion about expected funding opportunities, the governance framework and monitoring and evaluation plan put in place to ensure adequate implementation.
- We conclude with a brief **analysis of the main risks** that might hinder implementation, with a focus on ineffectiveness, absence of sufficient funding, lack of political will, governance failure, and slow change in consumer behavior.

Additionally, for those who would like to acquire a better and deeper understanding of the priority actions proposed by the CEAP, we also provide:

- A more detailed description of each action in Annex A, that also specifies the entities responsible for or involved in implementation, time horizon and funding opportunities for implementation.

- Good practices associated with the priority actions, either in Romania or in other MS, presented in Annex B, to inspire and/or better illustrate the forms they can take in practice.
- Set of potential performance indicators that could be used to track and assess the extent of progress or lack thereof, in Annex C.

2. The Context of Circular Economy in Romania

2.1 Current State of the Circular Model in Romania

Despite some regulatory progress in the past decade,[10] the Romanian economy is still at the beginning of the transition from a linear economic model to a circular one.[11] Romania's economic growth is not yet decoupled from waste generation[12], and waste management lags significantly behind the EU average, as reliance on landfills, and often illegal dumping, is still the dominant form of waste management.

As a result, Romania's performance in circular economic indicators, such as resource productivity, eco-innovation, waste generation per Gross Domestic Product (GDP), waste treatment and the use of recycled materials in the economy, is below the average of EU MS.[13] The data collected through the Special Eurobarometer 501: Attitudes of European citizens towards the Environment (2019)[14] also points to a low level of involvement, below the EU average, of Romanian citizens in circular economy activities such as buying second-hand products, commissioning product repair, avoiding single-use plastics and packaging, or choosing products produced locally and/or with an environmental label. The same survey reveals that Romanian citizens have the lowest support among all EU citizens to "change the way we consume", that constitutes the most effective way of tackling environmental problems. On a more positive note, Romania has one of the lowest and declining waste generation per domestic material consumption (DMC) among EU countries and has favourable prospects for improving the country's performance in adopting circular economy practices.

Romania must make further improvements across all aspects of the circular economy transition, from achieving higher resource efficiency and increasing the use of secondary materials in production to preventing waste generation and adopting more environmentally friendly waste management methods.

To achieve progress in these regards and address some persistent concerns, in the 2022 Environmental Implementation Review (EIR),[15] the European Commission encouraged Romania to strengthen the policy framework, particularly through the CES and the current CEAP; continue to develop policies in strategic directions; adopt an integrated approach towards mainstreaming sustainable development, circular economy, eco-design and eco-innovation across all policies; and to adopt measures to increase the circular material use rate.[16] Furthermore, the EIR also recommends Romania to take bolder actions in the realm of waste management, particularly with respect to the closure and rehabilitation of substandard landfills; alignment of its waste management plans with the Waste Framework Directive, improving and extending the separate collection of waste, supporting separate collection and recycling

[10] See for example, the National Strategy for Sustainable Development, the recently adopted Strategy for Circular Economy, Government Ordinance 27/2022
[11] The reader is referred to the accompanying document, i.e. the "Circular Economy Strategy" for more data and information regarding the circular economy indicators in Romania.
[12] https://ec.europa.eu/info/publications/2022-european-semester-country-reports_en
[13] Source: https://ec.europa.eu/eurostat/databrowser/view/ENV_AC_CUR__custom_1598253/default/table?lang=en. Also, the reader is referred to the strategy accompanying this action plan.
[14] https://europa.eu/eurobarometer/surveys/detail/2257
[15] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=comnat%3ASWD_2022_0271_FIN
[16] The circular material use (CMU) rate measures the share of material recovered and fed back into the economy in overall material use.

at the municipal levels; and improvements in the functionality of the extended producer responsibility (EPR) system.

2.2 The policy Landscape and its Gaps

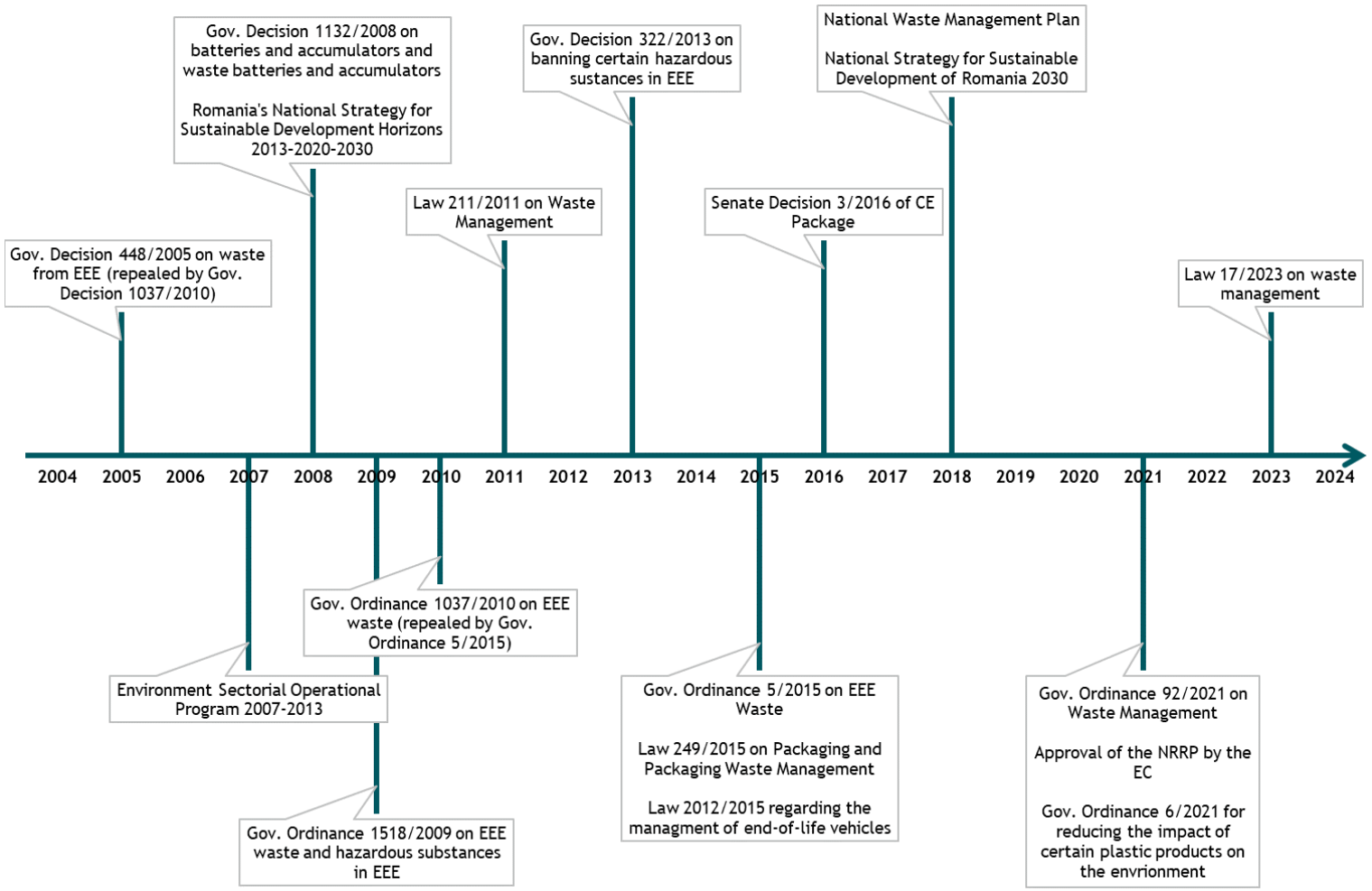
Since joining the EU in 2007, Romania has made considerable progress regarding its overall legal and regulatory framework, by transposing EU regulations and directives, adopting national laws, regulations, and policies, and elaborating various strategies and plans. Despite this significant progress, the legal and policy landscape in Romania continues to have a series of major gaps that hinder the transition towards circular economy.[17] The transposition and application of EU laws (regulations, directives, decisions) relevant for the promotion of circularity are often inadequate or untimely. Romania has faced 169 cases of infringement on the application of EU environmental law since joining in 2007, with 81 still active to this day, including in CE relevant areas such as waste and wastewater.[18]

An overview of the key aspects and timeline of environmental policy of relevance to circular economy in Romania is presented in Figure 2-1. These policies support directly or indirectly the development of a circular economy model in Romania. Some of the most recent and relevant of these are detailed in the Annex to the CES.[19] Most of the existing national regulations and policy initiatives related to CE principles are concerned with waste management, meaning that they only address the end-of-life phase of products. The design phase of products is little to completely unregulated and strategies for the reuse and repurposing of products that reach their end of life are missing. However, a few exceptions exist. For example, the Governmental Ordinance 92/2021 establishes a waste hierarchy in which dumping is on the last place, thus encouraging prevention, reuse, and recycling. Next, Law 2012/2015 with its modification from 2020 regarding the management of vehicles at their end of life requires, at its Art. 3b, that the new vehicles must be designed with the view of dismantling for the reuse and recycling of the component parts. In addition, Art. 3c requires the integration of recycled materials (secondary raw materials) in the production of new vehicles and parts. However, these requirements are vague, and no specific figures are attached to them. Romania therefore must take further steps towards putting in place a comprehensive and coherent regulatory framework that addresses the whole lifecycle of products.

Another gap that has been outlined in the discussions with the stakeholders, in particular industry stakeholders, is that many regulations, including those meant to contribute to protecting the environment, lack a clear methodology for implementation and effective enforcement. The lack of a clear methodology makes it difficult for the industry to comply, thus jeopardising the overall goal of the regulations.

[17] This was also outlined by other reports on the circular economy potential of Romania, as for example by the World Bank: https://documents.banquemondiale.org/fr/publication/documents-reports/documentdetail/099231501302323614/p17459604d612e0790a5ea028ec22975b1a, and the European Institute of Romania: http://ier.gov.ro/wp-content/uploads/2019/03/Final_Studiul-3_Spos-2018_Economie-circular%C4%83-1.pdf.
[18] https://ec.europa.eu/atwork/applying-eu-law/infringements-proceedings/infringement_decisions/?lang_code=en
[19] https://legislatie.just.ro/Public/DetaliiDocumentAfis/259854

Figure 2-1: Timeline of circular economy relevant environmental policy in Romania



Source: own figure with information from the Official Monitor.[20]

[20] The sources of the information contained are various editions of the Official Monitor: https://monitoruloficial.ro/

3. Vision and Mission

3.1 Vision

As stated in the CES as well, Romania's vision is to create a stable pathway to prosperity for the whole of society through economic growth that ensures a sustainable environment for future generations.

3.2 High-level Objectives

This vision is linked to the overarching objective of the strategy to decouple the economic development from environmental degradation, which is in line with the global Sustainable Development Goals (SDGs), principles and targets of the EU Green Deal, and the objectives of the EU CEAP. At the national level, elements of the transition to a circular economy in Romania are also envisaged by the Romanian Strategy for Sustainable Development 2030 and components of the Romanian National Recovery and Resilience Plan (NRRP).[21]

In alignment with several relevant national strategies to promote more sustainable, green and just Romania,[22] the following high-level objectives were defined by the CES:

- Prioritization of local production over imported products and materials;
- Strengthening of economic competitiveness and labour;
- Responsible and sustainable sourcing of raw materials;
- Promotion of innovation and research in circular economy;
- Preservation, conservation and sustainable use of natural resources;
- Prevention of waste generation and sustainable waste management;
- Promotion of responsible consumption and environmental education;
- Protection of ecosystems and of the health of citizens.

3.3 Policy Directions

Based on the high-level objectives, five policy directions were derived in the CES that should be pursued through policy-making to advance circular economy in Romania. These refer to:

- decreasing consumption of virgin raw materials through more sustainable raw material extraction, recycling and recovery activities;
- decreasing consumption of consumer goods by extending products' lifetime;
- decreasing the negative impacts on ecosystems resulting from production activities;
- decreasing the negative impacts on ecosystems caused through waste and water management related activities;
- improving policy and governance coherence, communication and collaboration across local, regional and national levels.

[21] https://gov.ro/fisiere/stiri_fisiere/Annex_to_the__Proposal_for_a_Council_Implementig_Decision.pdf
[22] National Sustainable Development Strategy 2013-2020-2030, Romania's Sustainable Development Strategy 2030, National Waste Management Plan (2018) as well as the Circular Economy Strategy adopted in 2022.

3.4 Mission

The mission of the CEAP for Romania is to inform private and public stakeholders, as well as the public in general about short, medium and long-term actions, and about their role during implementation. Collaboration is a key factor enabling the successful implementation of these measures, thereby ensuring sustainable and inclusive economic growth.

4. Objectives and Actions per Priority Sector

4.1 Cross-Cutting Actions

Context

The transition towards a more circular economy requires systemic transformation, particularly with respect to industrial processes and economic activities, to reduce resource use and enable those already in the economy to maintain the highest value for as long as possible. Achieving this transformation requires urgent and dramatic changes in cross-cutting policy areas, particularly in the realms of education and training; research, development, and innovation; digitalisation; and procurement. Changes across these areas will facilitate transition towards circularity across all economic sectors.

Public **awareness of and familiarity with the principles of** circular economy are still relatively limited in Romania. The Eurobarometer surveys indicate that Romanian citizens are not very aware of or engaged with actions that facilitate the transition towards a circular economy.[23] The Romanian government has already taken measures to improve the environmental education of its citizens. For instance, in January of 2022, it amended its National Education Law (nr. 1/2011) to stipulate the development of a National Environmental and Climate Change Education Strategy by the Ministry of Education.[24] The Strategy for 2023-2030 has already been developed and adopted through Governmental Ordinance in January 2023. [25] The Strategy will be transposed into the educational curricula starting with academic year 2023-2024.[26] The government has also launched public awareness campaigns, citizen involvement projects[27] and other initiatives to promote environmental sustainability.[28] Changing mindsets and putting an end to non-circular behaviour, however, is a difficult and long process, that requires continued and broadened efforts. This is an area where non-governmental actors could also take a more active role.

Circularity is expected to have a positive net effect on job creation, but only as long as workers acquire the **skills and competences** required by the green transition. Employment levels in circular economy related sectors, such as recycling, repair and reuse sectors in Romania are still relatively low, at 1.55 percent of total employment, compared to 1.76 percent of EU average or over 2 percent in other

[23] https://data.europa.eu/data/datasets/s2257_92_4_501_eng?locale=en
[24] https://edu.ro/sites/default/files/_fi%C8%99iere/Legislatie/2022/LEN_2011_actualizata_2022.pdf
[25] https://monitoruloficial.ro/Monitorul-Oficial--PI--71Bis--2023.html
[26] https://edu.ro/sites/default/files/_fi%C8%99iere/Legislatie/2022/LEN_2011_actualizata_2022.pdf. Further details are provided in Annex C, under good practices for educational and training activities.
[27] As for example, the National Clean Romania Campaign that involved over 50,000 volunteers involved, 30,000 employees from the local offices and local authorities contributed to the campaign, 1 million kg of waste collected from different areas of the country.
[28] As for example, the latest campaign, launched on 29 November this year, entitled "RECYCLE IN ROMANIA" https://reciclaminromania.ro/ (http://www.mmediu.ro/articol/ministrul-barna-tanczos-a-lansat-astazi-campania-de-informare-si-constientizare-reciclam-in-romania/5776)

Central and Eastern European countries such as Poland, Croatia and the Baltic states.[29] Vocational education and training (VET) could play a crucial role in driving the uptake of circular strategies and practices, as part of large scale and lifelong up- and reskilling strategy. Recent studies point towards the importance of developing both transversal skills, such as green and digital literacy and problem solving; as well as more specialised skills to innovate product design and manufacturing, enable repair and reuse across sectors, and to adopt circular supply and waste management solutions.[30]

Romania also has a relatively low per-capita rate of eco-innovation patents, related to recycling and/or use of secondary materials.[31] **Research, development, and innovation (R&D&I) support measures**[32] could play an important role in enabling innovative solutions, particularly with respect to novel materials and products, substitution and elimination of hazardous substances, circular business models, new production and recycling technologies, indicator development and data collection, etc.[33] Such measures could not only encourage existing actors to engage in innovation activities, but could also attract new investors in the R&D&I field. The National Plan for Research and Innovation of Romania for 2022-2027, with funding from the national budget of up to 60 billion RON, does not currently have a framework dedicated to funding for environmental issues.[34] However, the pursuit of R&D&I in the realm of circular economy could be integrated under some of the programmes, particularly those seeking to address key societal challenge or even the ones promoting the strategic interests of Romania. The plan also includes measures to encourage participation in EU-funded R&D&I programmes, that could enhance the capacity of domestic research organisations, public and private entities to access EU funds to conduct R&D&I in circular economy.

Advancement in **digitalisation** is particularly important for the transition towards circular economy.[35] Digital technologies, for example, can track the journeys of products, components, and materials to facilitate the development of new business models that shift the emphasis from value-in-transaction to value-in-use.[36] They also allow businesses to run more efficiently, reduce waste, extend the product life cycle, and lower transaction costs. Digital platforms can facilitate data flows, collaboration and sharing schemes[37] within multi-stakeholder ecosystems, enabling the accumulation of collective knowledge and diffusion of circular economy business models. Despite some efforts by the government to promote the digitalisation of environmental data and information and facilitate its availability to the public through

[29] https://ec.europa.eu/eurostat/databrowser/view/CEI_CIE010__custom_3887884/default/table?lang=en
[30] https://www.circle-economy.com/resources/closing-the-skills-gap-vocational-education-and-training-for-the-circular-economy and https://www.cedefop.europa.eu/files/4206_en.pdf
[31] The Eco-innovation index is a composite indicator obtained by taking an unweighted average of the 16 indicators divided into five thematic areas: eco-innovation inputs, eco-innovation activities, eco-innovation outputs, resource efficiency outcomes and socio-economic outcomes. https://green-business.ec.europa.eu/eco-innovation_en#country-profiles
[32] For example in the form of private-public partnerships between the state and the industry or by creating the necessary framework to allow the private actors to innovate – e.g. through tax reductions in the R&D sector.
[33] https://environment.ec.europa.eu/strategy/circular-economy-action-plan_en
[34] https://www.research.gov.ro/ro/articol/5996/programe-br-na-ionale-planul-na-ional-de-cercetare-dezvoltare-i-inovare-2022-2027
[35] https://www.weforum.org/agenda/2022/08/why-a-global-circular-economy-requires-a-digital-business-ecosystem/
[36] This refers to a shift in business models from a focus on profit maximization through minimization of costs and prices to capture transactions, to a greater emphasis on new forms of capturing value, as for example through improving resource efficiency, designing for durability and/or modularity, reselling used and/or repaired products, or adopting pay-per-use delivery, etc. This shift is discussed in many reports and studies on the circular economy, see this link as an example: https://ramboll.com/ingenuity/capturing-value-in-the-circular-economy
[37] A sharing scheme is a model of sustainable consumption in which two or more consumers co-own or rent a good and use it at alternate times, thus allowing temporary access to under-utilized or idle goods. More about how these schemes work, their advantages and examples can be found in the Strategy for Circular Economy, which is the accompanying document to this Action Plan.

digital platforms, there is still much more that needs to be done in this regard, to address some important circular economy data gaps and facilitate alignment with national and EU objectives.[38]

The prospects of digitalisation to contribute to circular economy, however, are to a great extent also contingent on the digital literacy of societies.[39] Notwithstanding Romania's ambitions to develop the digital skills of its citizens and labour force, as part of its Strategy for the Digital Agenda,[40] the country has very low rates of digital literacy. In 2021, Romania had the lowest (at 28 percent) and declining share of people aged 16 to 74 who had at least basic overall IT&C skills among all EU countries.[41] This is significantly below the EU goal of 80 percent of all EU citizens by 2030, set through its Digital Decade policy programme.[42]

Public and private entities can also play an important role in the transition towards circular economy by embracing and promoting **circular procurement (CP)**. Public authorities can lead the way in this direction, especially since the purchasing power of public authorities is around 14 percent of GDP at the EU level and was estimated at approximately 19 percent in Romania.[43] Circular public procurement is an approach to greening public procurement which recognises the role that public authorities can play in supporting the transition towards a circular economy[44]. Public authorities in Romania can therefore play an important role in increasing demand and providing market opportunities for the economic entities acting in the domain of circular economy. They can do so by prioritising the purchase of works, products and services that contribute to closed energy and material loops, while minimising negative environmental impacts and waste creation.[45] CP implementation models can even extend to the identification and evaluation of materials used in products, to evaluate their toxicity, use of secondary materials, recyclability etc.

Romania already has some of the legal and policy infrastructure in place to integrate environmental criteria into its purchasing practices. This includes the Green Procurement Act (Law nr.69/2016) that constitutes the foundation for the institutionalization of green public procurement (GPP) in Romania. With some delay, this law was complemented by the Guideline for GPP, adopted in 2018, that ought to facilitate the implementation of GPP in Romania. The Guidelines recommend minimum environmental requirements for six categories of goods and services considered a priority at national level.[46] These include copy and graph paper; new indoor and outdoor furniture, refurbishment/reconditioning services and collection/reuse services for end-of-life furniture, food and catering services, transport vehicles, cleaning products and services, and IT equipment. The uptake of these principles in practice has, however, been relatively low thus far,[47] but efforts have been launched to adopt a national GPP strategy and monitoring framework to improve the situation.[48]

[38] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=comnat%3ASWD_2022_0271_FIN
[39] https://www.csis.org/analysis/digital-literacy-imperative
[40] https://digital-skills-jobs.europa.eu/en/actions/national-initiatives/national-strategies/romania-strategy-digital-agenda-romania-2020
[41] https://ec.europa.eu/eurostat/en/web/products-eurostat-news/-/ddn-20220330-1
[42] https://digital-strategy.ec.europa.eu/en/policies/europes-digital-decade
[43] https://www.onvlaw.ro/wp-content/uploads/2021/06/1ST-NATIONAL-STUDY-ON-GREEN-PUBLIC-PROCUREMENT-IN-ROMANIA.pdf
[44] https://ec.europa.eu/environment/gpp/pdf/Public_procurement_circular_economy_brochure.pdf
[45] https://ec.europa.eu/environment/gpp/pdf/Public_procurement_circular_economy_brochure.pdf
[46] https://anap.gov.ro/web/wp-content/uploads/2018/11/ORDIN-Nr-1068-Achizitii-verzi.pdf
[47] https://www.onvlaw.ro/wp-content/uploads/2021/06/1ST-NATIONAL-STUDY-ON-GREEN-PUBLIC-PROCUREMENT-IN-ROMANIA.pdf
[48] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=comnat%3ASWD_2022_0271_FIN

Objectives and Actions

Priority actions

Table 4-1: Objectives and priority actions for cross-cutting issues

High-level objectives	Specific objectives	Priority Actions
Strengthening of economic competitiveness and the workforce	Promotion of circular economy skills and competences	Integration of circular economy principles and competences in educational and professional training programs, based on skill gap assessments. Enhancement of the capacity of the public sector to implement the CES&AP, and facilitate transition towards circular economy.[49]
Responsible and sustainable sourcing Promotion of responsible consumption and environmental education	Mainstreaming of circular economy thinking and approaches	Integration of circularity criteria in public purchasing and facilitation of its uptake. Development of a digital platform to track and communicate about circular economy action implementation, performance indicators and other relevant information.[50]
Promotion of innovation and research in the circular economy as a priority	Provision of R&D&I support targeted towards the application of circular economy practices	Facilitation of R&D&I funding for circular economy practices and technologies, with emphasis on digitalization. Expansion of public financial support for circular economy projects to the private sector, targeted towards the implementation of action plans and with an emphasis on digital solutions.

Other actions

Circular economy Education, Training and Public Awareness

- Facilitation of circular economy-oriented programmes and labs, particularly in higher education institutions.
- Promotion of collaborations between industry and educational training institutions to introduce circular economy specific training programmes, considering the development of dual secondary and tertiary education across the country.
- Facilitating access to funding for clusters to stimulate innovation and applied research related to the promotion of circular economy.
- Launch and/or support for public awareness campaigns to address the gravity of non-circular problems (eg. littering; high consumption rates and inadequate disposal of plastic; etc) and to promote more sustainable practices in Romania (separate waste collection for recycling;

[49] To be addressed in the Governance Framework of the AP.
[50] To be addressed in the Monitoring and Evaluation section of the AP.

composting of biowaste; reduction of waste; reduced and adequate disposal of WEE, batteries and accumulators, plastics, textiles, and furniture, etc).
- Supporting the development of social enterprises working in the field of the circular economy, that also promote the labour market integration of vulnerable groups of people, through qualification in repairs and refurbishments.
- Provision of guidance and training on EU initiatives such as Sustainable Product Initiative and Sustainable Finance Package (EU Taxonomy, Corporate Sustainable Reporting Directive, etc).

Research, Development, and Innovation (R&D&I)

- Promotion of knowledge transfer across entities, through the creation of collaborative physical and/or virtual spaces for sharing knowledge.
- Provision of fiscal advantages (e.g. tax deductions for profit, reduction in labour tax) for the private entities that engage in R&D&I activities in the circular economy field.

Digitalization

- Promotion of digitalisation of the Coordination Committee for the Circular Economy of Romania and of all public authorities and entities involved in the implementation of the CES&AP.
- Intensification of efforts towards the promotion of digital literacy among the workforce and general populations.

Green/Circular Procurement

- Updating and extension of the G/CPP guide to include more categories of products and materials.
- Encouragement for the uptake of Green/Circular Public Procurement (G/CPP) by the private sectors.
- Promulgation of G/CPP best practices and provision of guidelines, manuals, training to the private sector.

4.2 Agriculture and Forestry

Context

Agriculture plays a major role in the economic context of Romania. The need for circularity development in agriculture derives from the fact that this sector remains an important activity in rural areas and it makes a significant contribution to the national economy. The agricultural sector includes crops, livestock production, forestry, and fishing. Important factors influencing the agricultural sector include the desire to promote sustainable development, climate change, food security; the lack of highly qualified and educated workforce; and the high level of expenditures associated with agricultural activities.

Romania needs agricultural innovation to support the resource base and communities, and to encourage the cooperation and the solidarity of the farmers. According to Eurostat, in 2016, 72% of farmers worked 12% of Romania's total agricultural area, which means a very high number of farms with areas under 2 ha, while, at the opposite pole, 0.4% of farmers work 48% of the agricultural area, which means a small number of farms with an area over 100 ha. This data reveals that the number of small farmers is still very high in Romania. The same Eurostat source (2016) also confirms that the education level of farmers is very low. 96% of farmers are farming only based on practical experience, while only 3% have medium specialized education and only 0.4% have university education. Additionally, the economic context of

agriculture faces difficulties, as the sector is characterized by intense competition, high production costs, exposure to the negative effects of climate change, deficient infrastructure etc.

Over the course of the stakeholder interviews, it became clear that most of the stakeholders acknowledged the need for and importance of applying **sustainable agriculture practices**. They for, example, emphasized the importance of ensuring the maintenance and improvement of soil quality, through sustainable practices, as soil plays a critical role in sustainable food production and circular bioeconomy. Sustainable agriculture practices also entail preservation and protection of natural resources, preservation of biodiversity, maintenance of the production potential over a long-time span, ensuring profitability for farmers, providing high-quality food on the market, and promotion social and human equity standards. Sustainable agriculture thus requires economically viable technologies over a long-time span that ensure high-quality and profitable production with the lowest impact on the natural resources.

Forestry, and the closely inter-linked wood industry, also have major economic & energetic impact in Romania, with significant benefits on Romanian and EU efforts to tackle climate change as well. The wood industry contributes to 3,5% of Romania's GDP, employs directly about 142,000 people and plays an important role in the local economies of several rural and some smaller urban settlements.[51] Wood extraction also contributed to the energy security of 3,5 million households and contributes to 62% of the renewable energy produced by Romania.

The growth of the wood industry (including forestry, sawmills, combined woodworking, furniture, technical and sporting goods, musical instruments, paper industry and paper and cardboard packaging)[52] might lead to significant water consumption, generation of wastewater and generation of wood waste in significant quantities. The recirculation of technological waters, the use of wastewater, and the management of green mass and wood waste in energy cogeneration plants or compost systems are essential for the circular economy transition of the sector.

The potential of **using biomass waste as a resource** is one of the most important actions that should be considered. Depending on the geographic area and the source of the biomass waste, it can either be used to create compost, when biowaste is treated by aerobic fermentation (i.e. in the presence of oxygen), or to create a combination of biogas (made of methane and carbon dioxide, and hence a fuel suitable for combustion) and of the resulting 'digestate', a natural fertilizer, when biowaste is treated by anaerobic fermentation (i.e. in the absence of oxygen).

Another aspect that requires attention is related to **the improvement of water and wastewater management**. The agricultural sector has a shortage of irrigation water due to climate change, desertification and unsustainable farming practices combined with inefficiencies caused by the primary irrigation system, which is being rehabilitated. An opportunity in this context comes from the wastewater that could be purified, treated, and reused in agriculture and forestry (nurseries), with respect for all health protection regulation. The sludge from the wastewater treatment processes can also be used either as a fertilizer, as additional raw material in biogas plants or dry and recovered both energy-wise, through its organic content, and material-wise, through recycling, via co-processing in the cement industry.

[51] http://www.pro-lemn.ro/studiu-incds-prolemn/
[52] http://www.mmediu.ro/categorie/starea-padurilor/209

During the interviews, stakeholders also emphasized the **importance of public investments** in agricultural research and development (R&D), raising awareness and education, and in improving and expanding the existing infrastructure, particularly with respect to the irrigation system, integrated waste management system (IWMS), wastewater treatment, composting, biogas and hydrogen plants.

Facilitating investments in the private agricultural sector (through EU funds, public/private funds etc) can contribute to the improvement of the entire sectoral performance with broader benefits for the Romanian society. This should be channelled towards encouraging the adoption of new technological equipment, improving irrigation systems, increasing the income of producers and farmers, increasing the number of products available on the national market, lowering prices for food etc. Most of the stakeholders interviewed underpinned the importance of encouraging the establishment of farmers associations that can then ensure that the investments benefit a larger group of small farmers.

The measures to be adopted should not only focus on agricultural production, technology, but consider the development potentials of rural areas as a whole, by providing support, consultancy and assistance regarding the development of sustainable agricultural activities/practices. To address the labour/skill shortage in this sector, educational and training institutions should offer more specialized courses and programs to build the necessary interest and skills, particularly among young people. Investing in their skills would also ensure that they can engage in economically efficient production, be competitive and acquire financially sustainable livelihoods.

Finally, most of the interviewed stakeholders also claimed that there is a need to harmonise the legislation in the field, to complete it with implementing rules, to eliminate ambiguities or inconsistencies and overlaying of different normative acts.

Objectives and Actions

Priority actions

Table 4-2: Objective and actions agriculture and forestry sector

High level objective	Specific objective	Priority actions
Prevention of waste generation and sustainable waste management	Replacing chemical fertilizers with bio-based alternatives Decreasing the percentage of fossil fuels for energy and material production Reducing freshwater consumption and avoiding soil degradation (desertification)	Increasing the use of biomass waste from agricultural and forestry activities and urban sewage sludge for energy and cement production, and bio-fertilisers. Promotion of the use of wastewater in agricultural irrigation and provision of guidance on its application through fertigation methods, respecting minimum EU requirements for water quality.
Preservation, conservation, and sustainable use of natural resources Protection of the ecosystem and health of the citizens	Applying agricultural principles with minimal environmental impact and producing quality food for the long term	Promotion of sustainable farming methods that conserve and regenerate the natural fertility of soils and ensure the protection and restoration of ecosystems.

Strengthen economic competitiveness and labour Prioritise local production over imported products and materials	Increase the quality and quantity of local, sustainable products Increase sustainable local productivity at low long-term costs	Supporting farmers and foresters by facilitating access to specialised markets, by providing access to technologies and education, among other measures. Adjusting financing instruments to facilitate farmers' and foresters' access to finance.

Other actions

Legal actions/policies

- Regulation of cascading use of biomass.
- Issuance of implementing rules for compost legislation.
- Harmonization of the legislative framework on the use of biomass waste and wastewater and sludge in agriculture.
- Encouraging agricultural production that entails higher value added and places greater emphasis on quality standards.
- Encouraging the use of compost in agricultural production, both organic and non-organic.
- Facilitating the development of certified organic social farms and increasing organic farmland.
- Encouraging the application of carbon sequestration methods by farmers and foresters.
- Promotion of associations of farmers in organizations with technical, economic and support role.

Infrastructure actions

- Investments in the development of wastewater reuse infrastructure.
- Extending and facilitating access to composting facilities, with the support of local public authorities.
- Development of urban gardens to encourage the participation of the population in the greening of localities.
- Development of the network of laboratories and certification bodies for compost and other types of products.

Support schemes

- Provision of subsidies for the development and implementation of best practices.
- Supporting the development of pilot composting projects at local levels in public-private partnership, and of composting by farmers.
- Providing financial and/or technical support to organic social farms.
- Promoting and facilitating access to technologies for digitization.

Training, education and awareness raising activities

- Provide training in and increase awareness around the importance of sustainable farming methods that conserve and regenerate the natural **fertility of soils** and ensure the protection and **restoration of ecosystems**, e.g. through agroforestry, organic farming, permaculture, no tillage, fertigation, rotation of crops, permanent soil coverage / mulching, etc.
- Promote technical knowledge regarding the use of biobased solutions to **improve soil resources** by recovering valuable nutrients from bio-waste (food waste, manure, urban sewage sludge,

municipal waste, etc.) and adapting them for re-use in agriculture, in order to reduce the dependence on chemical and imported nutrients.

- Promote education and training on compost collection and use.

4.3 Automotive sector

Context

The automotive sector is **one of the most important manufacturing sectors** in the Romanian economy, with a 14% contribution to GDP and a 26% contribution to the country's exports. The country hosts two producers of vehicles, Dacia-Renault and Ford, together with a national network of producers and suppliers of components (engines, car electronics, suspensions, seats, wiring, airbags, seat belts, gearboxes, radiators, bearings, plastic parts etc.) and of facilities engaged in assembly.

Additionally, Romania is **a major importer of used cars**. Every year, a considerable number of used cars enter Romania, primarily from other EU member states, such that 45% of the cars registered in Romania are older than 16 years. This means that Romania has to deal with a considerable amount of complex waste resulting from scrapped end-of-life vehicles (ELV). The existing dismantling centres, though numerous, are not equipped with the know-how and technology to recover as much of the components and materials as would be possible with state-of-the-art technology, that is for example used in other countries such as Germany, Austria, France, or Japan.

In Romania, the **cars that reach their end of life** arrive either in the auto disassembling centres or in the so-called Remat (ro: Reciclare Materiale)[53] recycling centres. In the disassembling centres, priority is given to those parts that can be disassembled and sold as spare parts on the second-hand market. The auto-vehicles scrapped through the Rabla programme[54] typically end up in the Remat centres (where they are either crushed and exported as such or shredded. After shredding, the metals are separated from non-metals for recycling. However, only metals usually end up being recycled. Other materials such as plastics, textiles, or glass, which are often mixed and are not easy to separate, generally end up in incinerators.[55]

In order to steer towards circular economy practices and reduce the generation of end-of-life vehicles (ELVs), the auto industry has to carefully consider two major questions: (1) how to design vehicles that are ready for circular economy and (2) how to valorise the materials recovered from ELVs. Over the last five to six years some concerns and actions regarding the decarbonization of the sector have become more prominent, also facilitated by the goals set at the EU level. These include regulations set to ensure that ELVs are managed sustainably, as for example the Directive 2000/53/EC of the European Parliament and of the Council on ELV, with its subsequent amendments[56] and undergoing revisions which are foreseen for adoption by the European Commission in the second quarter of 2023.[57] That latter legislation aims to improve collection, treatment and recycling of ELVs, in consistency with the

[53] Remat is a type of recycling centre of metal and non-metal waste, and it is not exclusively dedicated to dismantling and recycling of auto-vehicles, though this seems to be its main type of activity.
[54] It is a program that stimulates the renewal of the auto fleet of the country, by offering financial support for buying a new vehicle in exchange for scrapping the old one. The program has started in 2005 and it is financed by the Environmental Fund Administration: https://www.afm.ro/rabla_autovehicule.php and https://www.afm.ro/vehicule_electrice.php.
[55] See, for example, here: https://www.castecoinvest.ro/reciclare-deseuri-auto/
56 A consolidated versions of this Directive is available here: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A02000L0053-20200306
[57] See the website of the online consultation: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12633-End-of-life-vehicles-revision-of-EU-rules_en

European Green Deal objectives, by encouraging the car industry to adopt a sustainable model for the design and production of cars. Within this context, producers have already developed or are in the process of developing strategies to follow these targets upstream in their supply chain.

Some initiatives, especially regarding the recycling of car parts and components from all types of materials at the end of life or concerning the design made for dismantling are still lagging in concrete terms, though some intentions are noticeable. Moreover, public policies, including initiatives, strategies and documents lack coherence and fail to assign responsibility for their implementation and enforcement in a clear and effective manner. Moreover, the actors in the industry claim that the concrete steps for complying with existing regulations are often poorly defined, and the national and transposed EU regulations often come with unclear methodology for their implementation by the sector.[58]

This Action Plan proposes some concrete steps that must be taken in the short and medium terms, involving both legislation and the creation of incentives for the private sector to take up specific investments that advance the circular economy model in the automotive sector. The actions proposed here must be considered in conjunction with other related strategies and plans, such as the National Strategy for Road Safety approved by Government Decision 682/2022,[59] the Strategy regarding the National Policy Framework for the Development of the Market for Alternative Fuels in the Transportation Sector and for the Construction of the relevant Infrastructure in Romania[60], and the General Master Plan for Transportation in Romania, seeking out opportunities to create complementarities across them, regarding both financing and implementation.[61]

Objectives and Actions

Priority actions

Table 4-3 below presents the proposed priority actions for the automotive sector and their connection with the specific objectives for the sector and the general, high-level objectives of the CES.[62]

Table 4-3: Objective and actions auto sector

High-level objectives	Specific objectives	Action
Promotion of innovation and research in circular economy	Increasing the re-usability and recyclability of the components and materials	Investment in R&D and education: training engineering students and technicians after curricula that includes the principles of CE and the CE-related legal requirements applicable when designing vehicles and parts, including for the design of batteries for electric vehicles; research in solutions for extending the life and the re-purpose of batteries for electric vehicles.
Preservation, conservation and sustainable use of natural resources		Establishment of environment-friendly dismantling activities by creating automated high-tech dismantling centres recovering functional parts and materials, that allow the identification of the component materials and parts and ensure a safe dis-assembly environment.

[58] Conclusion based on the discussions with the stakeholders during the consultation interviews.
[59] https://legislatie.just.ro/Public/DetaliiDocument/255841
[60] http://www.mmediu.ro/app/webroot/uploads/files/Cadrul-National-de-Politica_Combustibilii-Alternativi-in-Sectorul%20Transporturilor%281%29.pdf
[61] https://eurocivica.ro/scrisoare-deschisa-catre-presedintele-parlamentul-si-guvernul-romaniei/
[62] See Government Decision 1172/2022: https://legislatie.just.ro/Public/DetaliiDocument/259668

Strengthening economic competitiveness and labour	Increasing the lifetime of the auto fleet	Training of mechanical workers for working in repair shops able to offer timely preventative maintenance of the country's auto fleet.
Protection of the ecosystem and health of the citizens	Reduction of the negative impact on human health and on nature, increasing at the same time the use of secondary raw materials	Enforcement of Article 31 of the Government Emergency Ordinance 92/2021 which implements an extended producer responsibility (EPR) scheme regarding the treatment of used oil, with relevance for this sector in terms of engine and transmission oils.
Prevention of waste generation and sustainable waste management		Removal of abandoned cars on the public domain by strengthening enforcement of the relevant legislation, i.e. Law 421/2002 with its subsequent modifications, including through stricter fines and tighter deadlines.

Other actions

Infrastructural actions

- Establishment of a strong collaboration between dismantling and shredding centers, on the one hand, and the metallurgical industry, glass and plastic manufacturing and processing plants, on the other hand.
- Ensuring the appropriate technology in the metallurgical, plastic and glass industries to be able to assimilate and recycle end-of-life vehicle parts. This can be done by the re-tooling of steel and iron factories with modern machinery that has the capacity to process the scrap metal resulting from ELVs.

Legal actions/policies

- The revision of Law 212/2015 on end-of-life vehicles (ELVs) and its subsequent revisions, to ensure that the most efficient enforcement mechanisms are in place to enforce it
- The revision of Law 212/2015 on end-of-life vehicles (and its subsequent revision L. nr. 272 / 2020),[63] in particular Art. 3 on product design, in line with the proposals for the revision of the European CEAP and of the upcoming EU Sustainable Product Initiative.

These two revisions will have to be in line with the new proposal of the European Commission, adopted under the European Green Deal, of revising the end-of-life vehicles Directive 2000/53/EC and Directive 2005/64/EC on the type-approval of motor vehicles (REFIT) regarding their reusability, recyclability and recoverability. This revision was expected to be approved by the end of 2022, but it has been postponed until the second quarter of 2023.[64] The proposal will merge the two Directives into a single on[65] that will cover the whole life cycle of the vehicle. The purpose of the new document will be to enhance circularity in this industry by connecting design issues with the end-of-life phase, imposing mandates on the recycled content for certain materials and components of a vehicle. Thus, the legislative revisions proposed above should be completed with celerity once the new Directive is approved by the European Parliament and is accompanied by clear rules of enforcement.

[63] http://86.105.216.122:83/RO_Update/ActID/106546
[64] https://www.europarl.europa.eu/legislative-train/theme-a-european-green-deal/file-revision-of-eu-rules-on-end-of-life-vehicles-and-type-approval-of-motor-vehicles
[65] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12633-End-of-life-vehicles-revision-of-EU-rules_en

Supporting schemes/incentives/legislation

- The state should offer support for the creation and strengthening of a market for used parts through a combination of
    - Legislative measures for re-certifying spare parts for the second-hand market – that would increase the confidence of the end consumer in purchasing and using a recycled spare part and thus creating a demand for used spare parts.
    - Financial support for the creation of businesses that recover, refurbish, and re-certify spare parts resulting from the dismantling of scrapped cars.

Training, education, and awareness raising activities

- Investment in R&D&I in establishing new technologies for dismantling and recycling of ELVs.
- Investment in R&D&I to ensure that Romania participates in the development of environmentally friendly technologies for repurposing and recycling of electrical car batteries in cooperation with the energy sector.
- Elimination of abandoned cars on the public domain by informing the owner, through a letter sent to the address on which the car is registered (based on the registration plate), of the scrapping options the owner has, as early as the enforcer has determined that the car has not been moved.
- Information and awareness campaigns to educate the users of vehicles about the actions that they can take to extend the lifetime of a vehicle, but also about the actions at the end of life of the whole vehicle or of its parts, including used gases and fluids (recycling, reusing, repurposing). Such campaign could be conducted by the Ministry of Transportation through the Romanian Auto Registry.

4.4 Construction

Context

GDP from construction in Romania averaged EUR 378.93 million from 1995 until 2021, making it one among the most impactful sectors, with a contribution to GDP of 9% in 2020. Moreover, according to the report published by the Ministry of Public Finances on 7th of December 2022, Romania will achieve a real GDP growth of 5% by 2025, with the construction sector expected to be responsible for 0.4%[66] of this growth. Data from the National Statistical Institute (NSI) also confirms this upward trend, revealing an overall decrease of capital renovation (-22.6%) and maintenance work (-7.9%), suggesting that new building work is preferred over renovation / maintenance.

Both the NSI and the report from the Ministry of Public Finances also highlight the challenges faced by the construction sector due to inflation. The cost of construction materials increased drastically between November 2020 and 2022, with the prices of concrete steel experiencing an increase of + 72%, of construction piping by + 103%, and of wooden beams by + 51%.67 The price increase is driven mostly by ramping inflation, increasing energy costs and disruptions in supply chains due to the Russian aggression against Ukraine. These developments exert strong pressure on reducing material usage and adopting efficient resource management strategies, so that construction costs could be kept low,

[66] https://mfinante.gov.ro/static/10/Mfp/buget2023/proiectbuget2023/Raportbuget2023.doc
67 https://www.constructiibursa.ro/preturi

enhancing circularity in the sector, as for example through recovering and reusing construction materials.

Construction and demolition waste (CDW), however, still poses one of the most significant challenges to improving circularity in the construction sector. This is due primarily to poor recycling schemes and illegal dumping, that according to interviewed stakeholders, are still widespread in Romania. According to Eurostat, the recovery rate of CDW in Romania was 88% in 2020. The reliability of this data is, however, questionable, considering the lack of accurate data on waste quantities, the absence of a uniform national system for separate collection of CDW, and the deficiency of current regulations regarding materials from recycling.

Within this context, this CEAP proposes several areas that need concerted efforts to bring about improvements. These include (1) driving the demand for circular products and solutions in the construction sector, (2) enabling and increasing recovery of construction materials as goods or raw materials, (3) preventing illegal dumping of construction materials, (4) developing digital infrastructure to support the uptake of circular economy products in construction, and (5) building capacity and knowledge with respect to circular economy solutions in the construction sector.

Three of the above areas of action are cross-sectorial, thus it is important here to highlight possible connections and need for coordination of efforts to implement specific actions. (1) When discussing about enabling mechanisms to increase recovery and re-use of construction materials we must acknowledge that this effort is strongly linked with the waste management sector and as such, there is a need for close coordination to support this action at the national, regional and local levels. Moreover, in some specific cases, such as cement for example, there is a need to evaluate the possible role of waste energy recovery in the production cycle as a mean to decrease landfilling and promote resource retention. This however must be evaluated with consideration of environmental impacts and possible externalities. (2) Prevention of illegal waste dumping is another action that requires involvement of actors from different sectors. While a series of measures can and must be implemented at the construction site (through construction permitting), these must be supplemented by actions taken by enforcement agencies (e.g. police, environmental guard) and waste management actors (e.g. waste management companies, ADIs, local authorities), going beyond the construction sector alone. (3) Capacity building and knowledge acquisition, while should be focused and specific to construction sector, must be also part of a larger commitment at the national level to support future workforce creation with a knowledge of circular economy.

Objectives and Actions

Before diving into the following five priority actions, it is important to take note of the fact that they are not listed according to their importance. In fact, they enable and support each other as well as the corresponding objectives (depicted in the summary table 4.4-1 below). Some, however, might have to be developed first, for the others to rely on it, as indicated by the timeline set for each section in Annex B.

Table 4-4: Objective and actions construction sector

High-level objectives	Specific objectives	Action

Prioritization of local production over imported products and materials	Increasing demand for locally produced circular materials	Driving demand towards circular construction products through incremental implementation of Circular Procurement in the public and private sector.
Responsible and sustainable sourcing of raw materials	Enhancing more sustainable sourcing practices through increased demand	
Practicing resource retention and valorisation	Increasing local retention and valorisation capacity	Increasing and enabling recovery of construction materials through the establishment of a legal framework and infrastructure enabling circulation in the construction sector.
Reducing the generation of waste	Reducing the amount of waste that ends up unmanaged and unvalorized	Prevention of illegal dumping of construction and demolition waste by increasing enforcement and disincentivizing illegal practices.
		Stimulation and facilitation of the uptake of circular construction products through the establishment of a CDW registry and a digital marketplace.
Strengthening economic competitiveness and labour	Increasing capacity and skills of local workforce related to circular construction	Building capacity and skills in existing and future workforce to enable circular economy in the construction sector.

4.5 Food and Beverages

Context

The food and beverages sector includes a variety of major soft drinks and food producers and processors that face several key challenges and opportunities.

One of these key challenges is the need to take effective measures to **reduce food waste both at production and consumption stages**. Currently, there is no accurate data on the exact amount of food waste being produced, or on the valorisation of food that has reached its expiry date and was donated. In general, food waste is insufficiently regulated from the perspective of circularity. Additional legislative initiatives and clarifications are necessary to close the loop, such as composting regulations or initiatives that streamline or improve the implementation of current laws. Combatting waste generated in this sector should also be tackled via infrastructure development at national level, rigorous monitoring, and data collection, ensuring that legislative initiatives are properly implemented.

Since each country has a different culture and, implicitly, consumers have different habits reflected in the waste it produces, assessing Romania's **potential for energy production from waste** is imperative. One study conducted in July 2022 by Guidehouse Netherlands B.V.,[68] assessing the biomethane potential of the EU, found that Romania has the potential to be the 6th largest biomethane producer in

[68] https://www.europeanbiogas.eu/wp-content/uploads/2022/07/GfC_Biomethane-potentials_2022.pdf

EU-27 by 2030, and 7th largest by 2050. Developing composting and biogas production would also incentivise the more effective collection of waste produced by the industry.

Another key challenge related to the **significant amount of packaging used** for the food and beverage products sold on the Romanian market, due mainly to health and safety concerns. The problems and measures associated with packaging in general are addressed in the next section (Section 4.6.) focusing on the packaging sector. One issue, however, is specific for the beverage industry and as such is discussed in this section. This refers to the fact that secondary raw materials that can be used for packaging of food and beverage products are generally more expensive than virgin materials, hindering the transition to circularity. To ensure that legislative targets set in Directive (EU) 2019/904 are met, regarding the obligation to have 25% by 2025 and 30% by 2030 recycled plastic in PET bottles up to 3l, it is necessary to regulate fair access to secondary raw materials . It is also important for the Ministry of Health to better regulate the conditions that have to be met by recycled materials to come into contact with food, in alignment with EU Regulation 1616/2022 in this regard.

Objectives and Actions

Priority actions

The proposed actions focus on the solutions identified by both the public and the private stakeholders from this sector to address the challenges discussed above.

Table 4-5: Objectives and actions food and beverages sector

High-level objectives	Specific objectives	Action
Prevention of waste generation and sustainable use of waste Preservation, conservation, and sustainable use of natural resources	Reducing food waste and increasing the potential for producing compost and biogas Increasing separate food waste collection Increasing the sustainable use of secondary raw materials	Developing infrastructure and tools (such as compostable bags) for the separate collection of household bio-waste, as required by the EU Waste Framework Directive, and for its composting or the joint production of biogas, biomethane and fertilizers.
		Updating food waste legislation to create a food waste prevention obligation for producers and retailers, and to develop adequate collection infrastructure to increase the amount of food waste collected as part of a separate biomass creation system.
		Using large-scale food banks or integrated online systems and increasing current incentives to increase the amount of donated food and reduce food waste through economic tools such as VAT exemptions for donated products, tax credits and deductions, or the remodulation of waste taxes to make donations more economically advantageous than disposal, for food brands and retailers.
		Increasing the percentage of secondary (recycled) materials used in the packaging of products by introducing legislation which protects beverages producers from unfair

		competition on the market for secondary materials.
Promotion of innovation and research in circular economy	Promoting innovation and research in energy production	Assess the circularity potential of biomass and food waste through research studies to determine uses, economic benefits and how waste streams can be integrated with energy and agricultural flows (energy production and biofertilization).

Other actions

Infrastructure actions

- Increasing the availability of drinking water fountains to reduce the consumption of beverage packaging.

Legislative actions

- Introduction of regulations on the use of recycled materials in paper/cardboard, glass, and metal packaging, similar to those for plastic packaging, in line with EU-wide regulations.
- Adding to the list of products which can be offered or sold at a loss mentioned in GO 99/2000 regarding the marketing of products and services, the products for which a 2/3 of the validity period has expired.
- Introduction of EcoDesign legislation in accordance with the future EU Directives and/or Regulations pertaining to products put on the market by the food and beverages sector.

Support scheme / incentives

- Improving the legislation on composting and ensuring that this practice becomes viable through incentives and/or fines, by adopting the norms for the compost regulation and ensuring consistency with legislation on food waste.

Training, education and awareness raising activities

- Organizing campaigns to reduce food waste at household level, coupled with actions aimed at informing the public about circularity and sustainable consumption.
- Educating young people (pupils, students) about healthy eating and preventing food waste, through dedicated programs.
- Educating consumers through TV/radio spots on the difference between the terminologies "best before" and "expire on", based on a Good Practices Guide developed in collaboration with the food authorities.
- Supporting the development of sustainable cooking courses and/or certifications for restaurants/cooks, with a focus on sustainable food production systems, harvesting and preservation principles, and farm-to-fork sustainable cuisine practices.
- Promoting circular business models to support food waste prevention (advertisements, TV promotions, dedicated podcasts, sharing best practices, partnerships with NGOs for the development of dedicated web pages).

4.6 Packaging

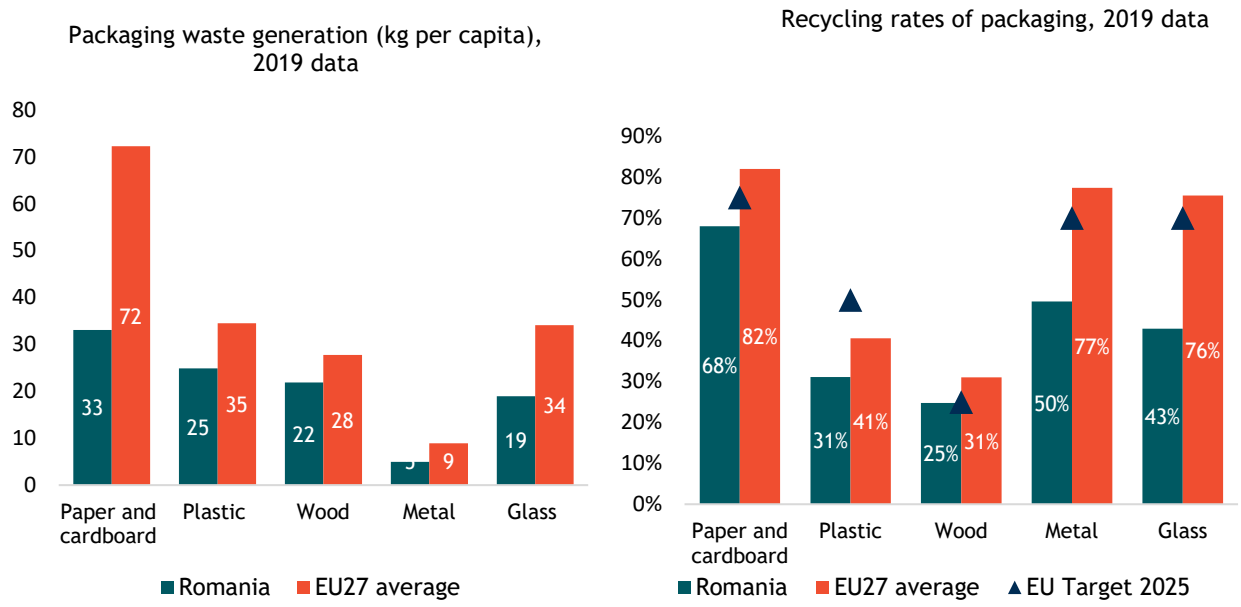
Context

This Action Plan considers the most common types of packaging, namely packaging made of glass, paper, plastic, wood, and metal. In the packaging sector, one of the main challenges arises right at the production phase. There is a lack of incentives[69] to increase the use of secondary and alternative materials instead of primary resources and, as such, to increase the recycled content in packaging products. The challenges, however, extend also to the use and reuse phases, as consumers are not sufficiently incentivised to use, for instance, plastic products with enhanced circularity features.

Furthermore, the packaging waste treatment in Romania lags behind the rest of the EU. A UNECE[70] study shows that the separate collection of recyclables from municipal solid waste (MSW) in Romania was low, at only 12.9% of the total MSW generated in 2017. Consequently, the amount of separately collected waste from paper, plastic, glass, wood, or metal packaging in Romania is significantly below the EU average.

This reality is also emphasized by Eurostat data (see Figure 4-1), according to which the recycling rate in Romania reached only 31% of plastic packaging, 43% of glass packaging, 68% of paper packaging, 25% of wood packaging and 50% of metal packaging in 2019, resulting in some of the lowest rates among the EU countries.[71] Romania is thus identified as a country at risk of not meeting the packaging recycling targets set by the EC for 2025.[72]

Figure 4-1: Packaging waste generation and recycling



Source: Eurostat [ENV_WASPAC]

The low recycling rates of packaging can be attributed to several key factors. First, **recyclability of packaging** is a key impediment to increase the recycling rate, especially for plastics, and eco-modulation is the necessary tool to stimulate producers of packaged goods to move towards more sustainable solutions.

[70] https://unece.org/sites/default/files/2021-12/ECE_CEP_189_0.pdf
[70] https://unece.org/sites/default/files/2021-12/ECE_CEP_189_0.pdf
[71] https://ec.europa.eu/eurostat/databrowser/view/ENV_WASPACR__custom_2729239/default/table?lang=en
[72] https://environment.ec.europa.eu/topics/waste-and-recycling/packaging-waste_en

Second, in Romania, **the infrastructure** to sort, collect and treat sorted packaging also needs further improvements. Some of the challenges include the insufficient availability of bins for separate collection, inadequate logistics system, and absence of adequate financial incentives for consumers to separate their household waste (Nastase, Chasovschi, State, & Scutariu, 2019). During the interviews, several stakeholders emphasised that improving separate collection should be one of the priorities in the packaging sector to increase the quality and quantity of waste suitable for recycling. They also recognised that local authorities should be more involved in enforcing existing rules in this regard.

Third, while the government has launched some campaigns to **increase awareness and change behaviour** among private companies and residents with respect to the use and discarding of packaging, there should be more done in this regard.[73]

Fourth, the low performance in this sector is also associated with limitations regarding the **inadequate implementation of relevant regulations**. For example, even though the Single Use Plastic Directive (904/2019) has been transposed as Government Ordinance 6 in 2021, several plastic products banned by this ordinance continue to be used in Romania at a broad scale, especially at markets, during events, and hotels. This problem calls for improving the quality of control and enforcement of laws and regulations carried out by national and local authorities. This is expected to be addressed by the ambitious Council Decisions of local government authorities as well as by the intentions of the National Environmental Guard to intensify controls on compliance with the ban on placing some single-use plastic product on the market, specified in article 5 of Governmental Ordinance nr 6/2021.

Fifth, concerns with respect to **weak law enforcement and controls** were widely shared by the stakeholders that we interviewed. They noted that there is a gap between national and local level regulations and their enforcement, and claimed that that municipalities often do no impose adequate fines or penalties for entities that do not dispose of their waste correctly. They emphasized the importance of local authorities becoming more involved in enforcing existing rules regarding selective waste collection. Furthermore, they argued that inadequate support and consultation from the authorities, and uncertainty regarding the legislation poses additional problems for further advancement towards circularity.

Finally, the **lack of appropriate data and information** does not allow for a proper assessment of the progress in the transition to a circular economy. Several stakeholders pointed out insufficient data on the amount of packaging placed on the market, its composition in terms of recycled content, the amount of separately collected packaging waste or the actual rate of recycling. The figures provided by the Environmental Fund are not considered realistic, as the targets are generally always met, although Romania lags behind compared to other EU countries. While the government has taken measures to regulate declarations regarding the introduction of single use plastics (Governmental Ordinance 185/2023)[74], that should also allow for collection of data, its implementation and effectiveness remains to be seen.

Objectives and Actions

[73] Though some awareness campaigns by the Romanian Government exist (e.g. https://reciclaminromania.ro/ and http://www.mmediu.ro/app/webroot/uploads/files/Brosura_de_informare-Directiva_904-2019_privind_reducerea_impactului_anumitor_produse_din_plastic_asupra_mediului.pdf), they do not have yet the desired reach to trigger change in behavior.

[74] https://legislatie.just.ro/Public/DetaliiDocument/264825

Priority actions

Table 4-6: Objectives and actions packaging sector

High-level objective	Specific objective	Action
Preservation, conservation, and sustainable use of natural resources	Increasing separate collection and recycling of packaging waste	Analysis and reformulation of the EPR system for packaging to increase effectiveness and enhance funding for improving the infrastructure for sorted packaging waste collection.
		Improvement of modulation of fees in the EPR scheme for packaging to take into account all costs associated with the management of waste.
		Expansion of the scope of the EPR scheme to include costs of litter clean-up as well as the costs of awareness raising measures to prevent and reduce such litter in line with the Single-Use Plastic Directive.
Responsible and sustainable sourcing of raw materials	Increasing the use of secondary raw materials in production	Introduction of tax on virgin materials in packaging.
Promotion of responsible consumption	Increasing reusability, and as such, prevent waste generation	Establishment of eco-design requirements on packaging: re-usability and high-purity recyclability (including easy dis-assembly into materially homogeneous parts), in line with EU-level requirements.
Prevention of waste generation and sustainable waste management		Mandating retail shops to allow the usage of self-provided, re-usable containers and packaging for the purchase of dry-bulk food.

Other actions

Legal actions/policies

- Expansion or introduction of mandatory GPP criteria on plastic products to enhance the use of more sustainable alternatives.
- Monitoring and evaluation of the deposit refund system and its expansion potential for other types of packaging that can be technically administrated by the system.
- Establishment of requirements on minimum content of secondary raw materials in line with EU-level requirements.

Infrastructural investments/support schemes

- Improvement of the national infrastructure to sort, collect and treat sorted packaging waste.
- Provision of investments to support chemical recycling of plastics that allows to recycle complex plastic waste streams not suitable for mechanical recycling and for the products to be used to manufacture monomers with the same technologies as primary raw materials (including technical studies and pilot projects).
- Provision of investments to create industrial composting capacity for biobased or biodegradable plastics.

Training, education and awareness raising activities

- Improvement of the labelling of products regarding the proper way of discarding of the packaging to increase the purity of separately collected waste in accordance with present or future European regulations.
- Provision of investments in research and innovation in waste sorting technologies (automatic waste sorting, sorting of biodegradable or biobased plastics) to achieve high level of purity of materials which would be suitable for further use.

4.7 Textiles

Context

The interest in textile[75] waste management in Romania is far from being at the level of other European countries. In many other EU countries, there are associations that deal particularly with the collection, reuse and recycling of textile and garments. Elsewhere in the EU there are also various awareness and education campaigns stressing the importance of the resources available in the textile sector to the public.

Following international trends, Romania is included in the fast-fashion consumer model, and this is anticipated to grow along with the increase of the GDP.

Although some private initiatives are tackling prevention of textile waste, reuse and recycling, these are not scaled up to a significant level.

According to a projection by the Ministry of Environment for 2018-2025, 1% of municipal waste in Romania consists of textiles, and the annual amount in 2022 is estimated at 46612 tons for the entire country.

Objectives and Actions

Priority actions

Table 4-7: Objective and actions textiles sector

High-level objectives	Specific objectives	Action
Prevention of waste generation and sustainable waste management	Increasing separate collection and recycling of textile waste	Creation of a national collection, sorting, and valorisation system for used textile and apparel that prioritizes reuse over recycling for as long as possible and relies on advanced technical solutions for sorting and recycling.
		Creation of EPR schemes to promote separate collection of textile and apparel, support eco-modulation (incentivization of producers for assuring a closed loop for their products) and support consumers to repair and reuse products
Responsible and sustainable sourcing of raw materials	Increase the use of recycled material, and locally sourced natural fibres	Introduction of mandatory labelling criteria (digital product passport) for product traceability, with information regarding the content and type of recycled materials, the water and energy consumption along the life cycle.

[75] Here "textile" is understood as an umbrella term that comprises all products made of textile. This can range from clothes and furniture to buildings and vehicles.

Promotion of responsible consumption and environmental education	Increasing reusability and use of products.	Introduction of Ecodesign legal requirements with respect to textile and apparel products, to increase durability, reparability, and recyclability, while minimizing water and energy consumption along the life cycle.
		Supporting new business models and the application of technologies that promote the principles of the circular economy in the textile sector, as for example through the provision of public funds or through fiscal measures such as VAT reductions on repairs.

Other Actions

Infrastructural actions

- Creation of efficient collection and sorting systems for used textile and apparel products that prioritizes reuse over recycling for as long as possible.

Legal actions/policies

- Introduction of mandatory labelling criteria (digital product passport), regarding the content of natural and artificial fibres, of recycled materials, as well as the water and energy level consumption along the life cycle of a product.
- Introduction of mandatory Ecodesign legal requirements – to increase textile's performance in terms of increased durability (which also enables reusability), reparability, fibre-to-fibre recyclability and mandatory recycled content, tracking and minimising the presence of substances that hamper the recyclability of textile waste.
- Creation of EPR schemes to tackle the separate collection of textile waste, support eco-modulation (incentivisation of producers for assuring a closed loop for their products) and support consumers to repair and reuse the products.

Support schemes/incentives

- Support of RD&I focused on increasing the quality of fibre-to-fibre recycling through either chemical[76] or mechanical processes[77], by providing grants or promoting the creation of Public Private Partnerships.
- Provision of public funding/subsidies to switch to more sustainable production of virgin fibres, considering water and land use.
- Support of new business models such as product-as-service models, take-back services, second-hand collections and repair services, e.g. by providing public funding or implementing taxation measures such as VAT reduction on repairs.
- Support of RD&I focused on increasing the quality of fibre-to-fibre recycling (by providing grants or promoting the creation of Public Private Partnerships).

Training, education, and awareness raising activities

[76] Chemical recycling refers to reprocessing techniques for recovery of cellulosic and synthetic fibres relying on selective dissolution of those fibres, using adequate solvents for this purpose. The recovered synthetic fraction is processed into pellets, which can re-enter the yarn manufacturing process, or can be used in other applications.
[77] Mechanical recycling refers to reprocessing techniques in which garments are broken down, through a chopping and pulling process, into shredded fragments until recovered fibres are obtained. The process suffers from the disadvantage of producing shortened fibres that, as a result, do not perform as well as virgin fibres, both during manufacture and in use.

- Promotion of consumer education regarding the use of less clothing for a longer time through awareness-raising actions and communication campaigns.
- Promotion of consumer education to repair and reuse textile products, over a longer period, through awareness-raising actions and communication campaigns.

4.8 Electrical and Electronic Equipment

Context

The electrical and electronic equipment (EEE) manufacturing sector plays an important role in the Romanian economy, with the sector contributing to 2 percent of the total GDP in 2020.[78] The revenues of the EEE manufacturing sector are expected to increase in the following years[79]. The same trend can also be observed regarding consumption. After a short period of stagnation[80], there has been a visible increase in the sales of EEE in Romania over the past years.[81]

EEE production and consumption will be greatly affected by a series of approaching EU measures that include:

- Legislative proposal for an Ecodesign for Sustainable Products Regulation, as a key building block of the sustainable product policy initiative,[82] including Product Environmental Footprint (PEF) initiative, Digital Passport and Ecolabel.
- Review of the Directive on the restriction of the use of certain hazardous substances in EEE (RoHS) and guidance to clarify its links with REACH and Eco-design requirements.
- Circular Electronics Initiative (CEI)[83], common charger solution and take-back schemes.
- Legislative and non-legislative measures establishing a new "right to repair".

The electrical and electronic sector will be considerably reshaped by these legislative proposals and the entire European manufacture and consumption market will have to be prepared, including Romania.

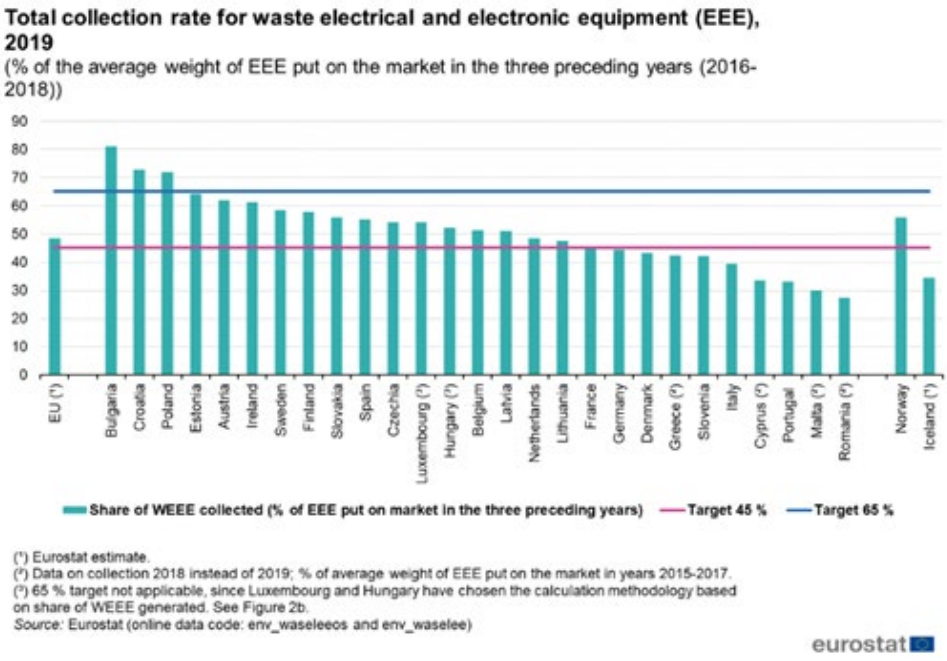
Conforming with these new changes will be particularly challenging, as the EEE sector in Romania faces significant shortcomings even in its current state. This includes the **insufficient attention to eco-design** with a strong emphasis on durability, recycled content, upgradability, maintenance, reparability, access to spare parts, collection, reuse, refurbish and recycling.

Additionally, in Romania, there are **significant problems with the collection and treatment of WEEE**. The collection rate of WEEE in Romania is low and below EU targets. From the amount of electrical equipment placed on the market (POM) in Romania only 27.5% was collected in 2018 meaning that Romania did not achieve the 45% target established by the WEEE Directive (2012/19/EU), which entered into force in Romania in 2015.

Figure 4-3: EEE Waste collection rates[84]

[78] https://ec.europa.eu/eurostat/databrowser/view/NAMA_10_A64__custom_3928937/default/table?lang=en
[79] https://www.zf.ro/companii/productia-de-electronice-si-electrocasnice-se-contureaza-ca-al-20721258).

[81] https://ec.europa.eu/eurostat/databrowser/view/NAMA_10_A64__custom_4644258/default/table?lang=en
[82] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12567-Sustainable-products-initiative_en
[83] https://www.europarl.europa.eu/legislative-train/theme-a-european-green-deal/file-circular-electronics
[84] https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Waste_statistics_-_electrical_and_electronic_equipment&oldid=556612#Electronic_equipment_.28EEE.29_put_on_the_market_and_WEEE_collected_by_country



The low performance in separate collection of WEEE can be attributed to several factors, including:

- Underdeveloped infrastructure for collecting WEEE from private households respective WEEE from users other than private households, at national level.
- Insufficient education and awareness campaigns.
- Still prominent presence of the informal sector that illegally dismantles WEEE especially for the extraction of metal to be sold. As such, WEEE becomes "of poor quality" and is no longer of interest to the recycler
- Lack of application of penalties on informal dismantling and illegal dumping.

Management of batteries and accumulators waste (WBA) also faces important challenges. Even if the target for WBA was reached in 2020[85], the new coming Regulation and target increase, will make compliance increasingly difficult. Improving the B&A waste collection infrastructure and strengthening the obligations of B&A operators to deal with WBA appropriately, including imposition of sanctions, will also be crucial to avoid the discarding of hazardous waste in municipal waste. Lack of obligation of distributors of batteries and accumulators (B&A) to make B&A waste collection infrastructure available to consumers is a disincentive to separate collection.

Another issue concerns the **reuse, recondition and repair of EEE** to prolong the lifespan of the product. There are currently companies repairing EEE in Romania, but the market is not mature and there is need for further incentives and awareness raising. The government should support the creation of additional collection and refurbishment centres. Social enterprises and associations with economic activities focusing on WEEE collection and refurbishment should also be supported. In addition to the obvious environmental benefits, this could also contribute to the creation of new jobs and facilitate social integration. Unfortunately, in Romania there is no official data available regarding equipment prepared for re-use or re-used equipment to allow analysing customers' interest in repairing EEE. However, according to a report of the European Parliament from September 2019, in Romania, the share of

[85] https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Waste_statistics_-_recycling_of_batteries_and_accumulators#:~:text=recycling%20of%2065%25%20by%20average,of%20other%20batteries%20and%20accumulators.

consumers that do not repair EEE is relatively low, at 25%[86]. This is an encouraging indicator for Romania.

In conclusion, for the EEE sector, there should be measures to minimise the value lost by not repairing the equipment or lack of options for repair, and to address the problem of the insufficient infrastructure for proper collection of WEEE.

Objectives and Actions

Priority actions

Table 4-8: Objectives for the electrical and electronic equipment sector

High-level objective	Specific objective	Action
Promotion of responsible consumption	Enhancement of the durability and reusability of EEE, and prevention of WEEE generation	Preparing the industry for the upcoming Ecodesign for Sustainable Products Regulation and Circular Electronics Initiative - CEI that establish mandatory new Eco-design legal requirements for durability, maintainability, modularity, reparability and recyclability.
Prevention of waste generation		
Preservation, conservation and sustainable use of natural resources & Protection of ecosystems and citizens' health	Proper management of used and/or disposed EEE to prolong the utilization of the equipment	Adoption of clear policies to encourage reuse and repair of EEE.
	Increasing separate collection of WEEE	Improvement of the national collection system for the WEEE and DB&A disposed of by the population.
Responsible and sustainable sourcing of raw materials	Increasing the use of secondary raw materials in production	Encouragement of environmentally friendly treatment and recovery of WEEE, through the application of CENELEC standards.
		Establishment of minimum content requirements regarding the use of secondary raw materials to produce EEE.

Other actions

Legal actions/policies/data base:

- Implementation of a system in national legislation, according to the Directive, with the purpose of performing a better management of WEEE. The latter would be achieved through the assurance regarding national collection, transparency regarding costs of collection, transport, repair, treatment, and recovery; application of EU harmonized standards in collection, transport, treatment, and recycling processes; improvement of centralized data flows; national education campaigns and studies regarding consumers habits; and provision of know-how to local authorities for proper infrastructure development. development. development. development.

[86] https://www.europarl.europa.eu/RegData/etudes/BRIE/2019/640158/EPRS_BRI(2019)640158_EN.pdf

- Reintroducing the penalty for fraudulent reporting for collectors and recyclers. In 2022 the penalty was removed from national legislation, and, for the guilt of the collector or recycler, the PRO and the producer pay for not reaching the target.
- Deployment and continuous improvement of integrated databases for the entire sector, from "put on market", reused, repaired, waste generated and collected
- Development of the administrative capacity of the state to manage the legislative framework, data and monitoring and monetisation.

Support schemes/incentives/guidelines

- The industry implements and promotes "product as a service" schemes - business models that allow customers to lease, rent or pay for the use of products, without purchasing and owning the entire product.Starting from the model of printers (pay per page), electric scooters (pay per kilometre), lighting (pay per lux), Car – as-a – service model, other models, such as Equipment-as-a-Service, White Goods-as-a-Service, can be developed in the context of circular economy. Equipment-as-a-Service, or EaaS, is a business model that involves renting out equipment to end users and collecting periodic payments for use of the equipment. Similar arrangements can also be developed for electric appliances, as for example for washing machines. Appliances-as-a-service often consist of subscription-based business models, whereby the producer delivers, installs, assures repair and maintenance of the products, thus prolonging the life of the appliance and reducing its carbon footprint.
- Creating and/or providing support for operators repairing EEE through subsidies and fiscal incentives.
- Guidelines for the application of Directive 2012/19/EU transposed into national legislation by GEO no. 5/20115 on electrical and electronic equipment waste. Since the introduction of the extended scope of Directive 2012/19/EU on waste electrical and electronic equipment, there are products whose classification/allocation to one of the 6 EEE categories is difficult. Such a guide could be funded by the EU Commission, as it is in the interest of all MSs.
- Support for social enterprises to enable their competitiveness in the market and for developing partnerships with employment authorities to employ and train people from vulnerable groups for EEE repairing

Since the introduction of the extended scope of Directive 2012/19/EU on waste electrical and electronic equipment, there are products whose classification/allocation to one of the 6 EEE categories is difficult. Such a guide could be funded by the EU Commission, as it is in the interest of all MSs.

Training, information instruments and awareness raising activities

- Improve consumer rights, allowing for more informed and sustainable decisions when purchasing products;
- Increase customers awareness and information regarding products and waste, via public campaigns;
- Improve accountability of EEE producers to create a more accurate picture on EEE sale and WEEE quantities being generated at national level, via public campaigns, inspections and public communication of results to combat freeriding.
- Investments in education programs for the public regarding prevention of WEEE impact on the environment and informing them regarding locally available collection infrastructure for WEEE

- Invest in trainings meant to prepare professionals for repairing EEE and consumers to choose repaired over new;
- Research and innovation in eco design for EEE.
- Programs for producers to understand and comply with the Sustainable Product Initiative regulation.

4.9 Waste

Context

In a functional circular economy, waste management must be the last link in the supply chain, to feed the secondary materials market and provide inputs for recycling businesses. To achieve this, proper management procedures must be put in place to increase waste collection, recycling, and recovery.

In terms of waste generation, Romania is one of the EU countries with the lowest municipal waste generation per capita, with only 287 kilograms in 2020, compared to the EU27 average of 505 kg. However, the trajectory over the last decade has been rather mixed: municipal waste production per capita declined by 21% between 2010 and 2015, but then began to rise slightly, averaging 3% per year. [87]

Despite a large decrease, the share of total waste output per unit of GDP is still twice as high as the EU average. Furthermore, municipal waste recycling is among the lowest in the EU, and landfilling remains the dominant form of waste management. The recycling rate for all waste, except significant mineral waste, was only 29% in 2018, compared to the EU average of 55%[88]. Therefore, Romania has enormous potential for improving its waste management approach.

The majority of the EU legislations' provisions have been adopted into the Romanian legal framework for waste management, although some of them only partially (e.g. the case of end-of-life vehicles) or with delays (e.g. the case of equipment containing Polychlorinated Biphenyls or PCBs). All types of waste are covered by the Emergency Government Ordinance 92/2021 on Waste Management, except for radioactive waste, decommissioned explosives, wastewater, and animal carcasses. Due to the risk of potential infringement related to the insufficient implementation of Directive 2008/98/EC on waste, which was subsequently revised by Directive (EU) 2018/851, Romania has approved Government Emergency Ordinance No. 68/2016 regarding the modification and completion of Law 211/2011 regarding the Waste Regime. The Law outlines the general responsibilities of those involved in waste management, as well as the waste hierarchy, end-of-waste status, and special requirements for the municipal sector[89]. Although a National Waste Management Plan is in place and good projects are being developed, the extent of progress is relatively modest, as there is a need for a systemic approach, and greater emphasis on waste minimisation and prevention.

Currently, there is need for economic instruments such as, EPR and Pay-as-You-Throw schemes to **improve waste management** and to **incentivize consumers towards reuse and recycling**. Furthermore, the effectiveness of separate waste collection needs to be increased to achieve the recycling targets and to improve its quality. Romania is also encouraged to implement new measures aimed at shifting reusable and recyclable waste away from incineration and landfilling.

[87] https://ec.europa.eu/eurostat/databrowser/view/CEI_PC032/default/table?lang=en
[88] https://ec.europa.eu/eurostat/databrowser/view/env_wastrt/default/table?lang=en
[89] https://unece.org/sites/default/files/2021-12/ECE_CEP_189_0.pdf

In addition, the **number of landfills that do not meet the requirements of the Landfill Directive**[90] also remains a matter of concern. In this regard, the government approved two normative acts in the field of waste management in 2021. The first one is the Simple Ordinance on Waste Disposal, aimed at establishing the legal framework for the adequate conduct of waste disposal activities, by progressively reducing the disposal through landfilling of waste that can be recycled or recovered, and introducing measures to prevent and reduce the negative effects on the environment and public health. The second, is the Simple Ordinance concerning the Method of Managing Packaging and Packaging Waste. These ordinances add restrictions and targets for landfilling, the most important being that landfilling should represent only 10% of the municipal waste generated by 2030, while the remaining 90% will have to be recycled or recovered, according to the principles of the circular economy.

An important tool for reducing the percentage of waste disposed in landfill could be through **increasing the value of disposed items** that could be fed back into the economy. This could be achieved by promoting the sorting and treatment of municipal waste. In the absence of such incentives, that could also encourage private investments into waste management and treatment facilities, the alternative of landfilling will be seen as a cheaper solution. In fact, compared to the EU countries, Romania currently has the lowest landfill tax,

Therefore, to progress toward circular economy, the waste management sector must tackle two key issues, namely: 1) reduction of waste generation and 2) establishment of adequate measures to capitalize on waste through recycling, recovering, or reusing. The measures proposed in the current action plan should be considered alongside with the actions proposed in the National Waste Management Plan, in a complimentary manner.

Objectives and Actions

Priority actions

Table 4-9 below presents the proposed priority actions for the waste management sector and their connection with the specific objectives for the sector and the general, high-level objectives of the CES.

Table 4-9: Objectives and actions waste sector

High-level objectives	Specific objectives	Action
Prevention of waste generation and sustainable waste management	Increasing separate collection rates and recycling of municipal waste	Reinforcement of the pay-as-you-throw system.
		Development (improvement) of suitable infrastructure for waste collection.
Preservation, conservation, and sustainable use of natural resources	Increasing the share of secondary raw materials into the economy	Development of clear end-of-waste criteria to increase recycling and other waste valorisation options.
Promotion of innovation and research in circular economy	Enhancement of circular economy data networks	Development of a unified national online platform for monitoring waste management indicators, accessible to all relevant local, regional, and central authorities.

[90] Council Directive 1999/31/EC of 26 April 1999 on the landfill of waste: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:31999L0031

	Improvement of the waste management system through R&D in circular economy	Promotion of training and research in waste sorting and treatment facilities (including automatic waste sorting facilities, sorting of biodegradable and bio-based plastics, possible chemical recycling of plastics or textiles, biogas and composting facilities).
Promotion of responsible consumption and environmental education	Education of the population to make environmentally friendly choices of goods and services Raising awareness about the role and importance of circular economy	Launch of information and awareness raising campaigns to increase separate waste collection, reduce waste production, littering and illegal dumping.

Other actions

Infrastructure actions

- Acceleration of the development of an all-integrated waste management systems (IWMS SMID) at the national level that is completely functional.
- Expansion of the bulky waste collection and bulky reuse collection services to collect a wider range of recyclable materials.
- Development of a reuse and/or reconditioning network for the recovery of useful components from furniture waste, as well as of potentially other forms of valorization.

Legal actions/policies

- Strengthening monitoring and sanctioning of illegal dumping.
  Analysis of existing payment methods in the context of Integrated Waste Management (SMID) projects and of the economic instruments to be further implemented (storage tax, "pay as you throw") to inform proposals regarding the amendment of the existing legislation.

4.10 Water and Wastewater

Context

Romania has an annual water resources potential of 134.6 billion m^3. Usable water resources, including the Danube, amount to 2,660 m^3 per person per year, which, that is considerably lower than the European average of 4,000 m^3 /person/year. Romania is thus a country with relatively scarce usable water resources.[91] Circulating water for longer is therefore particularly important in Romania, to meet national needs and minimize pressure on natural systems. Circular economy approaches to water resources generally employ the 6R method to reduce, reuse, recycle, recover, repair, and restore water resources. These imply reducing freshwater consumption, treating wastewater in way that can be reused for either grey water purposes or again as drinking water, and finally, restoring water sources through interventions such as rainfall harvesting, controlled aquifer recharge, or water body rejuvenation.

Policy measures can play an important role in enabling this shift towards circularity. Such measures have in fact already contributed to a significant reduction of water consumption over the past thirty years, adding to the effect brought about by the economic transformation of Romania, that saw a gradual decline of industry and agriculture. The introduction of economic mechanisms in the water sector has

[91] http://www.eea.europa.eu/soer/countries/ro/freshwater-why-care-romania

contributed to a significant reduction in water consumption both in the economy and among households. The increase in the raw water contribution, water and wastewater tariffs, specific water consumption, for examples, brought about a decrease from around 550 l/person/day to less than 120 l/person/day.

Further efforts in this regard will play an essential role in ensuring continued progress. Since joining the EU in 2007, Romania, as any other member state, is obligated to transpose and conform with EU water legislation. This includes a series of directives focused on pollution abatement (Urban Wastewater Treatment Directive and Nitrates Directive) and monitoring (Drinking Water Directive and Council Directive 76/160/EEC concerning the quality of bathing water), as well as the Water Framework Directive, which aims to maintain good water status at the river basin level through a results-based approach[92]. Romania is for example preparing for the implementation of Regulation 2020/741 on minimum requirements for water reuse, which will enter into force in June 2023.

Implementation of these EU directives and regulation in the national context is mediated through the national public authorities responsible for the administrations of water in Romania. These are the National Administration of Romanian Waters (NARW) and the Ministry of Environment, Waters and Forests (MEWF) that are the two main public authorities responsible for administration of water in Romania, with the additional support of the National Environment Protection Agency. The administrative approach differentiates between the management of water resources and of drinking water and sanitation. The Ministry of Environment, Water and Forestry is directly responsible for the water resources management system, including the impact of water resources on drinking water and the sanitation system.

The shift towards circularity in Romania's water and wastewater management systems, however, also faces some significant challenges, as highlighted through the stakeholder interviews. Some of the key barriers and concerns include:

- inadequate policies to facilitate the transition towards the circular economy, both in terms of the content of regulatory measures and their practical application;
- insufficient knowledge about the risks and benefits of using by-products from the water industry (sludge, purified water);
- excessive and non-regenerative water management practices that have aggravated the problems with using water for irrigation in agriculture or in urban agglomerations.

The re-use of wastewater could play a particularly important role in Romania's transition towards circularity in water management. According to the latest information collected by the National Administration of Romanian Waters, out of the total of 19.8 million equivalent inhabitants (e.i.) falling under the provisions of Directive 91/271/EEC, about 66% are connected to the sewerage systems, of which 63.5% are connected to treatment plants. Before being discharged, urban wastewater is treated across 1242 plants across the country, of which 847 are situated in agglomerations of more than 2000 e.i..

Throughout the years Romania has struggled to meet its commitments under the Urban Wastewater Treatment Directive. [93] Additional efforts are therefore needed to ensure the collection of an additional

[92] https://unece.org/sites/default/files/2021-12/ECE_CEP_189_0.pdf
[93] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52022SC0271

7.16 million p.e. of urban wastewater (35.9%), biological treatment of an additional 12.87 million p.e. of urban wastewater (65.7%), and biological treatment with nitrogen and phosphorus removal of an additional 7.72 million p.e. of urban wastewater (58.8%). In fact, only 12% of urban wastewater in Romania is treated in accordance with the UWWTD criteria. [94]This is lower than the EU average of 76%. Several large agglomerations – between 185 and 189 - are moreover noncompliant with their urban wastewater collection and treatment obligations.

The valorisation rate of wastewater is also very low. Only 24% of sewage sludge was used for agricultural use or composting. This low rate for valorisation in Romania can also be attributed, at least in part, to the population's low rate of connection to wastewater treatment facilities. Progress depends on the prioritization of investments for urban wastewater treatment plants, and on the efficient use of available EU funding, including the funds available through the European Regional and Cohesion Policy, for this end.

Therefore, the actions proposed for this sector are based on the realizations that:

- Improving water infrastructure is imperative: prospects in the water and wastewater sector are heavily reliant on Romania's still-developing water supply and wastewater treatment infrastructure (particularly in rural areas), coverage, and technology;
- The water sector is strongly interrelated with other sectors (agriculture, construction, food and beverages, etc.);
- To reduce the water pressure and to develop more comprehensive water distribution, the awareness of water efficiency has to be further improved, especially in industrial sectors where water consumption is comparatively high;
- Restoration of water bodies as proactive measure to reduce the stress on fresh drinking water sources and reducing pollution that has taken place by taking advantage of natural water treatment abilities and other mitigation potentials.

Objectives and actions

Priority actions

Table 4-10 below presents the proposed priority actions for the water and wastewater sector and their connection with the specific and high-level objectives of the CES.

Table 4-10: Objectives and actions water and wastewater sector

High-level objectives	Specific objectives	Action
Protection of the ecosystem and health of the citizens	Enhancement of the natural treatment capacity of natural water bodies	Restoration of natural wetlands and soils to improve their natural treatment capacity to reduce water stress and increase their buffer capacity in case of flooding.
	Improvement of waste water treatment and connectivity	Increasing collection and treatment of wastewater from households, especially in rural areas.

[94] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52022SC0271

Preservation, conservation and sustainable use of natural resources	Increasing water efficiency	Encouragement of the usage of stored rainwater for grey usage (toilet flush, gardening, floor cleaning) in public and residential buildings.
	Improvement of the recirculation of nutrients and organic matter through their natural cycles	Promotion and incentivisation of the production of fertiliser and biogas from sewage sludge to communities and industry, in synergy with the agricultural sector.
Promotion of responsible consumption and environmental education	Increasing water efficiency	Promotion and enforcement water efficiency standards in industry to decrease consumption.

Other actions

- Promotion and stimulation of waste sludge drying and co-processing in cement factories (energy recovery of organic content simultaneously with recycling of mineral content) where the chemical characteristics of sludge make it unsuitable for the production of agricultural fertilizers.

5. Elements to Enable Implementation

The implementation of the CEAP will be carried out by the entities indicated in the detailed descriptions of the actions, in Annex A, under the oversight of the Coordination Committee for the Circular Economy of Romania. Overall, to be effective, the implementation of the action plan will have to rely on 1) access to finance, 2) an adequate governance structure, and 3) a continuous monitoring of, and dissemination about, the progress achieved. These should be accomplished with the involvement of various stakeholders and transparency towards the public. Circular economy strategies and plans are generally more effective when they rely on broad partnerships, as diverse set of stakeholders enhance the technical knowledge, organisational capacity, and funding available, improving the prospects for bringing about a paradigm shift.[95] Greater transparency and effective communication towards the public, on the other hand, increases accountability and ensures that objectives are met.[96]

5.1. Budgeting and Funding

The implementation of the measures in the action plan will require a range of resources, such as human resources, facilities, equipment, services, and materials that require financial resources from the sources identified in the CEAP for these ends. Assessing the costs of each measure in an accurate manner, guided also by the ambitions of the Romanian government in terms of the scale and speed of the circular transition process, will greatly facilitate a better understanding of the budget required and help mobilize adequate financing. The estimation of the costs associated with the measures proposed should therefore constitute one of the initial efforts of the Coordination Committee for the Circular Economy of Romania, which is the governing body of the present CEAP, perhaps through a dedicated study. To achieve this end, the Coordination Committee can rely on the cost estimation framework already developed by the team of

[95] https://www.eesc.europa.eu/en/our-work/publications-other-work/publications/circular-economy-strategies-and-roadmaps-europe-study
[96] https://hvtc.edu.vn/Portals/0/files/635741902237865902O-8213-5203-2.pdf#page=37

consultants for the actions contained in this plan, with the additional input of the entities responsible for and involved in their implementation.

Funding options cover a range of different forms and sources, including public funding from EU or national sources, as well as private funds and banking loans. Private investors and banks have already started to capture the opportunities of value creation and higher rates of returns associated with investments in circular economy projects.[97] More and more companies across industries are also willing to make investments towards circular economy to reduce costs, increase revenues and manage risks, for instance, related to the supply of virgin raw materials.[98] The EU's sustainable investment strategy and its accompanying policies, for example the EU Taxonomy Regulation, the Sustainable Finance Disclosure Delegation (SFDR) and Corporate Sustainability Reporting Directive (CSRD), are expected to further encourage private financial institutions and companies to invest in activities that make significant contributions to circular economy.[99] Governments are thus accelerating this shift of financing towards circular economy, with the EU and the MS themselves channelling significant funds in this direction.

While these trends are promising, in Romania, there is a need for additional capital to tap into its circular economy potential and achieve the benefits that it provides. The government can play an important role in this process but does not have to do it alone.

Government Funding

The Romanian Government should provide funding for the measures that require legislative/policy and regulatory adjustments. It can also invest in other circular economy measures, particularly in the development of circular economy skills and capacities, infrastructure[100] and long-term research and innovation activities that are more difficult to finance through market mechanisms. The government can also play an important role in enabling the shift of the private sector, by channelling additional financial support for less capital-intensive investments needed for the adoption of circular economy business models and/or practices that are often still considered high risk for financiers.[101] To finance these interventions, the government could rely, at least in part, on public revenues originating from taxes upon negative environmental externalities of non-circular production and consumption, as it seeks to set firmer directions and level the playing field for sustainable economic development.

The Romanian government has already made some initial steps in these directions, albeit primarily within the realm of policy areas closely rather than directly linked to the development of circular economy. Ultimately, the goal is to have specific funding allocated from Romania's public budget for the implementation of the CES&AP, with careful coordination across the budgets allocated to the ministries that facilitate their implementation, to avoid overlaps and explore complementarities. This would require close coordination and monitoring across the Prime Minister's Office, the Coordination Committee for the Circular Economy of Romania, and Ministries responsible for the implementation of the CES&AP.

Meanwhile, some of the circular economy **CEAP actions focused on public sector measures** could be implemented through the expansion and/or adjustments of existing programmes and initiatives. Waste

[97] https://ellenmacarthurfoundation.org/financing-the-circular-economy-capturing-the-opportunity
[98] https://newsroom.accenture.com/news/the-circular-economy-could-unlock-4-5-trillion-of-economic-growth-finds-new-book-by-accenture.htm
[99] https://finance.ec.europa.eu/publications/strategy-financing-transition-sustainable-economy_en
[100] Infrastructure investments refer to investments in structures and services that enable the transition towards the circular economy (e.g. selective waste collection system), but are too capital intensive and/or generate benefits that can not be internalized properly, thus leading to an underinvestment through market mechanisms.
[101] https://www.chathamhouse.org/2021/07/financing-inclusive-circular-economy/03-de-risking-financing-circular-economy-0

management taxes and fees have, for example, already been earmarked by the National Waste Management Plan adopted in 2017, to fund investments in increasing separate collection of recyclable materials and door-to-door collection system. The Environmental Fund Administration (EFA), under the coordination of the MEWF, is the main source of financial support for the implementation of environmental protection projects and programmes.[102] The EFA would be particularly well suited for funding of some of the circular economy measures for the cross-sectoral areas of waste, water, and wastewater, but could also extend to forestry-related measures.

Some of the circular economy actions could also be funded through the national budgets allocated for the implementation of national strategies that are consistent with the high-level objectives of the CES. For instance, part of the national funding allocated for the implementation of the National Sustainable Development Strategy (NSSD) could be directed towards the implementation of circular economy measures. The SDG-aligned objectives of the NSSD as, for example, with respect to the promotion of responsible production and consumption, correlate with the high-level objectives of the CES. There is also considerable consistency across some of the action proposed in CEAP and the measures identified in the Action Plan for the Implementation of the NSSD.[103]

Other programmes that could incorporate the CEAP measures refers to the implementation of national strategies and budgets allocated with respect to R&D, education, training, employment, public procurement, and digitalization. More specifically these refers to the National Strategy for Research, Development, and Innovation for 2021-2027, the National Strategy and Action Plan for Employment for 2021-2027, National Adult Learning Strategy 2023-2027 (in development)[104], National Strategy for Digitalisation, etc. This applies also for some of the sector-specific circular economy actions, particularly those related to construction/renovation, forestry, waste, etc. that could be covered by the National Renovation Strategy for 2020-2050, the National Framework Policy for Market Development regarding Alternative Fuels in the Transportation Sector, etc.

With respect to **financial support to the private sector**, it is important to mention the first funding scheme aimed explicitly at encouraging circular economy in Romania, that was launched by the Ministry of Economy in 2022, with a total budget of EUR 8 million. This *de-minimis* state aid programme co-financed (up to 85%) investments of companies in technological transfer, R&D, modernisation of material testing units, repair and reconditioning centres, recycling, digital resale platforms, collection and valorisation centres, modernisation of recycling installations, introduction/extension of production of goods that do not contain plastic or promote alternatives to plastic and introduce/extend the use of waste. Similar initiatives should be continued and scaled up in the future, as they can support the implementation by the private sector of several actions, particularly with respect to R&D, digitalization, as well as sector-specific measures.

EU Funding

[102] http://www.mmediu.ro/categorie/finantate-din-fondul-de-mediu/97
[103] Some examples of actions from the NSSD that overlap with the CEAP measures include Action 4, with respect to the integration of sustainable development principles in local strategies and policies or Action 5, that aims to launch information and awareness campaigns for the private companies and civil society organisations (CSOs).
[104] https://epale.ec.europa.eu/ro/content/romania-strategia-nationala-de-formare-adultilor-pregatire

EU funding constitutes another important source of support for the development of circular economy in Romania.[105] These can be accessed either through different national schemes and programmes such as, for example, the NPRR under shared management with the EC or though applying directly to the calls launched by the EC.

The National Recovery and Resilience Plan of Romania (NRRP), financed through EUR 14.2 billion in grants and EUR 14.9 billion in loans from the EC, can play an important role in kick-starting the transition towards circular economy in Romania. With 41% of the funds allocated for green and 20,5 percent for digitalisation objectives, the NRRP includes significant investments and reforms to act upon the circular economy potential of Romania.[106]

NRRP efforts linked to the promotion of the circular economy concentrate in the areas of waste management and building renovations, and as such, are particularly relevant for the actions proposed for waste and construction. The key reform associated with waste management, for example, refers to improving the overall governance system to accelerate transition to the circular economy, with an overall budget of EUR 1,239 million. This includes investments in integrated waste management systems of local administrations, in infrastructure for the management of manure and other compostable agricultural waste, as well as for the development of the institutional framework for the monitoring of waste management and pollution prevention. Specific investments aimed explicitly towards promoting circular economy under the building renovation section include the encouragement of circularity and increasing energy efficiency of historic buildings (EUR 14.85 million), the creation of a pilot centre for the collection and reuse of historical building materials from legal demolitions (EUR 5 million), and regular maintenance of historic buildings (EUR 3.1 million). But the NRRP also provides funding for circular economy relevant infrastructure and increased investments in the realms of water management, forest and biodiversity, sustainable transportation, and energy.

Finally, the NRRP is also of relevance to the promotion of circular economy in Romania through the reforms and investments for digital transformation; private sector development, research, and innovation; education; good governance. Several of the circular economy actions posed in this action plan relate to digitalization, support schemes, R&D&I, education, and public administration. An example in this regard is represented by investments of approximately 14.2 million Euros in strengthening coordination within public administration through a coherent and integrated approach of initiatives regarding climate change and sustainable development, that could be used to promote the dissemination of the CES&AP and circular economy training materials among public entities. Of relevance is also the funding with 52 million Euros (non-refundable) for the digitalization in the environmental domain, along with significant investments in the digital transformation of the public sector (41.9 million Euros), and digital education of the public (37 million).

Other EU funding programmes provide additional opportunities to finance the transition towards circular economy. Some of these programmes seek to promote circular economy in an explicit manner, others are mainstreaming circular economy through their contribution to the enabling of activities and actions specific to circular economy, for example by integrating the circular economy principles in a cross-cutting manner.

[105] EU funding often underpins national support schemes across the EU MS. For example, Programul Operational Infrastructura Mare (POIM) in Romania has been co-financed through the Cohesion and European Regional Developments Funds of the EU. https://www.fonduri-ue.ro/poim-2014
[106] https://ec.europa.eu/info/business-economy-euro/recovery-coronavirus/recovery-and-resilience-facility/recovery-and-resilience-plan-romania_en

Key EU funding programmes include the European Structural and Investments Funds, such as the European Regional Development Fund (ERDF) or the Cohesion Fund. These funds, for example, have financed a significant part of Romania's Large Infrastructure Operational Programme (ro: Programul Operational Infrastructura Mare - POIM), to support infrastructure developments across priority areas for the EU and Romania, such as renewable energy, energy efficiency, biodiversity, or waste management. POIM has included in the past funding for waste management infrastructure as part of a 2.892 billion Euro budget for developing environmental protection infrastructure. In the current multi-annual financial period 2021-2027, ERDF, European Social Fund Plus (ESF+), the Cohesion Fund and the European Maritime, Fishery and Aquaculture Fund (EMFAF) finance programmes such the Technical Assistance Programme 2021-2027[107], the Sustainable Development Programme 2021-2027[108], the Regional Programmes 2021-2027[109] and several other programmes[110] that can be used for the development of infrastructure, including the digital one, for education and training and for other investments that can push forward the transition to the circular model.

Of particular importance is the **Regional Operational Programme for 2021-2017** with a total budget of 8.4 billion, with 6.8 billion Euros funded through EU contribution, particularly the European Regional Development Fund (ERDF). Some of the main areas benefitting form significant shares of the funding include the transition to low-carbon economy, competitiveness of SMEs, environmental protection and resource efficiency, educational and vocational training, efficient public administration, research and innovation, that are well aligned with a significant part of the measures proposed in the CEAP. The operational programme focusing on sustainable development funded through the ERDF and Cohesion Fund, for example has specific budget and measures allocated to the development of water and wastewater infrastructure, promotion of the transition to circular economy and resource efficiency, and facilitation of energy efficiency, shift towards renewable energy, and reduction of GHG emissions. The budget for the promotion of circular economy allocates 240 million Euros, dedicated primarily to the promotion of sorted collection and recycling of waste.

The **Horizon Europe programme**,[111] the EU's largest research and innovation programme, and the LIFE programme, also seek to promote environmental sustainability. The latter includes a sub-programme explicitly dedicated to funding circular economy projects. This sub-programme provides mostly action grants for projects implementing innovative and best-practice solutions for circular economy, through the so-called Standard Action Projects (SAP). It also covers the implementation, monitoring and evaluation of environmental policies and laws through the so-called Strategic Integrated Projects (SIPs). Finally, the European Investment Bank (EIB) also provides finance and consulting for circular economy projects through the InvestEU Programme, with its pillars, InvestEU Fund, InvestEU Advisory Hub and InvestEU Portal.

For a more comprehensive list of EU funding sources relevant for circular economy measures, please see Box 5-1.

Box 5-1 Circular Economy relevant EU Funding Programmes

- **NextGenerationEU: Recovery and Resilience Facility** (funds directly disbursed to the MS)

[107] https://mfe.gov.ro/pat-21-27/
[108] https://mfe.gov.ro/pdd-21-27/
[109] https://mfe.gov.ro/programe-regionale-21-27/
[110] https://mfe.gov.ro/programe/
[111] https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/programmes/horizon

- **Cohesion Fund** (grants, financial instruments, prizes, or combination of them under shared management with the Members States)
- **European Regional Development Fund** (grants, financial instruments, prizes or combination of them under shared management with the Members States)
- **Just Transition Fund** (grant financing under shared management with the Members States; however, private investments can be garnered through InvestEU and public financing can be leveraged through the EIB)
- **European Social Funds Plus** (grants, financial instruments, prizes or combination of them under shared management with the Members States)
- **Horizon Europe** (grants)
- **LIFE Programme** (grants, prizes and procurement)
- **Connecting Europe Facility** (grants, supported by lending, guarantees and equity)
- **InvestEU Program** (budgetary guarantee via financial partners such as the EIB and the EIF)
- **European Agriculture Guarantee Fund** (direct payments to farmers)
- European Agricultural Fund for Development
- **European Maritime, Fisheries and Aquaculture Fund** (grants, procurement contracts, loans, guarantees and compensation payments, under direct and shared management)
- **Innovation Fund** (mainly grants funded by the revenue from the EU ETS)
- **Modernization Fund** (operates under the responsibility of the beneficiary MS, which work in close cooperation with the EIB and the EC. MS select and submit the investments for which they wish to get Modernisation Fund support).

Sources: *"Find your EU Funding Programme for the Environment: Supporting the Environment under the 2021-2027 multiannual financial framework and NextGenerationEU"* available at https://op.europa.eu/s/xgrz; *European Circular Economy Stakeholder Platform*

While these funds provide the opportunity to finance the implementation of circular economy actions by both public and private entities, their accessing is by no means guaranteed. Challenges, as reported by various entities across the EU,[112] include: the inability to effectively navigate the complexity of funds and of the application process, significant administrative burden, particularly with respect to financial management; and lack of expertise/knowledge regarding the funding process, including staff shortages.

Similar concerns were echoed by the consultations we conducted with stakeholders through the course of designing the actions presented in this plan. Several sectoral stakeholders expressed concern about the inability of their companies, particularly of the Romanian SMEs, to acquire the necessary funds, given their lack of know-how, competence, and capacity to seek and apply for EU fundings. Therefore, information campaigns and technical support will be needed to enable private (especially SMEs and social economy entities carrying out circular economy activities) and public entities (especially public authorities at local levels) to access the necessary EU and national funds to finance their circular economy actions.

Private Sources of Financing

Private financing of sustainable development in general, and of circular economy projects, is also at an early stage of development in Romania. In the framework of the EU's Sustainable Finance Strategy,[113]

[112] https://ec.europa.eu/environment/integration/green_semester/pdf/17thMeetingExpertGroup/Point%207%20-%20Trinomics.pdf

[113] Strategy for Financing the Transition to a Sustainable Economy, COM (2021) 390 final, available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021DC0390

however, and a mainstreaming of the inclusion of sustainability standards in various forms of private financing, this is likely to change in the future. The Strategy seeks to enable investors to align investments towards a sustainable economy through increasing access to sustainable finance and ensuring that the financial sector contributes to Green Deal targets across all MS. With the Taxonomy,[114] companies and investors will be able to identify and invest in sustainable assets/activities with greater confidence.

As with government funding, we already see some first steps, but more progress is needed. This includes, for example the issuing of Romania's first sustainability bonds by Raiffeisen Bank in August of 2022, in the value of RON 400 mln (EUR 80 mln).[115] Eligible activities include eco-efficient and/or circular economy adapted products, production technologies and processes.[116] The stakeholders that we interviewed also confirmed the existence of some private investment funds providing investments into the development of circular economy in Romania.[117]

Through the consultations we conducted, we have also encountered private companies making investments in transforming their business models to be in greater alignment with circular economy principles. These included, for example, companies from the packaging sector, in both foreign and Romanian ownership, that have realised that transitioning towards more sustainable materials and/or investing in recycling would make business sense and protect the environment as well. Competition from low-cost producing countries, however, remains a concern for them. Other examples refer to entities from the cement and metallurgical sectors, that have been investing in circular economy solutions over the past two decades to co-process a wide variety of carefully selected wastes (in the cement sector) and recycled steel (in metallurgical sector) as alternative raw materials for the production process. Stakeholders emphasized the importance of supporting and stimulating such initiatives by facilitating co-financing of technological investments or through other measures (eg. fiscal incentives), to accelerate the implementation of the circular economy in Romania.

More needs to be done, however, to encourage private investments in support of those measures that require the participation of the private sector to ensure implementation. Table 5-1 below includes some examples of private circular economy financing initiatives from other EU countries to inspire further progress in Romania as well.

Table 5-1: Private financing initiatives for circular economy in other EU member states

	Private funding initiatives for circular economy
Austria	Kommunalkredit Bank, specialised in the financing of infrastructure and energy projects, provides fundings for energy-saving measures, waste heat extraction, production of biomethane, processing of gas from biomass, second-generation biofuels, energy efficient construction and other types of circular activities for companies and entrepreneurial organisations.
Croatia	Western Balkans Sustainable Financing Facility (WeBSEFF) – a financing facility provided by the European Bank of Reconstruction and Development (EBRD) that offers credit lines to partner banks in the Western Balkans to lend to businesses and municipalities wanting to invest in energy efficiency and small-scale renewable energy projects. In Croatia, this functions through Zagrebacka Banka, ERSTE and PBZ.
Estonia	The Environmental Investment Centre (EIC), using various sources of financing, has in place a Circular Economy Programme to support activities that contribute to efficient use of resources and help to

[114] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020R0852
[115] https://www.romania-insider.com/raiffeisen-green-bonds-ro-may-2021
[116] https://www.raiffeisen.ro/wps/wcm/connect/b0ea4dd9-622a-44a4-bb89-aaf953e9d799/20220420-RBRO-Sustainability-Bond-Framework.pdf?MOD=AJPERES
[117] https://www.startupcafe.ro/idei-antreprenori/startup-romania-finantari-fond-investitii-afaceri-verzi.htm

	introduce circular economy principles, including also the prevention of waste and emissions, reduction of environmental impact.
Italy	Intesa Sanpolo, partnering with the Ellen MacArthur Foundation devoted EUR 5 billion in 2018-2021 to support projects in the circular economy. The bank is also a major partner of the EIB with two credit lines for the circular economy worth EUR 1 billion.
Luxembourg	Decalia Circular Economy is an equity fund focused on companies that will structurally benefit from, or enable, the Circular Economy transition. The fund invests in the proprietary sectors of sharing economy, waste and recycling, nutrition (waste reduction), among other priority areas
Netherlands	ING's circular economy programme "The Orange Circle" aims to help clients to transition to circular economy business models. ABN AMRO supports the transition to a circular economy through a combination of advice and financing, and proactively seeks out clients whishing to switch to a circular business model.
Spain	Ecrowd! Is a crowdfunding platform that links sustainable project holders seeking small-scale loans with private investors.

Source: European Circular Economy Stakeholder Platform, 2022, with some updates and adjustments.

5.2. Governance Framework

The Coordination Committee for the Circular Economy of Romania will be the main entity responsible for paving the way for Romania's transition towards a more circular economy, with the guidance of the CES and through the implementation of the CEAP. The Coordination Committee for the Circular Economy of Romania was established through a decision of the prime minister issued on December 9 of 2022.[118] The establishment of the implementation structure is still under way, but it will be composed of representatives across all ministers responsible for the implementation of CEAP. The governance framework will furthermore rely on regular consultations with stakeholders, including from industry and academia, on the adoption of capacity building and of a monitoring and evaluation plan.

The Coordination Committee

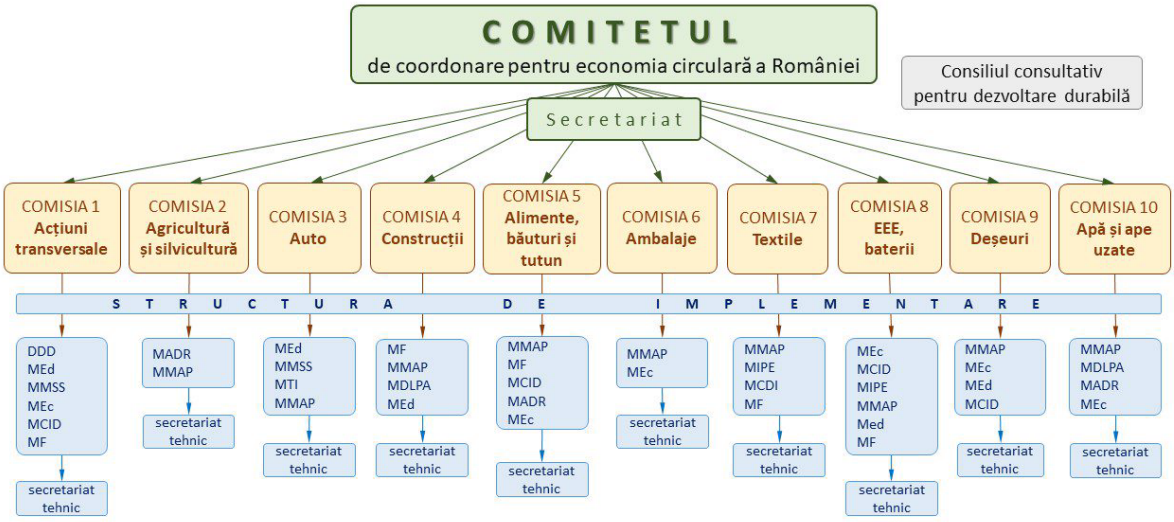
The Coordination Committee for the Circular Economy of Romania, referred to hereafter as the Coordination Committee, will be responsible for the elaboration and implementation of national circular economy strategies and action plans. To fulfill this primary responsibility, it will a) analyse periodically the evolution of the degree of fulfillment of the actions set in the CEAP and centralise data for the monitoring indicators of the plan; b) identify and address problems related to implementation, develop strategies to address hurdles in implementation, and identify the resources needed to implement the CES&AP, c) propose to competent authorities the elaboration of normative acts or amendments necessary to implement the CEAP; and d) facilitate communication and collaboration across national, regional and local authorities in the course of CES&AP implementation.[119]

The Coordination Committee has an advisory character and is led by the Head of the Prime Minister's Chancellery, as president. Its secretariat will be provided by the Department for Sustainable Development. The Coordination Committee will provide periodic information to the Prime Minister regarding the fulfillment of its duties. The Coordination Committee will be supported by Commissions constituted at the level of each sector contained in the CEAP. The Commissions will oversee the coordination of the actions specific to each sector and will fulfill the responsibilities of the Committee, as listed above, with focus on their respective sectors.

[118] Decision 553/2022 available in the Official Monitor: http://86.105.216.122:83/MOfsWeb/2022/1187.pdf
[119] Article 5 of the Decision of the Prime Minister regarding the constitution of the Committee of Coordination for the circular economy of Romania, from the 9th of December of 2022.

Figure 5-1 below presents an organizational chart of the key entities involved in the circular economy governance framework of Romania. The Coordination Committee will include representatives, at the secretary of state and/or state counsellor level, of all relevant ministries that will be actively involved in the CES&AP implementation and are listed in Box 5-2.

Figure 5-1: Organizational Chart of the circular economy Governance Framework



EEE = echipamente electrice și electronice.

To fulfil its responsibilities, the Committee will meet in plenary sessions, every six months or whenever needed. It will take decisions based on procedures established by the Regulation on the Organisation and Operation of the Committee. These will include decisions regarding the setup of consultative bodies with stakeholders, the adoption of capacity building plan and transparency policy, development of an adequate monitoring and evaluation plan, starting from the guidelines set out in the CEAP. The implementation of the proposed actions will be carried out by the entities included in the Coordination Committee, under the primary responsibility and involvement of the specific entities indicated in the detailed descriptions of the actions (see Annex A).

Box 5-2: The coordination structure of the circular economy governance

Coordination Committee Members	
Presidential Administration Chancellery of the Prime Minister General Secretariat of the Government Department for Sustainable Development (DDD) Ministry of Environment, Waters and Forests (MMAP) Ministry of Economy (MEc) Ministry of Development, Public Works, and Administration (MDLPA) Ministry of Energy	Ministry of Foreign Affairs Ministry of Internal Affairs Ministry of Transport and Infrastructure (MTI) Ministry of Agriculture and Rural Development (MADR) Ministry of Investments and European Projects (MIPE) Ministry of Finance (MF) Ministry of Labour and Social Solidarity (MMSS) Ministry of Education (MEd) Ministry of Family, Youth and Equal Opportunities Ministry of Health

Ministry of Research, Innovation and Digitalization (MCID) Ministry of Entrepreneurship and Tourism	Ministry of Culture

According to the Rules of Organization and Operation of the Coordination Committee, while the Committee was established as a body without legal personality, of an advisory nature, its decisions will be binding on the institutions that are members of the Committee (Article 5 of Section 3).[120] In case the decisions are not implemented within the time frame that they had been agreed upon, the Committee shall inform the Prime Minister, who shall take measures in accordance with the law (Article 7). This setup raises concerns regarding the ability of the Coordination Committee to ensure that CE oriented policy adjustments are indeed adopted, and CE actions are implemented. This concern is also justified on the grounds that the required adjustments towards CE might conflict with economic interests, at least at an initial stage, particularly in the context of a competition strategy that places significant emphasis on the maintenance of low costs.

That is why at a later stage, the status of the Committee will be changed to a legally established entity with decision-making power. The implications of non-compliance with the decisions taken will also be made more explicit, clarifying what exactly can be done in accordance with the law to redress the lack of progress. Enhancing the executive power of the Committee – with proper decision making and enforcement privileges – will be very important to ensure the adequate and timely implementation of the CEAP and the promotion of the circular economy transition. Otherwise, Romania will lose valuable time and competitiveness on the European and international markets.

The coordination of the specific actions will be carried out by the Commissions established for all sectors covered by the CEAP, including cross-cutting and sectoral areas. Each Commission will include as members the entities responsible for and/or involved in the implementation of actions within that sector. They will be headed by a Commission member, elected by vote. The Commissions will meet on a monthly or more regular basis, while they will also ensure that they remain in continuous communication with the Committee.

The Commissions will, among other things:

- identify the necessary resources needed for implementation,
- identify the competent authorities in the preparation of draft legislation or amendments,
- facilitate communication and collaboration with other relevant authorities for the implementation of the CES&AP,
- propose legislative initiatives or legislative amendments that are necessary for the implementation of the CES&AP,
- create working groups for the implementation of specific actions, with the involvement of the private sector, academic community, and civil society,
- submit regular reports to the Committee's leadership regarding the fulfilment of their tasks and on their working sessions.

Implementation Structure

The work of the Committee and of the Commissions will be facilitated by the implementation structure.

[120] The Rules of Organization and Operation of the Coordination Committee for the Circular Economy of Romania.

The implementation structure will consist of a series of units set up by Order of the Head of Ministries within each ministry involved in the Coordination Committee. These executive units will be responsible for the coordination of the implementation of the CE actions that fall under the responsibilities of their Ministries. As such, they will include specialists from the respective Ministries, as well as from research institutions and/or organizations that function under their authority/coordination. More specifically, the activities of the Committee and of the Commissions will be facilitated by technical secretariats from all relevant Ministries.

Consultative Approach

Shifting to a circular economy poses a set of complex and cross-cutting challenges that greatly benefit from experience sharing.[121] The Rules of Operation of the Coordination Committee already foresees that meetings of the Committee and of the Commissions may be attended by representatives from a) the private sector, academia and civil society, and b) other public institutions and authorities with responsibilities in the areas concerned (Article 6 of Chapter 1). Their participation will be contingent on invitations by the President of the Committee, with the purpose of supporting the work of the Committee and of the Commissions. Moreover, the Rules of Operations allow for the possibility of setting up working groups on specific actions in the CEAP, with the involvement of the private sector, academic community and the civil society (Paragraph h, Article 10 of Chapter 4).

These consultative endeavours by the Committee and the Commissions will be supported by the Secretariat, capitalizing on its experience with the establishment of Consultative Bodies for sustainable development. Importantly, the selection of the participants will be done in a clear and transparent manner. Additionally, the consultative councils will include a diverse set of actors to meet on a regular basis to provide insights with respect to the implementation of the CEAP within a specific sector. These can include representatives of business associations, companies, CSOs, unions, academic experts, key research organisations, etc. The Secretariat will pay particular attention to involving businesses operating at all stages of a sectoral value chain. The involvement of various stakeholders will also facilitate support to tackle administrative, technical, and even financial difficulties with respect to the implementation of specific actions and the transition towards circular economy in general.

Capacity Building Plan

The governance framework will also include a capacity building plan, which is detailed under Action 5 of Cross-Cutting Issues in the Action Plan. In a survey conducted in April of 2023 with public authorities (85% of the total number of respondents) and private entities (15% of the respondents), including representatives from the entities involved in the Coordination Committee, more than half (64%) said that it is very important for them to participate in trainings about circular economy.

The capacity building plan is to be developed by the Secretariat, that will be fulfilled by the Department of Sustainable Development. This plan will seek to address the lack of familiarity and expertise related to circular economy among public authorities, particularly among those involved in the circular economy governance bodies, but also beyond. The plan will set goals and objectives, identify key target groups based on their levels of expertise and role in implementation, identify and assign different types of capacity building interventions to meet these needs, and set timelines and resources towards its implementation. For some capacity building interventions, it will be sufficient to rely on the training materials and practical guidance materials developed through the Technical Assistance

[121] https://unece.org/circular-economy/press/unece-launches-project-build-countries-capacities-circular-economy

programme funded by DG REFORM, but for some cases, these will have to be complemented by additional programmes and measures.

5.3. Evaluation and Monitoring

The responsibilities of the Coordination Committee also extend to monitoring of the progress achieved, or lack thereof, with respect to the implementation of the CEAP and circular economy transition in general, as well as to disseminating key information in this regard to relevant stakeholders and the public.[122] This is reinforced by the responsibilities of the sectoral Commissions, among others, to a) monitor and analyze the progress towards implementation of actions, with relevant indicators collected by the entity heading the Commission, and to b) identify problems with the implementation and propose solutions.

The evaluation and monitoring approach will be based on a plan, to set more clearly the goals with respect to monitoring and evaluation, further develop the indicators that we propose, and designate responsibilities for data collection, consolidation, processing, and dissemination. This plan will be developed by the Secretariat and adopted shortly after the establishment of Coordination Committee. Implementation will be overseen by the Secretariat, with the support of the National Statistical Institute and other relevant entities that operate under the Ministries involved in the Coordination Committee, within the timelines set by the Evaluation and Monitoring Plan. The evaluation and monitoring framework will rely on a combination of more general circular economy indicators and targets, in alignment with the EU Monitoring Frameworks and national priorities; as well as on a detailed set of circular economy indicators aligned with the actions proposed for each economic sector, as presented in Annex C.

Circular Economy Indicators

The overall expected outcome of this plan is progress along both the high-level and the specific objectives associated with the circular economy actions proposed. Implementation would, however, benefit from establishing a set of measurable targets aligned with the national and EU circular economy objectives, to guide, motivate and track implementation, as recommended also in the Better Regulation Guidelines of the EC.[123] These should be established by the Committee of Coordination, in consultation with the relevant stakeholders, along the key dimensions analysed in the CES and included in the EU Circular Economy Monitoring Framework.[124] These dimensions refer to reduced dependence on unsustainable raw materials, eco design and innovation; production, investment and employment in circular economy related sectors; low waste generation and high recycling rates, for which statistical data already exists at both EU and national levels. These could, later on, be extended to CPP and/or other dimensions prioritised in the domestic contexts, as more data becomes available.

Some of these circular economy dimensions are accompanied by **specific targets at the EU level** to be achieved over the next decades, as for example with respect to waste generation, circular material use, recycling rates, also specified in Table 5-2.[125] **National targets** have also been formulated by the

[122] Article 5 of the Decision of the Prime Minister regarding the constitution of the Committee of Coordination for the circular economy of Romania, from December 9, 2022.
[123] https://ec.europa.eu/info/sites/default/files/file_import/better-regulation-toolbox-16_en_0.pdf
[124] Established by the European Commission and Eurostat to monitor progress using available statistical data: https://ec.europa.eu/eurostat/web/circular-economy/overview
[125] In 2021, the European Parliament called for tighter recycling rules and biding 2030 targets for materials use and consumption, that have not been fully addressed yet: https://www.europarl.europa.eu/news/en/press-room/20210204IPR97114/circular-economy-meps-call-for-tighter-eu-consumption-and-recycling-rules; the first package in this regard, adopted in March of 2022, sets some new rules for ecodesign, textiles and construction.

National Waste Management and Waste Prevention plans,[126] that were adopted in December of 2017 and are valid until 2025. There is however a need for more systematic thinking and emphasis on reaching specific national milestones along these key dimensions.[127] Where EU and national targets are lacking or EU targets are not binding, additional measurable targets could be set for the Romanian context. These should be set in consultation with the stakeholders and the public, to collect insights and acquire buy-in for the implementation, while being informed by the extent of the non-circularity problems in the domestic context.

Table 5-2: Key Circular Economy Objectives and Indicators: Current State and Targets

EU		Romania
Objective 1: Prioritization of local production over imported products and materials		
Share of essential raw materials that were imported (%)	Current state: 30,1% for lithium Targets: Reduce dependence on imported raw materials (30%) and obtain 15% of metals from recycling, goals of the Critical Raw Material Act (in development) New EU Regulation on sustainable and circular batteries: Material recovery target for lithium will be 50% by 2027 and 80% by 2031.	
Objective 2: Strengthening economic competitiveness and labour		
Resource efficiency[128]	Current state: 2.29 Euros per kg Targets: Increase resource efficiency, as sought also by the roadmap to a resource efficient Europe,[129] but no milestones set beyond 2020. EU Energy Efficiency Directive sets a target of at least 32.5% for 2030.[130]	Current state: 0.432 Euros per kg Targets: Call to set targets expressed in the NSDD.
Gross investment in circular economy sectors	Current state: 0.12% of GDP Objective: Increase investments in circular economy, also promoted by the Sustainable Finance Strategy and EU Taxonomy Regulation. No specific target set.	Current state: 0.17% of GDP
Persons employed in circular economy sectors	Current state: 1.76% of total employment Objective:	Current state: 1.55% of total employment

[126] http://www.mmediu.ro/app/webroot/uploads/files/2018-01-10_MO_11_bis.pdf
[127] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=comnat%3ASWD_2022_0271_FIN
[128] https://ec.europa.eu/eurostat/databrowser/view/env_ac_rp/default/table?lang=en
[129] Adopted in 2011, with milestones for 2020, sets the vision for the structural and technological changes needed up to 2050 https://ec.europa.eu/environment/resource_efficiency/about/roadmap/index_en.htm
[130] https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficiency-targets-directive-and-rules/energy-efficiency-targets_en

	Enhance circular economy skills and employment through the European Skills Agenda.[131]	
Value added at factor costs	Current state: 0.99% of GDP Industrial Strategy supports the definition and development of green/circular economy skills[132] and technological development as part of the EU industrial strategy.	Current state: 0.76% of GDP
Objective 3. Responsible and sustainable sourcing of raw materials		
Circular material use	Current state: 12.8% Target: Double the circular material use rate (CMUR) between 2020 and 2030.[133]	Current state: 1.3%
Objective 4. Promotion of innovation and research in circular economy		
Patents related to recycling and secondary materials Eco-innovation index	Current state: 295.32 patents Eco-innovation score: 121.47 (leaders group) Objective: Drive the circular economy transition through R&D&I, also supported by the European Industrial Strategy	Current state: 5.5 patents Eco-innovation score: 84.59 (catching-up group)
Objective 5. Preservation, conservation, and sustainable use of resources		
Municipal waste recycling rates (percentages)	Current state: 48.6 % for municipal waste Targets: All EU MS must recycle or reuse 60% of their municipal waste by 2030.[134]	Current state: 13.7% for municipal waste
Recycling rates of packaging waste	Current state: 64.3 for overall packaging in 2020 Target: A 65% recycling rate by 2025 A 75% recycling of packaging waste by 2030.	Current state: 44.6% for overall packaging in 2020
Objective 6. Prevention of waste generation and sustainable waste management		
Waste generation (municipal waste per capita)	Current state: 517 kg municipal waste per capita in 2020 Targets: Reduce by 50% residual municipal waste not recycled or prepared for reuse by 2030; Landfill cap to 10% of total waste by 2030.	Current state: 287 kg municipal waste per capita Targets for 2025: Reduction of household waste per capita by 10%; decoupling the growth of packaging waste from economic growth;

131 https://ec.europa.eu/migrant-integration/sites/default/files/2020-07/SkillsAgenda.pdf
[132] https://single-market-economy.ec.europa.eu/industry/strategy/skills-industry_en
[133] https://www.eea.europa.eu/ims/circular-material-use-rate-in-europe
[134] https://environment.ec.europa.eu/strategy/zero-pollution-action-plan_en

		prevention of waste in wood processing, chemical, metallurgical and steel industries.[135]

Source: Data for current state from Eurostat for year 2019, unless otherwise specified

Assessments of progress towards these key dimensions to meet EU and national objectives and targets, should be complemented by tracking of progress along the indicators associated with the specific action plans per economic sectors, as summarised (for now) in the Monitoring and Evaluation Table in Annex C. Some of these indicators already have relevant data collected by the National Statistical Institute of Romania or other Romanian entities. Other indicators focus more on tracking the evolution of policy and its accompanying measures. Yet another set of indicators are mere suggestions at this point, that would require additional efforts to collect relevant data, but should be considered for development, as part of the circular economy monitoring and evaluation plan, with the support of the National Statistical Institute and the relevant Ministries.

Dissemination Approach

The key results of the monitoring and evaluation approach will be disclosed through two main channels. The **first main channel** will consist of the preparation of annual reports highlighting key decisions taken or changes adopted over the course of a calendar year, the progress achieved along the actions and problems encountered, along with recommendations with respect to the following year, to be disseminated online to interested stakeholders and made available to the public as well. The **second main channel** will consist of a digital platform focusing on the implementation of CES&AP, that should be integrated in the website of the Department of Sustainable Development and linked to the websites of the key relevant Ministries.

Through this Circular Economy Monitoring Platform, that is described in greater detail under Action 6 of Cross-Cutting Areas, relevant information could be disseminated more regularly, particularly around four areas. **The first area** refers to disclosures regarding key roles and responsibilities, the entities part of the consultative bodies, key decisions taken, strategies and plans, annual reports to ensure greater transparency of the circular economy governance approach. **The second category** of relevant information should consist of information on the circular economy actions, responsibilities assigned, stages of implementation, indicators used, and changes associated. **The third relevant area** would consist of the progress indicators included in the Monitoring and Evaluation Table in Annex C. **Finally,** the Monitoring Platform could also help to disseminate additional knowledge of relevance for the implementation process.

6. Risk Analysis for the Implementation of the Action Plan

6.1 Effectiveness of the Actions Proposed

This risk refers to the failure of the proposed actions to reach the objectives that they were set out to meet.

Assessing the risk

[135] http://www.mmediu.ro/app/webroot/uploads/files/2018-01-10_MO_11_bis.pdf

The actions proposed in this Action Plan were developed in a top-down manner starting from the general objectives set out in the Strategy, proceeding towards specific sectoral objectives that can in turn be achieved through the actions proposed. The actions were prioritized based on their urgency, feasibility, and time horizon. Most of the actions can be completed in short to medium term, up to 5 years, some of them having a permanent rolling-out after the initial set up (e.g. trainings in certain areas that implement CE principles). Because of this methodology, the actions are well tailored for the objectives they are targeting. Therefore, if implemented in a timely manner, the risk of ineffectiveness of the proposed actions is **low**.

Risk mitigation measure

The Coordination Committee that will oversee implementation of the CEAP will rely on a set of commissions that will oversee the prioritized sectors. The commissions are tasked with monitoring the implementation of the actions and they are foreseen to have instruments in place through which they will ensure implementation, ranging from identifying the necessary resources to working directly with the relevant actors from the private and public sectors, and to facilitating coordination among these actors to facilitate execution of the measures proposed. Moreover, the commissions, that will meet on regular basis, are responsible not only for identifying barriers to implementation, but also for proposing adequate solutions to overcome the identified problems.

6.2 Lack of Funding

This risk refers to the difficulty or even impossibility of securing financial sources necessary for the implementation of the actions foreseen in the AP.

Assessing the risk

A significant part of the actions proposed in this AP, i.e. approximately 40 percent relate to legal, regulatory and/or policy modifications that could enable the shift from linear towards circular economy. These actions require minimal financial effort and they can be covered by the regular legislative costs and processes. Other actions, such as capacity building or enforcement of rules and regulations can also, to the limit, be incorporated in regular administrative spendings. More problematic, however, are measures that entail building or modernizing existing infrastructure, such as sorting and recycling centres, which are about 14% of the actions proposed in this AP. Therefore, the lack of funding is estimated to be a **moderate** risk.

Risk mitigation measure

The AP proposes funding sources for each action. For most actions, both national and EU funding sources are indicated, such that alternative funding sources or a mix of them should always be possible. Moreover, the AP dedicates a whole sub-chapter to explaining funding options from existing sources, and how private and public options can be combined.

6.3 Lack of Political Will

As mentioned above, a large part of the actions necessary to implement this AP require setting up new legislation or updating the current one. This inevitably involves the political factor.

Assessing the risk

Considering the history of the slow transposition of the EU Directives related to the environment, such as, as for example, Directive 2018/850 on Waste,[136] we can expect that the necessary legislative changes for the implementation of the AP will come with delay. This can jeopardize the success of many actions and the promotion of circular economy in Romania. Therefore, we assess the lack of political will as a **high** risk for the overall implementation of the AP.

Risk mitigation measure

The risk of a lack of political will can be mitigated through a combination of good governance assured by the Committee of Coordination for Circular Economy, which has the power to initiate legislative proposals for the implementation of the Strategy and AP, and a sound implementation of those actions that are less dependent on the political factor - e.g. private infrastructure investment or consumer behaviour.

6.4 Governance Failure

This risk refers to the failure of the governance structure, i.e. the Committee of Coordination for Circular Economy, to fulfil its objective to ensure an efficient and coherent coordination of the implementation of the Strategy and AP for CE.

Assessing the risk

The rules of functioning of the governance body for the implementation of the CES&AP, foresee a structure in which all the responsible ministries are represented, and which is divided into commissions responsible for each sector covered by the CEAP. While the members of the Committee are politically appointed, these will be supported by technical secretariates with specialists, including from the academic community. Moreover, the rules of functioning of the governance body allow for the participation of representatives of the private sector, as well as of members of the academic community and the civil society to take part in the meetings of the Committee to present information of interest for the good implementation of the AP and to provide consultation to the members of the Committee. For all the above reasons, the risk of governance failure is assessed as **low**.

Risk mitigation measure

The Committee and the commissions are foreseen to meet regularly, with the commissions meeting more often than the Committee. This will give the chance to the members of the commissions to create cohesion and a sense of common goal. Moreover, the team of consultants that elaborated this plan will hold a workshop with the attendance of the representatives involved in the Committee of Coordination. In this workshop, the CEAP will be presented, together with its monitoring and evaluation mechanism, and the governance framework will be discussed. This event should determine the Committee to take ownership of the Plan and assume responsibility for its implementation.

6.5 Slow Change in Consumer Behaviour

Many of the actions proposed in this plan require some changes in the behaviour of consumers, as for example, with respect to separate collection of waste, food waste prevention, reuse and repair of electronics etc. These changes must accompany the economic incentives or command-and-control measures for producers in order for the actions to be successful.

[136] https://www.greennews.ro/article/romania-vizata-de-4-noi-proceduri-de-infringement-legate-de-mediu-dintre-care-3-fiind-pe-problema-deseurilor

Assessing the risk

The change in consumer behaviour towards circular economy principles is an issues in all EU countries, but, as some of the data presented in this AP and the accompanying Strategy shows, the Romanian population lags behind the EU average when it comes to the level of involvement in circular economy activities, such as buying second-hand products, product repair, avoiding single-use plastics and packaging or choosing products produced locally and/or with an environmental label. Therefore, we assess that the risk of slow change in consumer behaviour is, at the time of writing this document, **moderate**.

Risk mitigation measure

It is possible that the mere existence of this AP and the information and educational campaigns that are foreseen in this document will bring about enough awareness to trigger more rapid change of behaviour, as the population acquires a better understanding of the benefits of the circular model of consumption. Moreover, as part of the final report that will conclude the elaboration of the AP and the implementation support, an audio/video material for communication on Radio/TV as well as a text for social media will be prepared to inform the public about the existence of the CEAP and the transformations that this will entail for the society at large.

6.6 Summary

Table 6-1 summaries the risks detailed above, their severity and possible mitigation measures.

Table 6-1: Summary of the risks

Risk	Severity	Mitigation measure(s)
Lack of effectiveness	Low	• The governance structure has instruments in place to steer implementation towards meeting the specific and high level objectives. • The governance structure is responsible to identify problems in implementation and propose solutions.
Lack of funding	Moderate	• For most actions, both national and EU funding sources are indicated, such that alternative funding sources or a mix of them should always be possible. • The AP contains a dedicated sub-chapter to funding options: national, EU and private.
Lack of political will	High	• Good governance assured by the Committee of Coordination for Circular Economy. • A sound implementation of those actions that are less dependent on the political factor.
Governance failure	Low	• Regular meetings of the Committee and the commissions. • Workshop set up for entities involved in the Committee of Coordination to increase familiarity with the measures and highlight the opportunities that accompany the transition towards circular economy.
Slow change of consumer behaviour	Moderate	• An audio/video material for communication on Radio/TV as well as a text for social media will inform the general public about the existence of

		the Action Plan and the transformations that this will entail for the society at large. • The education and information campaigns foreseen by several measures proposed in the CEAP.

Annexes

Annex A: Details on actions

A.1 Cross-Cutting Actions

Action 1: Development of circular economy skills in the workforce

Integration of circular economy principles and competences in educational and professional training programs, based on skill gap assessments.

Description

Updating the skills of the workforce is an essential step towards transition to circular economy. Professionals should be aware of circular economy principles and apply them through their work, regardless of what they do. Circular economy skills and knowledge are needed in different areas of public administration and in the private sector – from chemistry, legislation, and business activities, to behavioral sciences, construction, and food production. The list is limitless.

The development of circular economy skills in the workforce will require adjustments in three key areas. Firstly, it will require a change in the curricula and teaching methods in educational institutions in general, as educational institutions are at the forefront of developing new mindsets. Secondly, it will require changes within higher educational institutions, including attracting qualified instructors and teaching staff, particularly in those institutions related to Science, Technology, Engineering (Art) and Mathematics (STE(A)M), that can truly catalyze circularity in the design, manufacturing, and distribution/commercialization stages.[137] Thirdly, it will require adjustments in vocational education and training (VET) systems, particularly with respect to skills essential for extending the use of products through a combination of repair, reuse, and recycling. These changes will, however, require additional dedication of human, financial and technical resources, particularly since general governmental expenditure on education is currently one of the lowest in the EU.[138]

Improvement of general education about circular economy principles

Circular economy education can start as early as day care, as illustrated by Finland,[139] where children learn relatively early on about reducing food waste and how to sort waste correctly, and continues through primary and secondary school, all the way to higher education.

Theoretical education should be complemented by adequate emphasis on practical application, whereby students and individuals would also develop and enhance their skills to solve practical problems related to circular economy. This might require some additional investments to train teachers and improve the pedagogical methods to further raise the interests and improve the skills of students relatively early on. Students should learn to adopt problem solving approaches to promote circularity within their environments, as for example through their involvement in circularity projects within their campus, artistic or crafts activities related to practical solutions. The latter could take the form of circular

[137] https://www.vfi.is/media/utgafa/ANE-Report_Towards-a-Circular-Economy.pdf
[138] https://op.europa.eu/webpub/eac/education-and-training-monitor-2020/countries/romania.html
[139] Please see Annex B for an illustration of early education about circular economy in Finland.

economy labs through secondary and higher education, and of cooperations between industry, on the one hand, and training or higher education, on the other, at later stages.

The specific steps to ensure progress in this regard would entail:

- Initial assessment: engagement by the central public education authority with schools and teachers from various levels of education, to identify best methods to promote theoretical knowledge and practical skills about circular economy at different levels of education.
- Training of school management and teachers in circular economy principles, in support of adjustments in pedagogical methods to disseminate the acquired knowledge and develop skills of the students.
- Adjustments of the existing curricula or development of new curricula and of teaching materials to promote circular economy knowledge and skills, as part of or building on changes undertaken to promote environmental education in general, following the adoption of the Strategy regarding Environmental Education of Romania.[140]
- Facilitation of additional activities to ensure the development of practical knowledge, as for example through the form of creative activities and competitions to stimulate creativity for primary and secondary education, labs and/or collaborations with industry at a higher educational level.

Promotion of circular economy in STE(A)M training

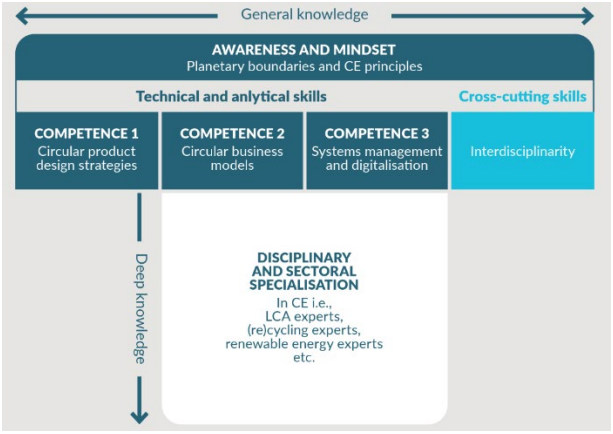
The transition towards circular economy will also require developing new Science, Technology, Engineering, (Arts), and Mathematics (STE(A)M) skills and competences due to their central importance for product design and technology development. Recent studies highlight the importance for all STE(A)M professionals to be familiar with the core technical and analytical frameworks related to circular design, as well as with business models, systems design and digitalization that support the creation of circular solutions.[141] They also highlight the importance of inter-disciplinary and cross-disciplinary efforts, with an emphasis on problem solving, to better meet the needs of the circular economy transition. The emphasis on STE(A)M notwithstanding, several of the steps recommended below can also be applied to other fields in higher education.

Determining what STE(A)M competences Romania should focus on specifically might be challenging. The Circular Economy Competence Framework (CECF) developed by the Association of Nordic Engineers (ANE)[142], however, could be a starting point in this regard. An overview of the framework is presented in Figure A-1-1.

Figure A-1-1: Circular Economy Competence Framework

The Circular Economy Competence Framework (CECF)

[140] For a more detailed description of the educational efforts already undertaken in Romania to improve environmental education and increase awareness among young generations, please see Annex B.
[141] https://nordicengineers.org/2021/11/towards-a-circular-economy-skills-and-competences-for-stem-professionals/
[142] A cooperation platform for engineering organizations from Denmark, Finland, Iceland, Norway, and Sweden.



General skills: familiarity with circular economy principles, awareness regarding climate change, rate of biodiversity loss, etc

Circular product design: multiple lifecycles thinking, knowledge of circular economy materials, etc

Circular economy business models: alternative value creation models (e.g. product as a service, sharing platform, recovery, and recycling)

Systems management and digitalization: sytems-level analysis of impacts and trade-offs, analyzing and optimizing efficiency at systems level, etc

Source: ANE, 2021: https://nordicengineers.org/2021/11/towards-a-circular-economy-skills-and-competences-for-stem-professionals/

Following the example provided by the Nordic countries, adjustments of this framework to the specificities of the Romanian higher education system and curricula, could be based on:

- Integration of circular economy objectives and principles in the National Educational Strategy and its accompanying policy tools and documents.
- Analysis of the curricula of tertiary STE(A)M education programs to better understand the current state and identify areas that would be best suited towards developing the horizontal and vertical skills identified by the CECF.
- Consultation with Romanian professional associations, industrial entities, R&I organizations, and CSOs involved in the promotion of circular economy, to help to further adjust the CECF vertical skills to the realities and needs of the Romanian higher education and economic system.
- Provision of the necessary financial and institutional support to higher education institutions to adopt the necessary changes, including recruiting experts, professionals and teaching staff trained in circular economy.

Such measures may in fact contribute to making STE(A)M education more attractive to prospective students, and help Romania diminish the gap between the rate of STE(A)M graduates in Romania, which in 2020 was at 17.5 individuals per 1000 inhabitants aged 20-29 years, relative to the EU average of 21.0.[143] Such approach will also help address the current mismatch between graduates' skills and labour market needs[144], and could even give Romania a prominent place in R&D&I related to technologies that contribute to closing the loop of materials.

Adjustments in Vocational Training Programs

In addition to requiring new/adjusted STE(A)M competences, the transition to the circular economy model is also expected to change the structure of professions that require low to mid-level qualifications. While it is expected to generate new jobs in some occupations, as for example for new forms of sales to accompany the increasing importance of repair and maintenance, the transition is also

[143] https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Tertiary_education_statistics
[144] https://op.europa.eu/webpub/eac/education-and-training-monitor-2020/countries/romania.html

anticipated to cause destruction of and reallocation of jobs, as for example for manufacturing and machinery related workers.[145]

These trends raise the importance of re and up skilling throughout a continuous process of training to adjust to the needs of the market as the economy becomes more circular. Vocational education and training (VET) organizations will have a key responsibility in this regard, but they will have to rely on the support of companies, industrial associations, and workers' organizations. A recent study focusing on 12 EU countries, among which Czech Republic, Poland, and Slovenia, confirms that the transition to circular economy in Europe is expected to generate an increasing demand for 1) technicians and associated professionals, 2) crafts and related trade workers, and of 3) plant and machinery operators, due to a combination of increasing importance of repair and maintenance, of secondary materials used in manufacturing, and growing complexity of equipment and machineries.[146]

We therefore encourage the Romanian government to prioritize training for maintenance and repair technicians, through the following steps:

- integration of circular economy objectives and principles into vocational education and training (VET)-relevant policies, particularly the National Employment Strategy and/or its accompanying policy instruments,
- provide funding to accommodate the need for new training programs, through a combination of online and on-the job learning that could take place through the local employment agencies,
- support the organization of targeted skills development opportunities for those workers who might be negatively affected by the transition,
- facilitate coordination and collaboration with industry organizations and actors.

Responsible institutions:

Ministries of Education, Economy, and of Labour and Social Protection.

Implementing stakeholders:

Higher-education institutions, vocational education and training (VET) entities, schools and local governments, local employment agencies.

Time horizon:

2024-2026, with continuous adjustments over the years to come.

Funding:

- NRRP funding for education, that includes several actions that would allow for the integration of circular economy principles, as for example training programs for socially disadvantaged groups, development of network of green schools, transformation of agricultural high-schools into professional training centers, etc.
- Regional Operational Program of Romania for 2021-2017; Program on Education and Employment, that includes measures to provide training for various target groups; Smart Growth, Digitalization and Financial Instruments (developing skills for smart specialization, industrial transition and entrepreneurship)

[145] More specific estimations of the impact that a transition to circular economy might have on jobs across occupations at the global level, based on a 2018 study by the International Labour Organization, can be found here: https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_709121.pdf
[146] Trinomics "European Social Partners' Project on Circular Economy - Final Report", 2021, available here: https://resourcecentre.etuc.org/sites/default/files/2021-10/Brochure%20Final%20report%20circular%20ecenomy_EN_v4_bis_compressed.pdf

- Just Transition Funds with respect to the facilitation of workforce transition/increasing employment and labour market participation.
- Marie Sklodowska Curie Actions for the development of skills.
- State budget dedicated to education and employment support.

Action 2: Expansion of public financial support to the private sector

Expansion of public financial support for circular economy projects to the private sector, targeted towards the implementation of action plans and with an emphasis on digital solutions

Governments can facilitate the transition to the circular economy by mobilising financial resources and allocating a part to fun private sector initiatives that seek to promote circularity and discourage waste. The MEET of Romania has already launched a state aid programme in 2022 to facilitate the circular economy transition in manufacturing sectors, with a total funding of 8 million Euros, that opened to candidates on the 19th of December and attracted a record number of applications.[147] This confirms that there is a significant interest in circular economy in Romania and need for additional funding to accelerate the transformation and convergence of the Romanian economy with those of other EU and OECD countries.

For a more effective allocation of resources, it is important to:

- expand the financial support by mobilizing and/or allocation additional EU funds in support of circular economy, going beyond waste and water sectors, that are currently prioritized by the Regional Operational Programs in the realm of circular economy transition;
- provide timely information and technical assistance to the small and medium enterprises (SMEs) and social enterprises to enable them to access these and other EU funds;
- adjust the guidelines of the funding schemes managed by the national government to target the implementation of actions identified in the CEAP, that require the involvement of the private sector, and as such;
- go beyond the manufacturing sector, and cover the other priority sectors identified in this Plan to have a significant circular economy potential, such as agriculture, food and beverages, construction, particularly where alternative funding is lacking; and
- prioritize projects that use digital solutions to implement the CEAP actions or promote circularity in general.

Aligning the funding guidelines with the actions proposed in this plan will contribute directly to progress towards the key objectives set in the CES and ensure the implementation of the CEAP, reflected through the circular economy evaluation and monitoring framework as well. Of the total 53 CEAP actions, approximately half (47%) requires the involvement of the private sector in the implementation process.

Responsible institution:

Ministry of Economy

Other institution involved in the implementation:

Ministry of Investments and of European Projects

[147] https://economie.gov.ro/florin-spataru-ministrul-economiei-un-numar-record-de-cereri-de-finantare-pentru-accesarea-celor-8-milioane-de-euro-puse-la-dispozitie-de-ministerul-economiei-pentru-schema-de-ajutor-de-minimis-in-v-2/

Time horizon:

2024-2027, to be continued and continuously expanded over subsequent years

Funding

NRRP provides funding for de minimis support scheme for the adoption of digital solutions by SMEs, of a total amount of 500 million Euros. The NRRP also has funds dedicated to improving participation in major EU funding sources, such as the Horizon Europe funding program.

Regional Operational Program of Romania for 2021 – 2027 with respect to Sustainable Development (circular economy, energy efficiency and renewable energy); with respect to Smart Growth, Digitalization and Financial Instruments (Enhancing sustainable growth and competitiveness of SMEs and job creation in SMEs; developing and enhancing research and innovation capacities and the uptake of advanced technologies).

Just Transition Fund (entrepreneurial support) that became available to Romania in December of 2022, in a total amount of 2.14 billion Euros, and can be used towards the fundings of SME investments in green economic diversification in six counties: Dolj, Galați, Gorj, Hunedoara, Mureș and Prahova.

Action 3: Facilitation of R&D&I funding

Facilitation of R&D&I funding for circular economy practices and technologies, with an emphasis on digitalization.

Facilitation of finance is essential for enabling the emergence of technological advancements and innovative solutions addressing major bottlenecks on the path of the circular economy transition. R&D&I in this realm often requires significant capital, systemic approach and can take long time to develop; is accompanied by significant risk and uncertainty; and can have significant spillover effects. The support of R&D&I related to circular economy should take the form of provisions of national grants aimed in this direction, as well as concerted efforts to facilitate accessing major EU funding programs.

Provision of National R&D&I Grants

One of the first essential steps towards the provision of national R&D&I support in this direction will be to include and assign importance to circular economy objectives in the framework of the National R&D&I strategy and the plans that ensure its implementations. While circular economy does fit under some of the key themes promoted through the national R&D&I policy, ultimately, it is best to identify it as a separate theme of strategic importance and set up specific funding programs to meet its overall objectives.

Allocating more financial resources to fund R&D&I will also be equally important. Currently, R&D expenditures in Romania are very low, the share of total expenditure in the GDP is one of the lowest in the EU, at a mere 0.47% of its total GDP, relative to 2.31% at the EU level.[148]

With respect to its substantive focus, it is essential to maintain a holistic perspective to encourage innovative solutions throughout the entire lifecycle[149] and promote industrial symbiosis, whereby the waste or by-product of one entity can become the raw material of another. Specific priorities or areas of collaboration could, nonetheless, be set in accordance with the CES and CEAP, complemented by

[148] https://ec.europa.eu/eurostat/databrowser/view/tsc00001/default/table?lang=en
[149] https://cicerone-h2020.eu/wp-content/uploads/2020/09/PI2020-21_Green-Deal-Circular-Economy-goals-2.pdf

additional consultations with academic experts and industrial representatives to clarify technical aspects.

Placing emphasis on digitalization can play a particularly important role in upscaling of circular economy initiatives, as they allow to create and process data and information required for circular business models and the complex demands of circular supply chains.[150] Of particular relevance for circular economy are digital technological solutions for tracing and tracking the materials and products, safe storage and transfer of information, and execution of transfers.

The circular economy R&D&I policy framework and programs should therefore be set up in a way to seek coherence and complementarities with digitalization, education, and economic policies. In the realm of education, for example, R&D&I and training programs should seek the establishment of circular economy research centers or labs at higher education institutions through concerted efforts. Economic and R&D&I policies, on the other hand, could jointly seek the promotion of knowledge transfer across industrial and research entities.

Finally, the funding programs should be set up in a way to match fundings requirements by major EU programs, that will ultimately improve the ability of domestic entities to meet EU requirements in this regard and further help in accessing financial support from the EU.

Capacity building to access R&D&I programs of the EU

R&D&I has also been identified as one of the key pillars of the EU's CEAP and there are several major EU programs available to support the circular economy transition. Some of the key EU programs that provide innovation funding and/or other forms of support include the European Regional Development Fund, LIFE and Horizon Europe programs. Horizon Europe, for example, will also support large-scale systemic solutions and regional demonstration projects, such as the circular cities and regions initiative. The European Institute of Innovation and Technology also coordinates innovation initiatives on circular economy in collaboration with universities, research organizations, industry, and SMEs from the MS.

Accessing these funding opportunities, however, is by no means guaranteed and Romania has been consistently among the countries that have not been able to take advantage of their existence, with a significant part of the funds accruing to a handful of developed EU MS[151].

Participation in these programs by public and private entities should be supported by the Romanian government through a series of information campaigns and training programs to raise awareness about the existence of these opportunities, facilitate partnerships with external and internal entities, and provide technical assistance accessing them. The technical assistance could for example focus on: understanding eligibility criteria, finding adequate partners, registering under relevant portals, writing the applications, demonstrating organizational capacity to administer the funds, understanding evaluation criteria and providing tips on how to achieve high scores, etc. These information and capacity building programs should be adjusted to different target groups, with distinctive approaches towards universities and research institutions, industrial associations, and SMEs.

Responsible entity

Ministry of Research, Innovation and Digitalization

[150] https://www.era-min.eu/sites/default/files/publications/201023_ecera_white_paper_on_digital_circular_economy.pdf
[151] https://www.science.org/content/article/some-countries-still-struggle-win-eu-funding-despite-programmes-give-them-leg

Entities involved in implementation of

Ministry of Economy, Ministry of Education, higher education institutions, research institutions

Implementing stakeholders:

Time horizon: 2024-2027, to be continued over subsequent years

Funding:

NRRP provides funding to support research and development in the form of financial instruments on digitalization, climate change, and areas of interest; as well as for improving participation in Horizon Europe funding program.

Regional Operation Programs of Romania for 2021-2017: Program on Smart Growth, Digitalization and Financial Instruments (developing and enhancing research and innovation capacities and the uptake of advanced technologies).

EU Horizon Europe Fund, LIFE Program.

Action 4: Integration of circularity criteria in public purchasing

Integration of circularity criteria in public purchasing and facilitation of its uptake.

Description

Circular public procurement (CPP) could play an essential role in increasing the circular material use, that is currently well below the EU average (1.4% in Romania compared to 11.7% in the EU in 2021) and has been deteriorating (from 1.3% in 2019 to 1.5% in 2020 and 1.4% in 2021)[152] over the past years. Public procurement can also drive the demand for products that meet repairability and recyclability standards. There are in fact several types of CPP models to choose from and combine them in a strategic manner to ensure optimal outcomes across different contexts.

The integration of circular economy principles can take place at the system, supplier, and product level.[153] The **system level** concerns the contractual methods that the purchasing organization can use to ensure circularity. Some examples in this regard include contractual agreements for the supplier to take back the product at the end of its life, to re-use, remanufacture or recycle it. **Supplier level** arrangements refer to evaluations of suppliers in function of the depth and extent to which they incorporate circularity principles in their own systems and processes. Finally, **product level** arrangements, mean that the products purchased are evaluated in terms of the rate of secondary materials, whether they can be disassembled or recycled after use, or with respect to their resource efficiency. While these levels overlap to some extent, they delineate different approaches to incorporating circular criteria and evaluations in purchasing decisions.

The ongoing revisions and developments of the GPP policy framework provide the opportunity to extend the scope to circularity considerations as well. The Romanian Government is currently developing a national GPP plan to set targets and adopt a monitoring framework to ensure implementation. Additional measures will be necessary, however, to increase its uptake.[154] For instance, currently, the sanctions for non-compliance are too low and public authorities are often not aware of the importance and benefits of green and/or circular purchasing. They moreover lack the capacity and competencies to

[152] https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20221213-1
[153] https://ec.europa.eu/environment/gpp/pdf/CP_European_Commission_Brochure_webversion_small.pdf
[154] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=comnat%3ASWD_2022_0271_FIN

adequately apply the evaluation and selection criteria. A sequential approach to address these limitations is, therefore, needed.

Incorporation of circular economy principles in the GPP framework

Integrating circularity principles and criteria in the existing and evolving GPP policy framework can be an effective first step to promote CPP. Revisions of Law 69/2016 should extend its scope to considerations related to the circular economy and to other product categories as well. Similarly, the national GPP plan that is being drafted, should also set mandatory targets with respect to circular purchases.

- These revisions will first require an initial discussion to establish the extent of the ambition and clarify the circularity aspects of greatest interests. Considering the low rate of secondary materials, for example, this could become a priority during initial stages, to be expanded over time;
- This should be followed by a study/assessment to identity a) how the existing product selection and evaluation criteria introduced by the Guideline could be extended to circularity criteria, and b) the adjustments that will be needed to the current evaluation methods;
- In a first stage, this could focus on the six product groups already identified[155] and adjust their supplier evaluation criteria to consider a combination of the circularity performance of the suppliers and products themselves. The initial scope could then be extended over time to more product categories and evaluation criteria;
- The sequence of the incremental steps should be clearly identified, along with the adequate targets and time frames as part of the national GPP plan.

To encourage its uptake, it will be necessary to build the capacity of public authorities and strengthen enforcement, in a parallel manner.

Capacity building and feedback loops

To ensure adequate implementation, it will be necessary to enhance the ability of public servants involved in purchasing to use the green and circularity criteria introduced by the policy framework. This capacity building should enhance 1) awareness about the importance and potential benefits of G/CPP, 2) increase familiarity with the existing policy framework, with all the relevant guidelines and strategies, and 3) provide practical guidance with the application of the evaluation criteria, their integration into the selection process, communication of results and collection and submission of relevant data to the monitoring unit of the National Agency for Public Procurement (ANAP).

The assistance should be undertaken by a specific technical assistance unit within ANAP and take the form of regular training sessions and workshops, as the scope is extended, evaluation criteria are modified, and assurance mechanisms improved. These should be complemented by the collection of relevant training materials and best practice catalogues to be disseminated among public entities. The technical assistance unit will also support initiatives of local authorities to adopt their own CPP plans and go beyond the minimum national requirements.

The regular training workshops should also serve to collect relevant data on implementation challenges and best practices, that would then be fed to the Ministry of Finance to adjust the policy frameworks

[155] These include copy and graph paper; new indoor and outdoor furniture, refurbishment/reconditioning services and collection/reuse services for end-of-life furniture, food and careering services, transport vehicles, cleaning products and services, and IT equipment.

accordingly. These should complement other channels of acquiring feedback on how the system should be improved, involving both public authorities and entities competing for the public contracts.

Enhancement of enforcement

The implementation of green/circular public procurement will also be contingent on a more adequate enforcement approach. More specifically, this will require:

- clear stipulations regarding the responsibility of ANAP to implement and monitor the priorities, targets, and time frames in place, including the specification of CPP progress indicators and the assignment of responsibility for collecting relevant data;
- introduction of penalties that are high enough to deter non-compliance with minimum criteria;
- setting out clear processes that all public authorities have to follow in terms of collecting and reporting relevant data to assess their compliance with the green and circular criteria;
- training and assigning responsibility to ANAP personnel to verify the accuracy of data and conduct audits, selected through a meritocratic process that rewards environmental/circularity expertise;
- the augmentation of transparency through
    - the introduction of the results of the green/circular evaluation in the Electronic System of Public Procurement, complemented by the online publication of CPP progress indicators;
    - the publication of annual reports regarding the application of the green/circularity criteria at the end of fiscal years, including analysis and discussion of the CPP progress indicators.

Responsible entity:

Ministry of Public Finance

Implementing stakeholders:

National Agency for Public Procurement (ANAP)

Time horizon:

2024-2027, to be continued over subsequent years

Funding:

National budget.

Action 5: Enhancement of the circular economy capacity of public administration[156]

Enhancement of the capacity of the public sector to implement the CES&AP, and facilitate the transition towards circular economy.

Description

Capacity building is a leverage that can greatly enhance the shift towards circular economy.[157] Acquiring broad and deep circular economy expertise in the public sector is particularly relevant, given the important role that the state can play in initiating and facilitating the transition process. This is

[156] This action complements the capacity building strategy proposed for the governance framework (section 5.2.4)
[157] https://unfccc.int/sites/default/files/resource/UNIDO_Stephan%20SICARS.pdf

especially relevant in the case of Romania, where the economy is still a relatively early stage of its transition to circularity, and the role of the government in enabling the first steps is especially important. Familiarity with and expertise related to circular economy is relatively limited in the country, including among key decision makers and civil servants from the public administration sectors, as highlighted by several of the stakeholders that we consulted through the process of preparing this AP. This was confirmed by a survey conducted in March 2023, that assessed also the level of familiarity of public and private entities with circular economy principles. [158] Of 191 respondents, consisting primarily of public entities, a quarter (27,7%) was completely unfamiliar with and around half (52%) of the respondents had only some familiarity with the concept and key principles of circular economy.

Enhancing the technical capacity of the public administration of Romania is therefore essential and is deserving to receive particular attention in the implementation process. Circular economy capacity building in the public sector should take an incremental approach. First, it should focus on expanding familiarity with circular economy principles and opportunities, complemented by an introduction to the CES&AP. It can then progress towards providing technical expertise with respect to broad thematic areas such as governance, finance, monitoring, data, etc. It can finally proceed towards deepening technical expertise around these themes within specific sectors, with particular focus on applications on ground.

With respect to scope, the initial targets of the capacity building efforts can be determined through a combination of leverage/influence and skill assessment. During the initial stages of the circular economy transition process, the focus initially should be on key entities involved in the governance of the CES&AP, particularly those that demonstrate significant gaps in relevant knowledge and expertise. It should then proceed towards public administration bodies at local levels that are involved in or affected by the CEAS&AP and demonstrate a lack of familiarity. Finally, it can be extended towards public administration areas from other policy fields, and even towards the private sector.

Capacity building interventions can take a variety of forms: online or in person trainings, workshops, discussion groups. Their effectiveness is often greatly enhanced by the engagement of diverse set of stakeholders. The diffusions of knowledge can also be greatly supported by the setup and support of knowledge sharing networks across public administrative bodies and other entities.

The steps to support the implementation of this action entail:

- mapping out public administrative bodies involved in or affected by the circular economy transition;
- assessing the extent of knowledge and skills associated with the circular economy concept, principles, existing initiatives and measures within their respective sectors;
- identifying various forms of capacity building interventions, as for example, training, workshops;
- developing a capacity building plan, following specifications in the Governance section, that also sets procedures for repeating the previous three steps on a regular basis;
- identification, assessment, and contraction of the right entities to conduct the capacity building interventions;
- preparation of a communication/information dissemination plan to inform the targeted entities about the capacity building opportunities;
- organization of the actual trainings, workshops, discussion groups;

[158] As part of the same Technical Support Instrument (TSI) funded by DG REFOM that also mobilized technical assistance for the development of this Action Plan (AP).

- collection of feedback to be channeled back into the implementation approach of the capacity building strategy.

While some of first steps will be initiated as part of the Technical Support Instrument (TSI) funded by the European Commission that also facilitated the development of this Action Plan, these should be done on a continuous basis, with the capacity building plan and communication plans updated on a regular basis.

Responsible entity:

Coordination Committee for the Circular Economy of Romania (its Secretariat)

Implementing stakeholders:

All entities involved in the Coordination Committee.

Time horizon:

2024-2026, to be continued and expanded over subsequent years

Funding:

NRPP: Health and economic and social resilience (Good governance component)

National budget

Action 6: Development of a digital circular economy Monitoring and Knowledge Dissemination platform[159]

Development of a digital platform to track and communicate about implementation of circular economy actions, performance indicators and other relevant information.

Description

The key challenge that this action seeks to address is the limited availability of relevant circular economy data and information that are essential to ensure that progress is achieved over time. This limitation is related to a large extent to deficiencies in the collection of reliable statistics and insufficient digitalization in the public administration of Romania. The adoption of the CES&AP should serve as catalysts to address these obstacles through the development of a digital platform to collect and consolidate relevant data, improving digitalization of environmental data and alignment with the EU's circular economy Monitoring Framework in the process. The development of a digital circular economy platform should extend beyond the dissemination of circular economy indicators and targets identified in the Monitoring and Evaluation framework, to information about the actions and their implementation stage, annual progress reports, with the possibility of collecting comments from the public. Finally, it should also serve as a platform to disseminate practical guidelines and funding opportunities, to facilitate implementation by the private sector entities.

Table 9-1: Key features of the circular economy Digital Platform

Circular Economy Actions	Circular Economy Indicators
List of the CE actions, along with data about:	Data Dashboard with:

[159] This action complements the Monitoring and Evaluation Framework proposed in the Action Plan under Elements enabling implementation (section 5.3.2)

• entities responsible for and involved in implementation • sources of funding • time horizon and current stage of implementation • key performance indicators	• Key CE indicators and their proximation with national/EU targets • Other CE indicators and progress over time
Transparency and Public Engagement	**Knowledge Dissemination**
• Presentation of the Coordination Committee for the Circular Economy of Romania • Publishing of the CES&AP • Publishing of annual progress reports • News regarding key events and decisions • Possibility to submit comments regarding the actions, their state of implementation, CE problems/solutions in general	• Digital brochures to present the CES&AP in concise manner • Practical guidance/tips to implement critical actions by private sector entities • Publishing of the annual CE progress reports • List of funding opportunities • List of training possibilities • List of knowledge transfer networks, and/or other relevant digital platforms

The necessary steps towards implementation would entail:

- assignment of monitoring and evaluation responsibilities across the Commissions and Technical Secretariats of the Coordination Committee for the Circular Economy of Romania;
- development of a data collection and management plan with the National Statistical Institute, with the support of all relevant entities involved in Coordination Committee;
- seeking of IT support to design, develop and maintain the digital platform, linking it to the websites of the Department for Sustainable Development, MEWF, and Ministry of Economy;
- set up of processes to 1) coordinate statistical data collection, 2) collect information regarding the implementation state of different actions, 3) prepare and collect relevant knowledge sharing information, and 4) to feed public comments to the governance bodies;
- preparation and implementation of a communication plan to inform the public and interested stakeholders about the existence of the digital platform.

Responsible entity:

Coordination Committee for the Circular Economy of Romania (its Secretariat)

Implementing stakeholders:

Members of the Coordination Committee, National Statistical Institute

Time horizon:

2024-2026

Funding:

NRRP (digitalization of the public sector, especially C7, I5 regarding digitalization in the environmental field).

Regional Operational Programs of Romania, for 2021-2027, Smart Growth, Digitalization and Financial Instruments (digitalization in public administration and business environment).

A.2 Agriculture and forestry

Action 1: Increasing the use of biomass waste

Increasing the use of biomass waste from agricultural and forestry activities and urban sewage sludge for energy and cement production, and bio-fertilizers.

Within the realm of agricultural production, the most energy consuming processes are related to the use of equipment for irrigation, storage, and some initial processing of agricultural crops. The increased cost of energy (electricity and gas) and of mineral inputs (phosphates) drove up the prices of chemical fertilizers as well, enhancing the possibility for biobased fertilizers, namely compost or digestates (a by-product of the production of biogas in anaerobic fermenters), to become economically more viable options than the production of chemical fertilizers.

Green or biological waste, understood as organic waste resulting primarily from agricultural and forestry activities that can be composted, has sufficient organic and/or energetic value to be used to produce fertilizers and of biogas, replacing or supplementing mineral-based fertilizers and fossil-based energy sources, respectively. Sludge from city sewage treatment plants and from agriculture constitutes an additional source for composting if there is no risk of contamination with heavy metals. This generally implies that the source of the sludge is separated from sewage systems of industry.

The productive agricultural areas differ quite considerable across the national territory, generating different amounts of biological waste, depending on the types of cultures, agricultural methods and hydro climatic conditions. The collection and use of green waste should therefore also differ from area to area depending on the generating source and the possibilities of use. Wherever possible, biological waste should, however, be collected and transported to the composting, fertilizer, or biogas production facilities. Depending on the economic development of the areas, these resources – biological waste and sewage sludge - can be used locally or transferred to collection facilities, owned either by entrepreneurs or by professional associations.

For the development of this sector, the interviewed stakeholders recommended the establishment of some regional facilities owned by associations, that will produce fertilizers and biogas through the collection of biological waste and sewage sludge, to then be returned to the supplying farmers, or to be sold on the free market. Non-associated farmers would be be able to hand over the collected biowaste to these facilities either for a fee or in exchange for the equivalent of the products obtained.

Responsible body in the governance model

Ministry of Agriculture and Rural Development

Implementing stakeholders

Ministry of Environment, Water and Forests, local authorities

Time horizon:

2024-2030

Source of funding

NRRP: Component 6 - Energy and Component 2 - Forests and protecting biodiversity.

Private investments by banks and other financial institutions.

Action 2: Promotion of sustainable farming methods

Promotion of sustainable farming methods that conserve and regenerate the natural fertility of soils and ensure the protection and restoration of ecosystems

Description

Sustainable agricultural practices are based on the application of principles such as:

- the existence of a fairly wide range of crops;
- the use of varieties and hybrids with high genetic potential, adapted to local conditions;
- the use of organic fertilizers;
- the use of biological protection;
- the use of permanent vegetation cover, or of mulch, on the soil;
- the set up of hedges and of non-cultivated strips to protect the land against wind and water erosion;
- the avoidance of soil compaction by heavy machinery, particularly under wet weather conditions;
- limitation on the use of chemical substances;
- reliance on integrated management systems that take into account all aspects of the soil-plant system; and
- preservation of natural potential and renewable resources of agricultural ecosystems.

The application of these principles depends to a large extent on the familiarity of farmers with these principles, that in turn is contingent on their promotion through the results of scientific, technological and educational research programs, and information exchange platforms set up to enhance familiarity with them. The importance of promoting the adoption of these principles is greatly enhanced by the Farm to Consumer Strategy that aims for 25% of European agricultural areas to be dedicated to organic agriculture by 2030, and by changing consumer preferences that create new market opportunities for sustainable/organic agriculture.

In addition, social agriculture based on the development of bio-social farms could serve as a viable solution to improve the economic and social situation of underdeveloped regions. It could for example, lead to the creation of new green jobs could lead to the employment of individuals from vulnerable social groups. Educational programs focusing on sustainable agriculture and biological waste management could facilitate this process. Social farms would furthermore be better equipped to manage and meet local social needs.

The promotion of sustainable agriculture should be done at a national level through:

- the organization of local actions, such as specialty fairs, demonstration workshops, experience exchange sessions, promotional caravans, etc;
- demonstration and information campaigns, that present relevant information in concise and clear manner, targeted directly towards farmers;
- training sessions and technical seminars, e-learning platforms;
- creation of partnerships and associations to foster broadening and deepening of expertise in the realm of sustainable agriculture.

The legislative framework must also be revised to promote these principles. There is, for example, lack of technical norms with respect to composting, that hinders progress in this regard and needs to be addressed. Once these technical norms were developed, in alignment with the EU frameworks and

principles, the government should ensure that potentially affected and interested parties become aware of their existence and set up the appropriate evaluation and monitoring measures to facilitate implementation.

Responsible body in the governance model

Ministry of Agriculture and Rural Development

Implementing stakeholders

Ministry of Environment, Water and Forests, Ministry of Education

Time horizon:

2024-2032

Source of funding

National Funding: Agency for Payments and Intervention in Agriculture (APIA)

European Agricultural Fund for Rural Development

European Agricultural Guarantee Fund (EAGF)

Private investments by banks and other financial institutions

Action 3: Use of treated wastewater in irrigation systems

Promotion of the use of treated wastewater in agricultural irrigation and provision of guidance on its application through fertigation methods, respecting minimum EU requirements for water quality

Description

Land irrigation plays an essential role in agricultural production, as it provides moisture for plant growth and dilutes salts in the soil. The use of irrigation can however lead to significant consumption of water, often due to the losses that result from the existence of inadequate irrigation infrastructure. Expanding the irrigation system and the quantity of water used, through sustainable solutions, are therefore important for agricultural development in Romania.

In Romania, the primary irrigation system is currently being rehabilitated through the national strategy for the rehabilitation and expansion of the irrigation infrastructure in Romania. Furthermore, the Water User Organizations for Irrigation (OUAI) also benefits from additional funds for the rehabilitation and development of the secondary irrigation system. Some areas nonetheless have limited access to the irrigation infrastructure and need to apply soil water conservation methods to ensure proper access to water. Additionally, the costs associated with the creation, maintenance, operation of the irrigation infrastructure and the use of water in irrigation are generally very high and can restrict the access of small farmers, who lack the necessary resources and will need other sources of water.

The use of purified wastewater could address these problems and contribute to circularity in Romania's water management system. The treatment and reintroduction of wastewater could result is the increased availability of water to irrigate fields, especially during heat waves and severe droughts, that could prevent crop losses and food shortages. This should be done, however, based on adequate monitoring of the quality of the recovered water and adherence with relevant regulations in this regard,

including the EU Regulation regarding the minimum requirements for the use of water, that will enter into force starting with the year 2023[160].

Responsible body in the governance model

Ministry of Agriculture and Rural Development

Implementing stakeholders

Ministry of Environment, Water and Forests; local authorities

Time horizon:

2024-2030

Source of funding

- National Program for rehabilitation of main irrigation system
- National Plan for Research, Development and Innovation 2022-2027

Action 4: Facilitation of access to specialized market

Supporting farmers and foresters by facilitating access to specialized markets, by providing access to technologies and education, among other measures

Description

The application of the principles of sustainable agriculture entails the integration of latest technologies, engagement in precision agriculture, reliance on digitization, reduction of the use of chemical products (phytosanitary), recirculation of wastewater, use of fertigation and aquaponic systems, etc.

By using technology, agricultural production generally becomes more efficient, regardless of whether it relies on conservative or regenerative methods. Technological solutions can also facilitate the adoption and effectiveness of sustainable and ecological agriculture. They have the potential to open new markets and improve the quality of products. If technological solutions enable the application of circular economy principles, they will also lead to reduction of costs and improvements in efficiency. To use technological solutions, however, it is necessary to learn new skills and know-how.

Small farmers constitute an important part of the Romanian agricultural system. They generally lack the necessary resources to make significant investments in modern technologies. They also often lack adequate storage and distribution capacity, to ensure access to specialized markets, that are often dominated by imports. They are also characterized by low educational attainments and skills, and a lack of trust in cooperation among farmers, that can be understood as a legacy of communism, when agricultural cooperatives were more common.

Training and education of farmers is therefore key to overcome these challenges, including increasing awareness about the potential benefits of applying new technologies, accessing new markets, and joining associations. This could be achieved through the promotional tools identified under previous actions as well, including:

- the organization of local actions, such as specialty fairs, demonstration workshops, experience exchange sessions, promotional caravans, etc;

[160] https://eur-lex.europa.eu/legal-content/RO/TXT/?uri=CELEX:32020R0741

- demonstration and information campaigns, that present relevant information in concise and clear manner, targeted directly towards farmers; and
- training sessions and technical seminars, e-learning platforms.

Access to technology should be further facilitated through the provision of financing, as for example in the framework of national or EU support programs. The acquisition of the knowledge and skills necessary for their operations should be ensured through the introduction of theoretical and practical course modules technically applied seminars and advanced courses in secondary and/or higher educationa institutions.

Responsible body for implementation

Ministry of Agriculture and Rural Development

Implementing stakeholders

Ministry of Environment, Water and Forests, Ministry of Education, local authorities

Time horizon

2024-2030

Source of funding

NRRP Component 1: Water Management

European Maritime, Fisheries and Aquaculture Fund

Private investments by banks and other financial institutions

Action 5: Facilitation of access to finance

Adjusting financing instruments to facilitate farmers' and foresters' access to finance

Description

During the interviews with the stakeholders, conducted as part of the elaboration of this CEAP, it became apparent that while, in general, numerous forms of financing for farmers exist, the Romanian farmers have difficulties to access them due to the financial risk that the country exhibits and which reflets itself in higher interest rates and special credit conditions. Moreover, the Romanian farmers that seek to transition from conventional to regenerative agriculture, are exposed to additional risks which essentially occur due to the low productivity in the first years of transition.

Therefore, there is a real need to facilitate their access to finance in order to implement the transition to forms of agriculture that are closer to the principles of CE. Farmers associations is one solution to this, but financing must still be granted for a reasonable period of time and under reasonable conditions to offer a truly relevant support for farmers. Moreover, the legislative framework must be adjusted such that he conditions for granting financing account for the long-term repayment. Also monitoring of the financed projects must focus not only on the expected results, but also on the methods utilized such as sustainability and circularity practices. As such, sustainability and circularity criteria must receive a reasonable weight in the medium and long-term financing evaluation grid. These criteria must be combined with other incentive measures, granted both by the authorities and by the financiers.

Responsible body in the governance model

Ministry of Agriculture and Rural Development

Implementing stakeholders

Ministry of Economy, Ministry of Public Finances, Ministry of Environment, Water and Forests, local authorities

Time horizon:

2024-2027

Source of funding

- State budget associated with the National Plan for Rural Development, National Strategic Plan 2023-2027
- Private investments by banks and other financial institutions

A.3 Automotive

Action 1: Training engineers in circular economy principles

Investment in R&D and education: training engineering students and technicians after curricula that includes the principles of CE and the CE-related legal requirements applicable when designing vehicles and parts, including for the design of batteries for electric vehicles; research in solutions for extending the life and the re-purpose of batteries for electric vehicles

Description

In the consultation interviews conducted for the development of this AP, industry stakeholders described this action as very necessary. The reason for this is that in Romania there is a major shortage not only of engineers with skills in CE principles for the automotive sector, but also of engineers with skills adapted to the new technological requirements in general. For example, the manufacturing of electric vehicles requires specialists with new sets of skills and competences, including circular-economy skills specific to electric vehicles, that cannot be acquired through the simple transfer of expertise associated with the manufacturing of combustion vehicles. At the same time, existing university and training curricula are outdated, and in their current form, largely inadept to build the necessary competences that are required by the transition to circular economy.

Therefore, a concerted effort from the public authorities and the automotive industry is needed to adapt the curricula to the needs of the industry and invest in the training of new specialists. An updated engineering training could also offer a competitive advantage in other areas of research and innovation related to the auto sector. One example is the testing of autonomous cars in Romania, that has already started. There are also other areas that could be a niche for Romania and could help the country secure a significant place in the automotive innovation landscape. However, for this advantage to become a reality and to move forward, a legal framework and appropriate investment in training and education are needed.

Responsible body in the governance model

Ministry of Education in collaboration with universities and industry representatives

Implementing stakeholders

Technical universities across the country

The auto industry

Time horizon:

Medium term: 2024-2029

Budgeting and funding

- National budget – Ministry of Education
- EU Funding: Innovation Fund, Horizon Europe
- Private sector such as the vehicle producers or recycling companies

Action 2: Modern dismantling centres

Establishment of environment-friendly dismantling activities by creating dismantling centres recovering functional parts and materials, that allow the separation and identification of the component materials and parts in a high proportion and ensure a safe dis-assembly environment

Description

It was estimated that worldwide there were about 1.3 billion vehicles on the roads in 2015 and the growth rate has been positive.[161] These vehicles will reach their end of life at some point in time in the next 10 to 15 years. In order for them not to become a hazard for the environment and to make the best out of the materials they incorporate, appropriate processing and recycling technologies and centres are needed. If not abandoned in public places, the end-of-life vehicles in Romania generally end up in dismantling centres or Remat centres (ro: Reciclare Materiale).[162]

In Romania, there is at least one dismantling centre or Remat in each county and in each big municipality with over 100,000 inhabitants.[163] As of November 2022, there were 863 dismantling centres out of which 53 are Remat-type while the rest are auto services that also perform dismantling activities.[164, 165] However, for these centres to be able to take full advantage of the market for recycled/reused/repurposed parts and materials resulted from scrapping ELV, these centres need to adopt modern, automated, safe and efficient technologies, which will also make them more profitable. A modern dismantling centre endowed with the appropriate technological capacity and know-how to be able to extract a high proportion of the weight of an ELV (60-70%) for reuse, recycle, remanufacture or energy recovery, can be a very profitable business. That is because unlike the existing technology that at most separates metal from non-metal components or materials, such centres can recover in very good conditions both well-functioning parts that can be placed on the secondary market, after being refurbished or as such, as well as component materials that can be well-separated and become suitable for recycling. In both cases - well-functioning spare parts and well-separated materials, the selling price is considerably higher than what can be obtained from unsorted waste sent to incineration or landfilling.

[161] International Organization of Motor Vehicles Manufacturers: https://www.oica.net/category/vehicles-in-use/
[162] Remat is a type of recycling centre of metal and non-metal waste, and it is not exclusively dedicated to dismantling and recycling of auto-vehicles, though this seems to be its main type of activity.
[163] The importers and producers of vehicles are required to have collaboration with at least one recycling center in each county and in each big municipality.
[164] https://prog.rarom.ro/servicedezmembrarinou/
[165] The county of Suceava has the largest number of dismantling centres, i.e. 59 in total, out of which only one is a Remat centre. In the Ilfov county and in the municipality of Bucharest can be found the most Remat centres, i.e. 5 in each.

There is also a need to adapt the dismantling and recycling technologies to the new, modern cars that are produced nowadays, with more complex technologies (e.g. many electronical devices), and will have to be scrapped in approximately 15 to 20-years. These centres will have to be prepared for dealing with electric cars that will be the dominant type of vehicle from 2035 onwards.

This proposed action can also contribute to fulfilling the milestone "Sustainable transport, decarbonization and safe road transportation" that fits with Component 4 Sustainable Transport of the NPRR. Under this milestone, at least 250,000 polluting vehicles (with emissions standard EURO 3 or less) must be scrapped between 2022 and 2026. This action, however, goes beyond the goal of scrapping the polluting vehicles to renew the auto fleet of the country with less polluting vehicles, by placing greater emphasis on the sustainability of scrapping old vehicles. It does so by proposing the support of domestic efforts to extract most components and materials from old polluting cars, so that they could be re-used as parts or as secondary raw materials. Through technological upgrading, these centres will also increase the capacity of the country to scrap old vehicles.

An additional important benefit of creating such centres is that they can create jobs. Additionally, the recovery of a high proportion of secondary materials can also contribute to the net carbon neutrality goals of the EU and of Romania. With the growing fleet of electric vehicles, the design and investment in such modern centres must also have in view this new reality and be prepared with the necessary technology and skills to handle the dismantling and waste treatment of electric vehicles.

Responsible body in the governance model

- The Ministry of Transportation through RAR
- The Ministry of Environment
- The Ministry of Economy – for the metallurgical industry that should absorb the metal produced

Implementing stakeholders

Private sector (car producers, recycling companies) – private investments and European funds, but also public sector through municipalities.

Time horizon:

Medium-term: 2024-2029

Budgeting and funding

- EU funds for the Environment such as SMEs guarantees under the current InvestEU framework of 2021-2027 MFF;
- Modernization Fund, dedicated to lower-income MS, that is available to Romania as well;
- The Just Transition Fund offers funding to SMEs for investments in circular economy;
- Local and central governmental funds.

Action 3: Training of auto-mechanical workers

Training of auto-mechanical workers for working in repair shops able to offer timely preventative maintenance of the country's auto fleet

Description

Adequate, timely and quality preventive maintenance of a vehicle is essential for the preservation and extension of its lifetime, delaying its end of life and using the resources incorporated for as long as

possible, in line with the principles of circular economy. Maintenance can avoid or delay repair which is more costly, and more resource and material intensive.

In Romania there are currently two types of repair/service shops. In the first category are those shops that were certified by the individual producers and work in strong collaboration with them, in addition to the national certifying body, the Romanian Auto Registry (ro: Registrul Auto Român - RAR). The auto-mechanics who work in these category of repair shops are trained by the producers themselves to be highly specialized in repairing and maintaining the vehicles they produce. The second category is that of the small shops that are certified only by RAR. Unlike the first category of service shops, the training and competences of the mechanics that work in these service shops are not always up-to-date and in-line with technological developments, the requirements of the new vehicles and the pursuit of circular economy practices.

Thus, the purpose of this action is to create a pool of well-trained mechanics with the competences to prolong the lifespan of vehicles by providing high-quality and timely preventative maintenance services; as well as with skills for reconditioning and retrofitting second-hand vehicles, including through transformations that make them more environmentally friendly during the use phase. Moreover, new skills are needed for these workers to be able to deal with electric and hybrid vehicles whose share is expected to increase in the total vehicle fleet.

There is, however, a potential caveat for implementing this action, generated by prospective conflicts of interest. On the one hand, the shops certified and related to car manufacturers have a greater profit from selling new cars than from maintaining them, and those dedicated to repair make more turnover from the repair than from preventive maintenance. To avoid these conflicts of interest, the preventative maintenance companies employing such mechanics could be mandated to be financially independent from car manufacturers or from car repair companies. The market, and hence the economic viability of such independent preventative maintenance companies, would be ensured by the legal obligation for car owners to submit their vehicles to periodic preventative maintenance operations.[166]

Responsible body in the governance model

This training should be organized by RAR in collaboration with the private auto producers and the National Agency for Employment (ro: Agenția Națională a Ocupării Forței de Muncă - ANOFM). The producers would have an economic incentive to do so as it would result in the small repair shops using the original certified spare parts, thus increase the sales of the producers, and, at the same time, in adhering to the circular economy strategies of the producers, while increasing the quality of vehicles' maintenance. Thus, the responsible bodies will be:

- Ministry of Transportation in collaboration with the representatives of the automotive industry
- Ministry of Labour and Social Solidarity
- Ministry of Education.

Implementing stakeholders

[166] Currently, vehicles registered in Romania are required to undertake a periodical technical inspection every two years, every year of even every half a year, depending on the age of the care and the purpose for which it is used. However, this technical inspection is rather focused on the safety features of the vehicle (e.g. direction, breaks, illumination) and on the quantity ant type of pollutants it emits, and not on preventive maintenance. More details about the compulsory technical inspection, in Romanian language, can be found here: https://www.businesslease.ro/blog/inspectia-tehnica-periodica-ce-este-si-cum-poti-scapa-de-grija-ei/

A distinction in the implementation must be made between the existing auto-mechanics already active on the labour market and those that are still in school and can be trained for this market. For the former, there is need for retraining on the new skills adapted to the current needs. For the latter, the required training can be accomplished through vocational education. In fact, given the evolution of the innovation in the sector, in which the components are increasingly electronics-based, a new profession might be warranted, i.e. the conversion of the auto-mechanics into electro-mechanical technicians.

For the existing workforce already active in the field or for those that want to retrain to acquire new skills, the implementing stakeholders should be:

- The local Agencies for Employment

For the young workforce the implementing stakeholder should be:

- Dual professional schools and vocational education and training organizations;
- Local authorities;
- The auto industry.

Time horizon:

2024-2026 The time should be used for the preparation of the curricula and the establishment of the schools and programmes, including recruitment of the trainers and piloting the curricula. The action should take place continuously thereafter.

Budgeting and Funding

Possible funding sources:

- National budget
- Private sector (car producers, recycling companies) – private investments
- European funds through: [167]
    - European Regional Development Fund (ERDF – Investments for employment and growth);
    - European Social Fund Plus (FSE+);
    - Cohesion Fund (CF);
    - Just Transition Fund.[168]
- Local budget through municipalities and labour agencies.

Action 4: Enforcement of the EPR scheme for used oils and lubricants

Enforcement of Article 31 of the Government Emergency Ordinance 92/2021 which implements an extended producer responsibility (EPR) scheme regarding the treatment of used oils, with relevance for this sector being engine and transmission oils

Description

Extended Producer Responsibility (EPR) systems are set up to internalize the environmental costs of the entire lifecycle of a product. This responsibility is mainly borne by producers. However, basic economic principles will confirm that the associated costs will be passed through to the price of the product.

[167] https://mfe.gov.ro/wp-content/uploads/2023/01/ca9e947d8072599b96c9b38f2384242c.pdf and https://ec.europa.eu/regional_policy/policy/what/investment-policy_en
[168] https://mfe.gov.ro/wp-content/uploads/2022/12/21e46881d6b62fc6f6941423d889a14e.pdf

Applying this principle to the used engine oil and other lubricants and oils, will help internalize the externality of their use and correct the market failure associated to this externality. This is also in accordance with the polluter-pay-principle applied in Art. 14 of Directive 2008/98/EC of the European Parliament and of the Council regarding waste.[169]

EPR schemes are already successfully implemented in the packaging waste and other sectors. In fact, as the formulation of the action suggests, in Romania an EPR scheme for lubricants, used engine and transmission oils is implemented through Article 31 of the Government Emergency Ordinance (GEO) 92/2021[170] regarding waste treatment, which repeals Law 211/2011 and transposes the EU Directive 2018/851 of the European Parliament and of the Council, which in turn amends Directive 2008/98/EC regarding waste. [171]

GEO 92/2021 foresees an EPR scheme of "take-back" type. In practice this means that, for example, the used engine oil that is changed by an auto service shop, as a retailer of engine oil, must remain at the service shop as per paragraph 2a of Article 31. Further, the service shop must return the used engine oil to its engine oil supplier or to a collector and recycler of this substance that is potentially financed by the engine oil producer (see paragraphs 2b and 3 of Article 31). Similarly, for users that do not visit an auto service shop for changing the oil, they must have the possibility to return the used oil to the retailer from which they originally bought it (paragraph 2 of Article 31), which will further direct it back to their supplier and further to an operator that can valorise[172] or destroy it in safe environmental and health conditions.

Our discussions with the industry and institutional stakeholders have revealed that they were not familiar with the existence of GEO 92/2021. None of the stakeholders whom we approached could point to this regulation when we proposed an EPR scheme for the hazardous substances contained in vehicles, or when we inquired about the current practice in Romania regarding used oils. This reveals the fact that this is a rather new law implementing a relatively new concept for the Romanian market, i.e. an EPR scheme for used oils, that the general public is not familiar with. This suggests the need for education and promotion campaigns across the country, as well as monitoring and verification that the collection spaces are in place. For instance, paragraph 4 of Article 31 stipulating that the National Agency for Environmental Protection (ro: Agenția Națională pentru Protecția Mediului - ANPM) will publish on its website the list of entities authorized to perform collection, valorisation and/or destruction of used oils does not seem to be implemented. Moreover, GEO 92/2021 is not mentioned on the website, though the website has a section reserved for legislation regarding used oils.

The first tier of actions for implementing and enforcing this government ordinance is ensuring that the needed infrastructure is in place. In this case, monitoring and controlling, accompanied by sizeable fines, penalties, and liability rules, must safeguard the existence in all vending places of the spaces dedicated for the collection of the used oils and lubricants or of the information about the nearest place dedicated to this collection. The collection must be available free of charge for the owner of the used oils.

[169] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32008L0098
[170] http://86.105.216.122:83/MOfsWeb/2021/0820.pdf
[171] Art 21, paragraph 2 of Directive 2008/98/EC: "For the purposes of separate collection of waste oils and their proper treatment, MS may, according to their national conditions, apply additional measures such as technical requirements, producer responsibility, economic instruments or voluntary agreements."
[172] Extensive laboratory testing and field studies conclude that re-refined oil is equivalent to virgin oil—it passes all prescribed tests and, in some situations, even outperforms virgin oil. (https://www.epa.gov/recycle/managing-reusing-and-recycling-used-oil):

With this infrastructure in place, *the second tier* of implementing actions is represented by information campaigns directed to the general population, given that in Romania the practice of self-maintenance of vehicles is still widespread. Thus, the implementation of this action must include sharing the information on the official channels such as the ANPM website, through TV and/or radio advertisement, information billboards, advertisements and signs displayed in gas stations and at retailers that sell the respective petroleum products. The information could also be distributed through the insurance companies that offer the compulsory auto insurance. In addition, all products falling under this regulation should be commercialized only if they carry a label that informs the user that the oil has to be taken to a collection point after its use (cf. Article 32 (2)). Moreover, the compliance with this law must be part of the requirements for obtaining the license by the service shops as well as by all other points of sale of engine oils and lubricants.

Finally, for the implementation to be effective, the infrastructure for recycling used oils through filtering or for their safe destruction must also exist. Given that the safe transportation of the oils involves large cost, the recycling centres must ideally be in each county to be able to absorb the market and close the loop. This, however, calls for the **involvement of the chemical sector**, that should be prepared to take up the amounts of used oils collected by the vending places and repair shops, and treat them appropriately. For this, they must have the necessary capacity, technology, and know-how.

Responsible body in the governance model

- Minister of Transportation through the Romanian Auto Registry
- Ministry of the Environment through the National Agency for Environmental Protection

Implementing stakeholders

- Retailers of the respective substances together with their suppliers
- Service shops that make the periodic change of the respective substances and their suppliers
- Consumers/Users
- Petrochemical industry

Time horizon:

2024-2025

Time has to be considered for establishing the treatment facilities that can absorb the recycled waste oils and lubricants, in collaboration with the petrochemical industry.

Budgeting and funding

Funding source: The national budget.

Action 5: Removal of abandoned cars

Removal of abandoned cars on the public domain by strengthening enforcement of the relevant legislation, i.e. Law 421/2002 with its subsequent modifications, including through stricter fines and tighter deadlines

Description

From the discussions with the stakeholders, this action has been deemed both very necessary and difficult to implement. Below, some arguments are presented for why this action is necessary, along with some recommendations to facilitate implementation.

In Romania there are tens of thousands of abandoned cars on the public domain.[173] They create a hazard for the environment and human health for several reasons. First, due to the lack of maintenance, the fluids start to leak in the environment and fumes evaporate into the air, with harmful effects for both humans and the environment. Second, they generate sanitary hazards, as they become a space for waste dump and are populated with rats and other animals that pose a threat to hygiene and human health. For these cars, urgent actions from the local authorities are needed and therefore the red tape required to allow the authorities to move them from the public domain must be simplified and the time necessary to do so shortened.

The difficulty also occurs because some of these cars are not truly abandoned, but also not used, for various reasons. In such cases, information and education campaigns are necessary to teach the owners about the economic and environmental consequences of unused cars and of the advantages of putting them to use by a new owner through selling or by scrapping them. One solution to better track if a car is truly abandoned is to implement the obligation of paying the car insurance for as long as the car exists.

With open borders in the EU, it has become more and more common that some of the abandoned cars have foreign license plates. This calls for Romania to support and contribute to a cross-EU cooperation in this matter, that would set up a common database for data exchange among the EU countries.

From the strict point of view of circular economy, both the truly abandoned and the seemingly abandoned cars lead, on the one hand, to a lower quality of the scrap metal and other materials they contain and, on the other hand, to a smaller likelihood of the potentially good parts being reused. That is because they become either too deteriorated for reusage (e.g. metal parts become rusty, fluids become contaminated) or because their technical obsolescence makes them unfit for the current models. All this leads to resource waste.

Responsible body in the governance model

- Ministry of Transportation
- Ministry of the Environment

Implementing stakeholders

- Local authorities
- Ministry of Transportation through RAR

Time horizon:

2024-2025

Budgeting and funding

Possible funding sources:

- local budgets of the towns and cities for implementing the law,
- national budget for the cost of legislation.

A.4 Construction

Action 1: Driving demand towards circular products through Circular Procurement

[173] It is estimated that in Bucharest there are more than ten thousand abandoned cars: https://stirileprotv.ro/stiri/actualitate/a-inceput-ridicarea-masinilor-abandonate-oamenii-isi-tin-muraturile-in-ele.html

Driving demand towards circular construction products through incremental implementation of Circular Procurement in the public and private sectors

Description

The scope of products included in the GPP guidelines of Romania currently do not include construction materials. As such, public authorities in charge of public procurement in construction are not implementing any circular economy criteria in tender evaluations. This should be rectified in the future. This should go hand in hand with further increase in the enforcement and monitoring of green / circular public procurement criteria and related implementation activities. Besides making sure that criteria are implemented, G/CPP could also contribute to exposing and limiting unethical business behavior. The Electronic Public Procurement System (SEAP) still does not include any functionality related to the promotion of green purchasing. In this context, it is important to commit to the development of a circular public procurement model at the institutional level and support capacity acquisition for the National Agency for Public Procurement and SEAP, so that it becomes possible to implement such a model at the national and local levels.

The next step would be to **carry out a National Green Deal** to initiate public and private sector collaborations to encourage circular procurement (CP) initiatives. As a transition from advancing circular procurement from the public to the private sector and as part of efforts to encourage collaboration in developing innovative approaches, a key element of success is to build a coalition and community of practice around CP on a voluntary basis. Parties should range from government (central and local administrations), businesses, social organizations, and knowledge institutes. Their commitment and interaction should serve to build knowledge about CP in the form of pilots and to gain insight into each other's experiences and interests.

Another following important step is to **incrementally expand the CP criteria to the private sector** and make them partially mandatory. After CP has been tested and embedded in the public sector and collaborations between the public and private sector have been initiated, the foundation is laid to expand it to the private sector. Successfully tested CP criteria in the public sector and public-private pilots as well as lessons-learned shall be used to develop a CP regulation for the private sector. Besides adjusting it to different sectors and product groups, it will also require developing a framework and/or action plan for the PC being rolled out in the private sector. Depending on specific characteristics, the roll-out might differ across sectors or product groups in terms of time horizon and mandatory vs. voluntary criteria.

Responsible governmental body

Ministry of Public Finances

Implementing stakeholders

The National Agency for Public Procurement, Romanian Agency for Digital Agenda, responsible for the SEAP (Electronic Public Procurement System), National Council for the Settlement of Disputes

Time horizon:

2024-2027

Source of funding

NRRP (Component C5, Component C7, Component C14), PPP construction

Action 2: Increasing and enabling recovery of construction materials

Increasing and enabling recovery of construction materials through the establishment of a legal framework and infrastructure enabling circulation in the construction sector

Description

Even though official statistics indicate a high percentage of recycling for CDW, i.e. 88% in 2020 in Romania, this percentage should be considered with some degree of skepticism considering that:

- Many construction companies do not even report the waste they generate, let alone that it has been recovered;
- A uniform system for the separate collection of this waste is not implemented at national level (with few local exceptions);
- Most construction waste is transported to landfills for municipal waste or worse, illegally dumped in fields to avoid paying the costs and fees for adequate disposal.[174]

Beyond the skepticism regarding the real amount of CDW in Romania it is important to account also for the fact that even for the legally declared and accounted CDW the cost of disposal is quite low, only 80 RON/ton (approx. 19 EUR/ton), that fails to encourage waste generators to recycle or reuse. This landfill tax is currently relatively low in Romania, even when compared with other neighboring nations, as for example in Bulgaria, where the landfill tax is at approx. 50 EUR/ton.[175] Moreover, the fact that there are no restrictions for landfilling construction waste, makes it a viable solution for the construction companies as in the end the cost of landfilling will be transferred to the beneficiaries through a direct price increase of the constructed objects.

The lack of recycling infrastructure is another important limiting factor that has been highlighted by the private sector. The existing crushing and treatment plants at national level are insufficient (there are very few examples of good practice in this sector in Bihor, Alba, Hunedoara, Buzău-Vernești, etc.). This, however, has to be addressed through the allocated funds from the NRRP (i.e. Measure I1.a and I1.d).

When it comes to reuse, while the legislation encourages constructors to reuse and recycle construction materials, there is no legal procedure in place to allow to re-certify a material, either for re-use or use as primary material. A good example in this regard is cement concrete, a 100% recyclable product, which at the end of its life cycle can be collected separately, crushed, and transformed into recycled aggregates, used both in infrastructure works and to produce new concrete. While it can be re-used, unfortunately currently cement is not fully re-cycled and re-used, due to lack of infrastructure and legal certification framework.

In this context to increase and enable recovery and reuse of construction materials in Romania we need first to **prepare and implement legal framework to support material recovery and reuse of construction materials and recycled CDW from recovery and demolition works.** While the national legislation (OUG 92/2021) stipulates obligations to reduce the amount of waste and encourages private companies to recover and reuse construction materials, there is a need to develop an adequate legal framework that identifies relevant actors, norms, and guidelines to re-certify materials from demolition or disassembly for re-use. Moreover, there is a need to provide support to the recycling and re-usage of

[174] https://ecoteca.ro/blog/deseuri-din-constructii
[175] https://www.cewep.eu/wp-content/uploads/2021/10/Landfill-taxes-and-restrictions-overview.pdf

construction materials, in alignment also with the transposition into the national legislation of the provisions from the EU Construction and Demolition Waste (CDW) Protocol and Guidelines[176].

Another important step in this direction would be to **improve the infrastructure for recycling and re-use** to enable recovery capacity in the country (already considered in the NRRP). The lack of crushing and treatment plants across the country represents a serious challenge for supporting higher rates of recycling at the place of demolition/construction. High transportation costs and the limited capacity of existing plants prevent more construction companies from choosing to crush and re-cycle the waste they produce. Instead, they either choose to landfill the CDW or under-report the total quantity and dispose of it illegally. The development of crushing and treatment capacity that is also outlined in the NRRP (Measure I1.a and I1.d) would support the better reporting and recycling of CDW.

To incentivize recovery of construction materials we need to **transpose into national legislation the Guideline for Waste Audits developed by the EC.**[177] The latter provides guidance on best practices for the assessment of CDW streams prior to demolition or renovation of buildings and infrastructures, called "waste audit". The aim of the guidance is to facilitate and maximize recovery of materials and components from demolition or renovation of buildings and infrastructures for beneficial reuse and recycling, without compromising the safety measures and practices outlined in the European Demolition Protocol. While such waste audits are not mandatory, these could be beneficial and must be considered already from the project development stage. In this regard, such a measure can be requested by the contracting authority/party in the procurement process. Moreover, waste audits can directly contribute to the transparency and monitoring of the waste streams if the data from the audits will be inserted in a digital platform.

Last but not the least, an important mechanism for disincentivizing waste landfilling is to increase the price for construction waste landfilling Currently the landfilling tax of 80 RON/tone is implemented for all the waste that is landfilled, including CDW. It is important to monitor and evaluate separately the CDW waste given that it has higher recovery and reuse potential. In this context, it is recommended to disincentivize landfilling of CDW through higher landfilling costs. This, however, must follow the development of recycling and reuse infrastructure that are planned in line with the NRRP, to be implemented only once the capacities and infrastructures for recycling become operational.

Responsible body in the governance model

Ministry of Development, Public Works and Administration and Ministry of Environment, Waters and Forests

Implementing stakeholders

National Environmental Guard, Romanian Agency *for Digital Agenda*

Time horizon

2024-2027

Funding

National budget

NRRP:(Component C5 and Component C3)

[176] https://single-market-economy.ec.europa.eu/news/eu-construction-and-demolition-waste-protocol-2018-09-18_en
[177] https://ec.europa.eu/docsroom/documents/31521/

Action 3: Prevention of illegal waste dumping of CDW

Prevention of illegal dumping of construction and demolition waste by increasing enforcement and disincentivising illegal practices.

Description

As highlighted in Action 2, there is a certain degree of skepticism regarding the total quantity of CDW that is properly disposed. Illegal waste dumping of CDW in Romania is a widespread problem, caused by:

- Lack of administrative and technological capacity for the regulatory agencies to enforce the existing regulations and
- Insufficient data on the waste streams, sources of waste as well as the types of waste produced across different construction projects.

While prevention of illegal waste dumping is not directly connected to circular economy, the monitoring and channeling of the waste generated into the appropriate streams is an essential pre-condition for it. Discouraging such practices creates the needed foundation for a circular framework in the management of the CDW.

Considering the existing context, a first important step to **address this issue would be to benchmark the waste streams, quantities and main sources in the demolitions/construction projects based on public projects that are planned and ongoing**. As there is currently no industry benchmark that would set up an expectation regarding the quantity of CDW produced in the process of construction, demolition or renovation, building a benchmark based on the data collected from the construction sites contracted by the public authorities would help to estimate the total amount of waste produced. The data collected from these sites should be compiled in a digital database to constantly update the industry benchmark and build a resilient model. This benchmark could offer public enforcement agencies the opportunity to check construction sites that report extremely low quantities of CDW, either to identify possible illegal practices or maybe good practices which can be upscaled.

At the same time, **institutional and technical capacity of enforcement agencies (environmental guard, police, etc.) to monitor and sanction illegal dumping practices must be increased**. Considering the widespread practice of illegal dumping of CDW, it is important that the enforcement agencies (environmental guard, police, etc.) can prevent, monitor and sanction efficiently those who are breaking the law. For doing so, these agencies need access to relevant data to estimate possible waste streams, monitoring capacities (including hardware and training) and direct involvement in the communication and information streams (e.g. through communication with State Inspectorate for Construction).

The development of digital infrastructure must follow adjustments in industry practices. In this regard it is important for example to first establish a normative structure for the re-use and recertification of recovered construction materials before building a digital marketplace for such materials. Nevertheless, it is imperative that such actions are considered along the development of the other actions as digital tools can help boost the effectiveness of the other measures proposed.

Simultaneously, there is a need to **develop a mechanism to disincentivize non-compliance with existing waste management rules.** This mechanism should build on the existing infrastructure solutions, industry best practices, current legislation, and waste management framework. In practical terms, the mechanism should outline what are the appropriate steps to be considered in a demolition process (e.g.

recommending a waste audit), institutions involved, and penalties for non-compliance. As such, the mechanism can take the form of rulebook that must be implemented at the local and national levels by the relevant actors (e.g. the beneficiary, National Inspectorate for Construction, enforcement authorities).

Responsible body in the governance model

Ministry of Development, Public Works and Administration, and Ministry of Environment, Waters and Forests

Implementing stakeholders

Ministry of Environment, National Environmental Guard, Romanian Agency for Digital Agenda

Time horizon

2024-2026

Funding

NRRP: (Component C5 and Component C3),

Action 4. Supporting the circulation of construction materials through digital means

Stimulation and facilitation of the uptake of circular construction products through the establishment of a CDW registry and a digital marketplace

Description

One of the most effective tools to optimize the management and prevention of waste is the intentional collection and storage of data, which is analyzed and made accessible to relevant stakeholders in the construction sector. There is vast potential to support the circular economy transition with a digital tool that helps connect the dots between actors and more circular practices. The main reasons are:

- significant amounts of waste generated by the construction sector;
- the majority of it getting landfilled or backfilled (downcycling);
- the trend of urbanization bringing the need for housing; and
- growing emphasis on the application of circularity and sustainability criteria in the construction sector.

Currently, the only online platform used by the Romanian Government is the SEAP platform as mentioned under Action 1. However, the platform does not contain any function to collect waste data or to buy or sell recovered construction materials. Given the current lack of legal framework, the secondary market feature is impossible to implement, which hinders the recertification of CDW as goods or primary material.

Additionally, there is a general lack of digital data and capacity for regulatory authorities to monitor construction sites, workers' rights and application of existing norms and regulations. This comes along a legislative framework that does not include any mandatory criteria for digitizing the projects' lifecycle, whether at planning, execution, or maintenance level.

Connected to the problem of public support for circular economy practices as well as waste tracking and monitoring, the lack of integrated and easily available digital tools to support implementation of circular economy practices in construction is a serious obstacle. In this regard, there is a clear need to

develop tools for reporting, accounting, and guiding practices associated with CDW, new buildings or construction materials, which can all be linked to one platform.

While there are no upcoming initiatives regarding the creation of an e-marketplace or a data management system in the construction sector from the government side, initiatives have been identified in the private sector. One example is the startup EcoTree, which provides a P2P platform for all waste market stakeholders to buy, sell and trade waste. As such, public authorities could use these types of initiatives for either supporting them or using their know-how as a best practice tool.

Standardization also plays a significant role in the digital transition of the construction industry. Access to standardized, open and reliable data would ensure a minimum set of criteria that could then facilitate even cross-border cooperation. Building Information Modelling (BIM) should be the key element, due to its popularity and the fact that it has already been adopted in several European countries. In Romania, there is already an on-going discussion regarding the prospects of BIM becoming the main catalyst for the digital revolution in the construction industry. A top-down approach would be advisable, since in other countries the successful implementation of BIM was also contingent on regulations mandating its use. This approach could be further developed through the Memorandum called "Approval of the Roadmap for the implementation of BIM methodology at national level in publicly funded investment projects in the construction sector" (September 2022), coordinated by the Ministry of Development, Public Works and Administration, as part of the NRRP.

To bring this action forward, it is recommended to **develop an online database to build an industry benchmark for waste generation resulting from demolition and construction activities**. Such a database would allow the collection, registration, storage, and processing of relevant data, as well as communication towards different users. The validated raw data, ideally supplied through data collection pilots in the initial phases and by waste collectors or construction companies in the long run, should be used to build an industry benchmark of CDW waste generation. The best way to kick this off is to use the data generated through pilot (construction) projects as it will help to estimate and benchmark CDW. The public sector would be an ideal candidate to launch this pilot as (1) it is responsible for vast construction and infrastructure projects and (2) it might be easier to obtain data from publicly owned projects. An additional advantage is that pilot projects can be used to showcase the potential of circularity measures and demonstrate how data collected on construction and demolition sites can inform a digital platform and thereby be used to increase the circularity of the overall sector, enabling more innovative and favored ways to valorize CDW.

This database should be maintained and updated frequently, making sure that best practices in the industry are reflected while depicting the actual amount of waste generated in the construction sector.

As a next step, it is essential to **establish a digital CDW registration, accessible to different institutions, agencies, and recovery companies.** This will mainly serve public institutions and agencies to measure progress-making, check compliance with national regulation related to recovery, identification of hotspots for high waste generation or detection of suspiciously low waste generation behavior. As an example for the latter, state enforcement agencies (e.g. Environmental Guard or the National Construction Agency) could decide to audit specific projects with abnormally low amount of waste, either to identify innovative practices or address possible illegal waste dumping. At the same time, this data should be available to companies engaging in recovery activities to support their business practices.

The registry should require developers and construction companies to report the waste they produce during their activities at construction and demolition sites. They should be asked to specify the amount, material, state, and any information they obtain that could inform proper circulation of the materials.

A next important element is to **support and incentivize the development and use of an online marketplace for recovered, re-certified as well as renewable construction materials** (dependent on legal framework). To maximize the use of the database established, it is recommended to create a digital marketplace where construction companies, developers and recovery companies can exchange materials and their services. This platform is likely to help to reduce the quantity of mis- or low-managed CDW overall by:

- optimizing the management of CDW, eventually helping to find a more favored use than landfilling or backfilling;
- increasing the input material for recyclers;
- identifying better construction materials (recycled or renewable materials);
- finding collaboration partners.

Such a platform will thereby help to build economic viability for recovery, recertification, and renewable construction materials. In practice, this platform would be linked to the CDW registry. However, the participation on this platform should be voluntary. Companies active in the waste and construction sector would register on this platform, activating their data from the registry (if applicable) or uploading relevant data and information, while also expressing their interest in materials and services. Finding the adequate opportunities and the exchange would be supported by a search engine and algorithms to optimize goodness of fit between parties.

As a last note, considering that less than one out of ten construction companies use mobile platforms, advanced data analytics and digital workforce, there is a significant need to increase awareness regarding the competitive advantages provided by the integration of digital solutions within the companies' workflow.

Responsible governmental body

Ministry of Development, Public Works and Administration, Romanian Agency for Digital Agenda

Implementing stakeholders

Developers, construction companies, waste collectors, existing platform

Time horizon

2024-2026

Funding

NRRP (Component C5, Component C7 and Component C14),

National Program "Smart growth, digitalization and financial instruments" (CCI - 2021RO16RFPR001)

Action 5: Building capacity and skills of future and existing workforce

Building capacity and skills in existing and future workforce to enable circular economy in the construction sector

Description

The industrial construction sector employs approximately 24.9 million people in the EU and provides a value added of EUR 1 158 billion (9.6% of the EU total).[178] In terms of employment and value added, this sector is the second most important of the 14 identified economic ecosystems, with retail as the only economic area with higher employment (29.8 million) and value added (11.5%). About 52% of the employment can be allocated to construction and demolition activities, which accounts for 55% of the added valuei. In this context, it is important to anticipate and prepare for major evolutions in the construction sector. The EC acknowledged the importance of the sector and already in 2020 it initiated discussions with the representatives of the industry to map and prepare solutions to address main challenges in the sector.

The general framework and discussion platforms present in Romania, and also at the EU level, show that capacity building and sectoral dialogue to enable circular practices in the construction sector are only at the incipient level. Nevertheless, it is imperative to start investing in this training and development as the implementation of circular economy practices in construction are only possible through the development and engagement of a skilled and prepared workforce.

Institutional capacity is one of the major challenges when it comes to raising awareness and improving dialogue about the importance of circular economy measures and skills in the construction sector. Public authorities lack skilled experts, especially at the local level, mainly because there is no legal framework to support the development and acquisition of skills for the circular economy. Moreover, as observed throughout the first three actions for this sector, there is also relatively limited engagement in general with the circular economy subject in the construction sector. This leads to a lack of interest in the subject, considering that authorities are not constrained by any regulations to create new jobs or specializations in this field.

At the university level, there are some study programs tailored for improving sustainability in the construction industry (e.g. the Waste Recovery Master's Program at Babes-Bolyai University, the Sustainable Development Master's program at the Technical University of Civil Engineering Bucharest or the Green Buildings Master's program at Technical University of Cluj-Napoca). These programs, however, are not common and therefore fail to foster quick and widespread adoption of circular economy practices in construction at the national level.

The role of NGOs is also important in building capacity and enhancing the dialogue between the public and private sectors. There are several interesting initiatives that bring together practitioners, researchers and representatives of public authorities, with the aim to support knowledge sharing, disseminate research, promote best practice examples and facilitate cooperation between all actors that want to contribute to the sustainable and circular approaches for the construction sector. Different kinds of activities, including training certified by the public authorities, are regularly organized. There are also interesting education showcase examples such as EFdeN sustainable city179, an NGO based project that aims to showcase ways to build sustainable housing, relying on circular economy practices. However, these initiatives are uncoordinated and are not institutionalized, thus cannot make widespread and long-lasting impact.

This action, therefore, aims identify the steps to build on the existing good practices and develop a structured, coordinated and institutionalized approach to build capacity and enhance a dialogue for the future and existing workforce to enable circular economy in the construction sector.

[178] https://ec.europa.eu/docsroom/documents/47996

[179] https://efden.org/

A first step in that direction would be to **develop educational programs to support knowledge and skill development of the future workforce.** While there are some programs at different universities across the country, these are rather individual ad hoc initiatives, that need to be complemented by a more systematic approach. More specifically, there is need to develop an educational program that could be supported by the Ministry of Education, and which could lay the foundation for a curriculum on circular economy/sustainability in construction at the national level. This effort must be also supported by the private sector, through dialogue across educational and industry entities, to identify specific needs and explore opportunities for training circular economy/sustainable experts in the sector.

The next step would consist in building the **legal framework for and incentivizing the engagement of circular economy specialists.** Both private and public sectors must be incentivized to hire and integrate in their structures circular economy specialists, as for example through exemption or deduction of taxes. This could even go beyond incentives, to mandating the hiring of a circular economy specialist (engineer) for every 100 employees/on every site operated by the company or open new positions in the public sector for such specialists. At the same time, specialization programmes can be developed for public and private authorities to train the specialists in circular economy practices in construction (e.g. for procurement specialists dealing with construction contracts). These processes must be supported by the update of the occupation registry to include new job profiles. Public-private cooperation is also essential for making these adjustments, as inter-sectoral dialogue can play an essential role in identifying needs and opportunities in the sector that can be addressed through development of skills and competences associated with new circular economy related occupations.

Responsible body in the governance model

Ministry of Education and Research

Implementing stakeholders

Universities, Large construction companies, Educational NGOs, The National Council of Rectors

Time horizon

2027-2026

Funding

NRRP (Component C5, Component C9 and Component C15),

National Program Education and Employment 2021-2027 (CCI – 2021RO05SFPR001),

PPPs.

A.5 Food and beverages

Action 1: Infrastructure and tool development for the separate collection of household bio-waste

Developing infrastructure and tools (such as compostable bags) for the separate collection of household bio-waste, as required by the EU Waste Framework Directive, and for its composting or the joint production of biogas, biomethane and fertilizers

Description

During the discussions with stakeholders, the infrastructure for valorising bio-waste was deemed both very necessary and difficult to implement, considering difficulties with implementing other large scale

waste management projects. Its potential benefits are, however, also very clear as the infrastructure to collect secondary raw materials would enable their use for producing either energy or compost for regenerating agricultural soil.

Responsible body in the governance model

Minister of Environment, Waters and Forests

Implementing stakeholders

Local authorities

Time horizon: 2024-2029

Funding

State budget: e.g. National Research Development and Innovation Plan 2022-2027

Regional Operational Programme for 2021-2027, Program on Sustainable Development, Objective to promote transition to circular and efficient economy, that also includes Action 1.3. with a focus on the efficient management of waste to accelerate the transition process and conform with EU environmental directives.

Technical Assistance Operational Programme (POAT), priority axis 1 - 1.1.2 Support for the development and implementation of horizontal assistance to European Structural and Investment Funds (EISF) beneficiaries by carrying out activities that lead to the development of project management capacity such as: development and improvement of good practice guides; help desk and assistance for the implementation of projects, etc.

Operational Programme Administrative Capacity (OP CA), Priority Axis 1, Specific Objective 1.1 – Development and introduction of common systems and standards in public administration that optimize decision-making processes oriented towards citizens and the business environment in accordance with the Strategy for Strengthening the Public Administration.

Action 2: Update of the legislation regarding food waste

Updating food waste legislation to create a food waste prevention obligation for producers and retailers and to develop adequate collection infrastructure to increase the amount of food waste collected as part of a separate biomass creation system

Description

Romania has already started to address food waste at the production level. According to the stakeholder interviews, however, there are several limitations with respect to the scope and implementation of relevant legislations. The most significant concern was related to the fact that current legislation requires food to be at most 10 days before expiration date to be donated and included in the tax incentive system, thus addressing only a relatively small part of food at risk of becoming waste.

Similarly, due to Government Ordinance 99/2000 regarding products and services sale, retailers are not allowed to sell at loss products for which two thirds of the validity period have expired. Once entered in the last third of their validity period, these products are no longer made available to consumers for sale, since the estimated time of sale is longer than the validity duration. This means that retailers must wait for their expiration to have them destroyed. This, however, entails additional costs for retailers, since

the food must be stored in specific conditions, which is why the food will become waste, rather than being donated/sold.

A legislative update on this subject matter should subscribe to the principle of food valorisation, with a specific focus on combatting and preventing food waste, that could also have a positive

Stakeholders have also highlighted the importance of developing adequate infrastructure to collect food waste at the national level.

Responsible body in the governance model:

Ministry of Economy

Implementing stakeholders

National Authority for Consumer Protection
Local authorities
Private sector (supermarkets, restaurant, canteens, catering companies etc.)

Time horizon

2024-2025

Budgeting and funding:

State Budget

Action 3: Food waste prevention

Using large-scale food banks or integrated online systems and increasing current incentives to increase the amount of donated food and reduce food waste through economic tools such as VAT exemptions for donated products, tax credits and deductions, or the remodulation of waste taxes to make donations more economically advantageous than disposal, for food brands and retailers

Description

Poor access to healthy foods limits one's ability to have a balanced diet and increases the risk of obesity, diabetes and other health problems for both adults and children. According to the Ministry of Investments and European Projects (MIPE), close to 1.2 million people are exposed to extreme poverty in Romania[180] — or lack consistent access to enough food for a healthy life. The EU has mobilized funds to provide food packages to these people and allow them to use their financial resources for other purposes.

At the same time, Romanians waste about 6000 tons of food daily[181], which shows an opportunity for food to be donated by both households and businesses. At household level, implementing a national food bank accepting and rejecting donations from private citizens based on strict criteria could reduce the amount of food waste, create jobs, and increase the amount of food available for people in extreme poverty. At company level, extending the current food bank platforms and investing in infrastructure could also further alleviate the pressure on agri-food systems and the need for social programmes.

180 https://stirileprotv.ro/stiri/social/ministrul-investitiilor-1-2-milioane-de-romani-sufera-de-saracie-extrema.html
181 https://green-report.ro/veres-banca-de-alimente-in-romania-se-arunca-6-000-de-tone-de-alimente-pe-zi/?gclid=Cj0KCQiA1sucBhDgARIsAFoytUsT5Y-QMA_xv3OEe6fKMpQmVc7FmvOf1M2Y1uOC3BPvCmdx8ani0iUaAhr9EALw_wcB

Responsible body in the governance model

Ministry of Public Finances;

Implementing stakeholders

Local authorities, Ministry of Health, National Sanitary Veterinary and Food Safety Authority, National Authority for Public Health

Time horizon:

2024-2027

Budgeting and funding

- **Large scale food banks:** Recovery and resilience plan for Romania - C3 WASTE MANAGEMENT - I1. The development, modernization and completion of the integrated management systems of municipal waste at county level or at city/municipal level
- **Legislation:** State budget
- **Integrated online systems**: Smart Growth, Digitization and Financial Instruments Program, Action 2.2 E-government and digitization for the benefit of citizens --> 2.2.1 E-guv in public administration/institutions --> 3. The development of IT platforms powered by the data generated by the public administration - Open Data - (Directive 2019/1024, PSI and Law no. 179/2022) in order to make it available to the public and reuse.

Action 4: Research studies to further developing the circularity potential of biomass and food waste

Assessing the circularity potential of biomass and food waste through research studies to determine uses, economic benefits and how waste streams can be integrated with energy and agricultural flows (energy production and biofertilization).

Description

Within the EU, the same products can have different qualities,[182] imposing some limitations on the extent to which the results of studies of food waste and food waste potential from other member states, can be applied in the Romanian context. Therefore, additional research is needed to assess the extent and possible uses of food waste in Romania, based on the collection of reliable data by universities and research institutions in cooperation with public national authorities. These studies could then better inform policy makers and food waste producers on the extent and impact of the problems, towards the identification of adequate mitigation measures.

Responsible body in the governance model

Ministry of Research, Innovation and Digitization
Ministry of Agriculture and Rural Development

Implementing stakeholders

National R&D Institute for Food Bioresources - IBA Bucharest

[182] https://ec.europa.eu/commission/presscorner/detail/ro/QANDA_19_3333

National Research-Development Institute for Agricultural Machinery and Installations for Agriculture and the Food Industry - INMA Bucharest

Time horizon

2024-2027

Funding

State Budget: e.g. National Research Development and Innovation Plan 2022-2027, 5.6. Chalenges Programme --> 5.6.3. Solutions subprogram

Action 5: Increasing the share of secondary raw materials in food packaging

Increasing the percentage of secondary (recycled) materials used in the packaging of products by introducing legislation which protects beverages producers from unfair competition on the market for secondary materials

Description

Stakeholders participating in the EPR scheme for packaging are legally required to use a growing percentage of recycled materials in their plastic packaging (PET in beverage bottles[183]). After the adoption of this legislation (SUP Directive[184]), the recycled PET became scarcely available and expensive when compared to the availability and prices of virgin raw materials.

To fulfil this obligation, the interviewed stakeholders indicated the importance of making further arrangements towards increasing availability of secondary raw materials at an accessible price. More specifically, they referred to the regulation of the Right of First Refusal (RoFR)[185] when acquiring secondary raw materials for businesses participating in the EPR packaging scheme. The RoFR, in this context, is a contractual right to enter a business transaction with a person or company which sells secondary raw materials before anyone else, based on the quantity of collected and recycled packaging that they contributed with. Only if the EPR participant with the right to buy declines to enter the transaction, the seller is then allowed to sell their secondary raw materials to other parties. This solution was also proposed by the beverage associations at EU level to be integrated in the revision of the Packaging Directive, but ultimately rejected by the European Commission.

The scarcity of secondary raw materials wich are needed by the industry to meet yearly objectives remains true, despite the RoFR idea being rejected, and the issue has to be addressed in order to ensure the transition to circularity.

Responsible body in the governance model

Ministry of Economy; Ministry of Environment, Water and Forests

Implementing stakeholders

EPR organizations

[183] https://aijn.eu/files/attachments/.5045/PRESS_RELEASE_Beverage_industry_needs_priority_access_to_its_recycled_plastic_material.pdf

[184] Directive (EU) 2019/904 of the European Parliament and of the Council

[185] https://packagingeurope.com/news/is-a-priority-access-policy-needed-to-close-the-loop-on-beverage-packaging-in-europe/8174.article

Time horizon

2024-2026

Funding

State budget, e.g. National Research Development and Innovation Plan 2022-2027

A.6 Packaging

Action 1: Analysis and reformulation of the EPR for packaging

Analysis and reformulation of the EPR system for packaging to increase effectiveness and enhance funding for improving the infrastructure for sorted packaging waste collection.

During the interviews with the stakeholders in the packaging sector, several of them expressed their concerns regarding the current functioning of the EPR system for packaging in Romania. Currently, there are 16 PROs for packaging operating in Romania.[186] Several stakeholders agreed that this is too many, as it leads to excessive competition and drives down the prices for producers below the true costs of waste management. Stakeholders further emphasized that data on the amount of waste collected and recycled by organizations indicates artificially high rates, that do not correspond to the actual amounts of recycled waste. This results from a lack of adequate procedures for auditing and monitoring the PROs.

In the case of packaging waste from municipal waste the collection and sorting costs are higher compared to the industrial and commercial streams, as shown by data from other countries, while in the case of Romania the difference in the fees charged to producers by PRO organisations is about 10%. This leads on the one hand to the reluctance to finance net costs for municipal waste streams, where costs are higher and less valuable waste is contaminated from contact with packaged products, and the allocation of too high amounts in the industrial and commercial stream, while misleading producers about the real costs of waste management.

The insufficient performance of the EPR scheme can also be explained by the absence of a clearinghouse that would supervise the EPR activities. Such a clearinghouse could check the recycling and recovery requirements more effectively, ensure and coordinate adequate infrastructure for the national coverage of packaging waste management, and identify and sanction free riders, who do not financially contribute to the system. Finally, it could also provide some quality monitoring for the plastic collected, as contamination of the discarded packaging that was collected selectively especially in the case of plastic packaging, significantly reduces the recyclability of the material.

Considering Romania's underperformance in packaging waste management and stakeholders' views in this regard, a study should be carried out to analyse the current status and problems of the EPR scheme for packaging, focusing on the problems mentioned above. This should consider the study that has been developed in the context of implementing the Waste and Contaminated Sites Management Policy for the Ministry of Environment, Water and Forests[187] to examine the packaging situation as well as to develop a forecast and proposal for appropriate measures. In addition to this, a new study will be carried out under the National Waste Management Plan that will inform about the current status quo in the waste

[186] http://www.mmediu.ro/categorie/comisia-de-supraveghere/196
[187] "Capacity Development for the Ministry of the Environment, Water and Forests to implement the waste and site management policy contaminated", COD SIPOCA 21, the National Plan of Waste Management (project conducted since 2016).

sector. Taken together should then be used to formulate possible solutions and recommendations for the packaging sector. By improving and increasing the effectiveness of the EPR system for packaging, any potential gain in economic revenues resulting from these adjustments can then be used for financing improvements in the national system of sorted waste collection and recycling.

Responsible body in the governance model

Ministry of Environment, Water and Forests

Implementing stakeholders

Ministry of Economy, Producer responsibility organizations (PROs), local authorities

Time horizon

2024-2027

Funding

National budget.

Action 2: Improvement of modulation fees

Improvement of modulation of fees in the EPR scheme for packaging to consider all costs associated with the management of waste

The EPR scheme for packaging has several shortcomings, that generate problems regarding recycling of packaging products. In Romania, producers under an EPR scheme are not properly incentivized to recycle the packaging waste, as landfill costs are usually much lower. At the same time, producers' fees do not fully capture the environmental characteristics of packaging products.

For example, according to information on 12 PROs in packaging,[188] the average fees for PET producers are much higher than for other types of plastics, such as PE, PVC, PP or PS, even though the former are much easier to recycle.[189] While the producer fees are 141 EUR per tonne for municipal and 132 EUR per tonne for industrial packaging for PET, tariffs for other forms of plastic materials, are 64 and 76 EUR on average per tonne, for municipal and industrial packaging, respectively. This is related to differences in the targets for the collection of PET and other types of plastics, set out in Ordinance No.196/2005,[190] with a rate of 55% set for PETs relative to only 22.5% set for other types of plastics, to be increased towards 65% and 50% by 2025.[191] As a result of these differences, the contribution that producers must pay, set at 2 lei/kg for the gap between the amount recovered via incineration in incineration plants with energy recovery or recycling and the minimum target, would also be much higher for PET plastic. According to stakeholder opinions, PROs would set higher fees for producers of PET material in order to reimburse higher costs of contribution. Other types of plastic materials, however, are more difficult to recycle for technological or economic reasons, and often end up in landfills. It would therefore make more sense to set higher fees for other types of plastic materials, to disincentivize their use.

Following the polluter pays principle, under an EPR scheme, producers of packaging should be financially responsible for the true costs at the end-of-life cycle of the product as the producer

[188] http://www.mmediu.ro/categorie/comisia-de-supraveghere/196
[189] https://www.pro-e.org/files/PRO-Europe-Participation-Costs-Overview-2022.pdf
[190] https://www.afm.ro/main/legislatie_taxe_si_contributii/2017/oug_196_2005_17072017.pdf
[191] https://lege5.ro/Gratuit/gmztqmzvgy3a/ordonanta-de-urgenta-nr-50-2019-pentru-modificarea-si-completarea-ordonantei-de-urgenta-a-guvernului-nr-196-2005-privind-fondul-pentru-mediu-si-pentru-modificarea-si-completarea-legii-nr-249-2015-priv?pid=289654583#p-289654583

determines the product characteristics that affect its life cycle. During the interviews, stakeholders also agreed that proper eco-modulation should be introduced, penalizing materials that are not designed in a circular way.

Advanced modulation of fees is also endorsed by the amended EU Waste Framework Directive[192] which requires fee modulation considering the durability, reparability, re-usability and recyclability of the packaging and the presence of hazardous substances in it. The directive requires MS to ensure the modulation of fees by January 2023. Eco-modulation is expected to improve separate collection of packaging waste and its recycling to achieve compliance with the recycling targets set out in the Packaging and packaging waste Directive[193] and its transposition in Law 249/2015 on the management of packaging and packaging waste. In addition, it is also expected to support the objectives set out in the Waste Directive to achieve minimum re-use and recycling rates of 55 %, 60% and 65% by weight by 2025, 2030 and 2035 respectively of municipal waste.

As a result, EPR schemes for packaging in Romania should be further improved through eco-modulation of fees differentiated with respect to the product's environmental characteristics. These characteristics can refer to recyclability, the recycled content, the presence of hazardous substances, reparability, durability, biodegradability, availability of recycling facilities for this material or information on recyclability directly on the packaging (IEEP, 2017).

Considerations of these aspects as part of the eco-modulation of fees can stimulate the eco-design of the product, improve the quality of secondary materials to be used in production, and lower the costs at the end-of-life cycle stage. The benefits of criteria aimed at increasing a product's lifespan or encouraging the use of secondary materials are not limited to the end-of-life stage but can decrease the virgin material extraction at the production phase and increase the use phase of the product.

Eco-modulation of fees in Romania should be based on a study carried out by the government together with relevant stakeholders from the private sector and academia, considering best practices from other EU countries and adapted to the national context. Based on the study, the responsible authority can decide on the legislative change together with the relevant stakeholders within the working group.

Responsible body in the governance model

Ministry of Environment, Waters and Forests

Implementing stakeholders

Ministry of Economy, Producer responsibility organizations (PROs)

Time horizon

2024-2027

Funding

National budget

Action 3: Expansion of the EPR scheme to cover littering

[192] Directive 2008/98/EC https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L0851&from=EN
[193] Directive 94/62/EC https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:01994L0062-20150526&from=EN

Expansion of the scope of the EPR scheme to include costs of litter clean-up as well as the costs of awareness raising measures to prevent and reduce such litter in line with the Single-Use Plastic Directive

Description

Littering is a widespread environmental problem, threatening wildlife ocean health and marine ecosystems through pollution. According to some estimations, 14 million tonnes of litter are collected from the streets of Europe annually and another 6.4 million tons of litter enter the oceans every year[194]. In the EU, 80 to 85 % of marine litter, measured as beach litter counts, is plastic, with single-use plastic items representing 50 %[195].

The problem of litter abandoned haphazardly in natural areas and beyond is a well-known problem also in Romania.[196,197] Plastic objects account for a large part of the litter on various beaches on the Black Sea.[198] On average, around 85% of the litter found in the Black Sea is plastic, mostly plastic bottles, plastic bags, and containers.[199]

Littering is associated with significant costs of cleaning up. The Clean Europe Network estimated these costs for EU countries to add up to approximately EUR 10 to 13 billion annually.[200] These costs in Romania, however, are not borne by manufacturers, but by municipalities or voluntary organisations. Therefore, producers lack the motivation to improve the design and composition of products to reduce the amount of littering. Following the polluter pays principle, the costs associated with littering clean-up should be financed by producers of certain products.

This is also consistent with the Single Use (Disposable) Plastic Directive, that the EC has introduced from 2023, that also includes stipulations regarding the obligation to cover the costs of littering clean-up, and of awareness raising measures to prevent and reduce littering, through EPR schemes. This will be supported by a study on developing implementing acts and guidance under the SUP issued by the EC.[201] Such measure may encourage manufacturers to improve product design or composition, leading to a reduction in littering. At the same time, reducing marine litter is relevant in the context of the UN Sustainable Development Goal 14[202] aiming at conservation and sustainable use of oceans, seas, and marine resources for sustainable development.

As proposed in the SUPD, Romania should prepare the study to analyse the scope, structure and related costs of littering and then integrate them into the EPR system. Based on discussions with stakeholders, it is important to accurately determine the litter composition to properly assess and factor in these costs. For successful implementation, it is also important to define the difference between littering and illegal dumping. However, by transferring part of the responsibility for littering to the producers, the

[194] http://www.europeancleaningjournal.com/magazine/april-may-2016/latest-news/littering-our-dirty-europe
[195] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019L0904&from=EN
[196] https://hartareciclarii.ro/noutati/impactul-pet-urilor-aruncate-in-natura/
[197] https://www.kilometrulbine.ro/articole/de-ce-sa-nu-aruncam-deseuri-in-natura-25
[198] doi: 10.1016/j.marpolbul.2017.03.035
[199] https://emblasproject.org/
[200] https://cleaneuropenetwork.eu/en/info/the-litter-challenge/

[201] https://op.europa.eu/en/publication-detail/-/publication/e9f3bf85-a706-11eb-9585-01aa75ed71a1/language-en/format-PDF/source-241187543

[202] https://sdgs.un.org/goals/goal14

responsibility of the citizen who throws away the waste does not disappear, and the citizen should be properly fined for such acts as well.

Responsible body in the governance model

Ministry of Environment, Water and Forests

Implementing stakeholders

Ministry of Economy, Producer responsibility organizations (PROs)

Time horizon

2024-2026

Budgeting and funding

National budget

Action 4: Tax on virgin materials

Introduction of tax on virgin materials in packaging

Description

Tax on virgin plastics or certain plastic materials can shift incentives to reduce the unsustainable extraction of raw materials, and increase demand for secondary materials or other more sustainable alternatives. In addition, it will also support the expansion of recycled plastics market, as the plastics market is currently highly dependent on primary plastics and vulnerable to oil prices. When oil price is low, virgin plastics often end up with lower prices than secondary plastics.[203] Romanian stakeholders also agreed that the introduction of a tax on virgin materials is inevitable for the creation of the market for secondary materials.

As part of the European Green Deal and Recovery and Resilience Mechanism, in 2021 the EU introduced a levy on unrecycled plastic packaging, known as "Plastics own resource."[204] This is a contribution calculated for each member state based on the amount of non-recycled plastic packaging waste at the rate of EUR 0.80 per kilogram. Current statistics suggest that Romania will face a levy of EUR 118 million each year without further action.

Each member state has to pay a contribution from its own budget, regardless of whether it has a national system established to collect taxes related to the use of virgin primary materials. Therefore, Romania should design and implement its own plastic packaging tax to transfer the costs of contribution to producers based on "polluter pays principle". In view of this new EU levy, several countries have presented plans to tax the use of plastics, including Italy, Spain, and the Netherlands.

Based on EU Regulation 196/2005, packaging manufacturers in Romania already must pay a contribution to the Environmental Administration Fund for non-recovered packaging waste. The contribution is calculated as a difference between the quantities of packaging waste entrusted for recovery through recycling or incineration with energy recovery, and the quantities of packaging waste corresponding to the minimum recovery (minimum targets). According to recent amendments, with the adoption of Ordinance 125/2022, the calculation changes as it considered the quantities of packaging waste actually recovered or incinerated, rather than the quantities merely entrusted, to improve the effectiveness of

[203] https://doi.org/10.1787/9789264301016-en
[204] https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32020D2053&from=EN

the policy. The minimum targets, however, are still rather low, corresponding to only 55% for PET and 22.5% for other plastic materials, failing to encourage an increase in recycling rates. Upward adjustments scheduled for the next years, to 50% for plastic materials and 65% for PET in 2025, should play an important role in increasing the rate of recycling and/or contributions paid to the Environmental Administration Fund.

Responsible body in the governance model

Ministry of Environment and Ministry of Finance

Implementing stakeholders

Ministry of Finance

Time horizon

2024-2030

Budgeting and funding

National budget.

Action 5: Eco-design requirements

Establishment of eco-design requirements on packaging: re-usability and high-purity recyclability (including easy dis-assembly into materially homogeneous parts), in line with EU-level requirements

The proposal for Eco-design for Sustainable Products Regulation[205] specifies at Art. 5(1) that eco-design requirements may be placed on products to enhance (c) their re-usability, (k) their possibility of remanufacturing and recycling, or (l) the possibility of recovery of materials. These requirements are likely to be applied to packaging products and can be anticipated by Romania.

During the interviews, the Romanian stakeholders also recognized that the implementation of eco-design is an important measure that should go beyond voluntary measures. More specifically, stakeholders are for example in favour of improving the standardization of plastic packaging, to ultimately increase their recyclability by limiting some elements, e.g. colours, composites and mix with other materials, the amount of packaging for a given content or laminated materials.

The precise content of eco-design requirements for packaging will be the purpose of a Delegated Act, to be adopted by the Commission (as per Art. 4 and 66 of the legislative proposal). Romania will be invited to participate in the elaboration of this Act. Once adopted, the Delegated Act will apply to all products sold or manufactured in the EU, including packaging products in Romania.

Before the adoption of such Delegated Acts, Romania can define its own requirements on the re-usability or the high-purity recyclability of packaging. This can rely on a purely voluntary mechanism, whereby manufacturers can be allowed to claim adherence to re-usability or high-purity recyclability criteria, complemented by some measures to assess the validity of claims. Alternatively, Romania could also adopt mandatory requirements in these regards and as such anticipate EU-wide requirements.

[205] Proposal for a Regulation establishing a framework for setting ecodesign requirements for sustainable products COM/2022/142 final https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52022PC0142

The requirements on **re-usability** of packaging, for example, would imply that the packaging would need to be designed in a way that:

- It increases its lifetime;
- Includes reversible opening and closing, ensuring the adequate level of air- or liquid-tightness even after the first opening, for a specified minimum number of openings and closings with no loss of functionality or performance of the air- or liquid-tightness;
- Sealing of the opening (ensuring the authenticity and the safety of the product upon purchase), when present is performed in a way that the breach of the initial seal preserves the capacity of the opening to be subsequently opened and closed reversibly as above.

The requirements on the **possibility of remanufacturing and recycling** and the **possibility of recovery of materials** of packaging would imply that the packaging would need to be designed along the following lines:

- The packaging to be made of only one homogeneous piece of material, or through the reversible assembly of parts, each part being made of one homogeneous piece of material;
- The homogeneous materials in the composition of the packaging to be easily recyclable at low economic and environmental cost;
- The feasibility for the dis-assembly of the packaging into homogeneous parts to be performed in a relatively short time (typically: less than 10 seconds), by an unskilled person with no specific tools;
- The dis-assembly process to be either straightforward or clearly explained with adequate figures on the packaging itself;
- Each part (or the whole packaging, when applicable) to be indelibly marked with a normalised sign enabling its easy sorting in the appropriate recycling bin;
- Possibility to wash off, with water, any ink, tainting, paint, varnish, etc applied to the packaging for decorative purposes, with no harm made to the wastewater treatment facility nor to the environment.

Such requirements could be differentiated per type of packaging and should entail stricter requirements for packaging made of materials that are easier to recycle, such as glass or aluminium, and foresee a ramp-up of these requirements over time for materials that are more difficult to recycle, such as plastics.

Responsible body in the governance model

Ministry of Economy

Implementing stakeholders

Ministry of the Environment, Ministry of Economy, Manufacturers of packaging, Manufacturers of packaged consumer goods (food, beverages, detergents, hygiene & beauty products).

Time horizon

2024-2027

Any mandatory requirement on re-usable packaging needs to be coherent in terms of calendar and content with the adoption of the Eco-design for Sustainable Products Regulation and the corresponding Delegated Acts for the packaging sector.

In the meantime, Romania can implement a decision specifying the requirements that re-usable packaging or packaging with high-purity recycling potential needs to comply with, on a voluntary basis.

Funding

National budget.

Action 6: Loose packaging/self packaging

Mandating retail shops to allow the usage of self-provided, re-usable containers and packaging for the purchase of dry-bulk food

An essential first step to kick-start the usage of re-usable containers is to allow customers to use their own packaging for the selection, weighing and transportation of dry foods purchased in bulk (e.g. cereals, vegetables, nuts, dry fruit, biscuits etc.). For this to work and scale up, there must be an obligation set on retailers to accept supplying customers when these customers use their own, re-usable, packaging to carry their purchases. This implies that retailers should also provide the necessary equipment for customers to have the capacity to weigh the container to determine the weight to be deduced upon purchase.

Responsible body in the governance model

Ministry of Agriculture and Rural Development

Implementing stakeholders

Food retailers, Ministry of Health

Time horizon

2024-2027

Budgeting and funding

National budget.

A.7 Textiles

Action 1: Creation of efficient collection and sorting systems for used textile

Creation of a national collection, sorting and valorization system for used textile and apparel that prioritizes reuse over recycling for as long as possible, and relies on advanced technical solutions for sorting and recycling.

Description

Textile waste management, barely existent in Romania, should be created from start as a resource management approach established to reduce the environmental footprint of textiles along the life cycle, ensure that the value of textiles is retained in the economy for as long as possible, and reduce dependencies on virgin raw materials. This should lead to the creation of new jobs and could potentially also benefit the competitiveness and resilience of the textile and apparel sector in Romania, given regulatory changes and shift of market preferences towards sustainable production and consumption.

According to European legislation, waste producers and waste holders in fact have the obligation to implement separate collection for textiles until January 1, 2025, with the participation of local administrative authorities through the implementation process.

While collection, sorting, reuse, and recycling of textile all require further improvements, improving product design is the first step to reach these objectives and ensure alignment with emerging regulations. Usually, the manufacturing of textile and apparel relies on blending of fibres (e.g. polyester with cotton), which makes recycling more difficult due to low availability of technologies to separate textile waste by fibre. Elastane, often added to increase the functionalities of fabrics, can act as a contaminant in almost all textile fibre recycling technologies, impacting the economic feasibility and environmental cost of the recycling process. For thermo-mechanical recycling, blending of different types of polyester can also adversely affect the processing of textile waste and the quality of the recycling output.

The development of a separate collection system for discarded textile products would allow for the possibility to reuse the collected items, and therefore reduce the amount of waste in deposit areas, including on landfills. The textile collection system should complement the existing waste collection infrastructure, while being informed by best practices from other countries and/or the sorted collection of other types of discarded products. Schools, housing estates, shops should for example be endowed with special containers (textile banks) in areas that optimizes accessibility. To promote the use of the sorted collection system, infrastructure development should be followed by campaigns to inform citizens on the availability, use and benefits of sorted collection, reuse, and recycling of textile.

To improve sorting and pre-processing, it is necessary to develop highspeed automated sorting systems that are capable of rapidly identifying fibre compositions and separating textiles based on desired characteristics. Development of separation methods for blended fibres as well as multi-material components is also necessary. With respect to recycling technologies, there is need to make them more cost-effective, to ensure that the transformation of used clothes into raw materials is economically desirable.

The sorting facilities will have the following benefits: almost new clothes or clothing without great defects will be passed to municipal (social) services and NGOs that deal with aid programme intended for the citizens; items from wool and wool mixtures, cotton, cellulose, synthetic and carpets should be passed to the textile recycling into secondary raw materials; the remaining textile waste, either contaminated or without any recycling solution, would be delivered to energy recovery. To implement the collection and sorting of used clothes and of other used textile products and to establish a recycling system, the financial support of public and private actors is required.

Responsible body in the governance model

Ministry of Environment, Ministry of European Investments and Projects, Ministry of Economy, Ministry of Research, Innovation and Digitization

Implementing stakeholders

Local authorities, producers, retailers, scientific bodies (research institutes, universities)

Time horizon

2023-2030

Funding

Public funding sources: NRRP - C.3 - Waste management;

Ministry of Economy – Circular Economy Funding Program;

Local administration budgets;

Private investments by producers.

Action 2: Introduction of mandatory labelling criteria (digital product passport)

Introduction of mandatory labelling criteria (digital product passport), such as the content and type of recycled materials, the water and energy consumption along the life cycle

Description

The EC intends to use the Digital Product Passport (DPP) as a tool to provide digital information and data about a product, accessible through a physical identifier. Digital communication vehicles (for instance QR codes, Data Matrix, or RFID tags) would provide better ways to share easily accessible, complete, up-to-date, comparable, trustworthy, and easy-to-correct information. Furthermore, from an environmental perspective, electronic labelling would avoid creating extra waste in the form of hangtags and would be able to accommodate more comprehensive information about the product.

The technical specifications of the Digital Product Passport, ensuring end-to-end interoperability along the supply chain, will be defined as part of the implementation of the Ecodesign for Sustainable Products Regulation. Nonetheless, preparation in this regard could put producers and consumers from Romania at an advantage to exploit new market opportunities and improve compliance with upcoming regulations.

The information to be covered by the Digital Product Passport could refer to:

- The composition of the fibres, so as to facilitate high-purity sorting for recycling, as the lack of this information currently imposes limitations (as explained in Action 1);
- The share of recycled material, to inform environmentally conscious consumers;
- The consolidated water and/or energy consumption, GHG emissions, along the product lifecycle, particularly for environmentally conscious consumers.

To enable the recycling of a product and to comply with the requirements of the EU Textile Regulation, information on fibre and material composition of textile products, including the percentage of the various fibres in the product should be collected.

Advanced labelling strategies are therefore needed to facilitate and communicate textile traceability throughout the value chain and lifecycle of products. Publicly available databases, registries and repositories need to be developed following data principles of findability, accessibility, interoperability, and reusability.

The economic operator responsible for providing, uploading, or amending the information that is present on the passport needs to be identified. This becomes especially crucial in the post-consumer phase. Ensuring the reliability of the information – and therefore the origin, quality, and processing of the data included in the passport – will be essential.

Technology standards should be clarified. The textile supply chain is global, therefore the national framework should not be prescriptive regarding the type of carriers for the information exchange between economic actors (QR code, watermarks, etc.) to allow upcoming innovations to be integrated as smoothly as possible.

Responsible body in the governance model

Ministry of Economy, Ministry of Research, Innovation and Digitization.

Implementing stakeholders

Producers, standardization bodies (ASRO)

Time horizon

2024-2031

Funding

Environment Fund Administration;

Ministry of Economy – Circular Economy Funding program;

National Research Development and Innovation Plan 2022-2027;

Regional Operational Program for 2021-2027, Smart growth, digitalization and financial instruments.

Private investments by producers.

Action 3: Introduction of Eco-design legal requirements

Introduction of Eco-design legal requirements with respect to textile and apparel products to increase durability, reparability, and recyclability, while minimizing water and energy consumption along the life cycle

Description

The Eco-design for Sustainable Products Regulation (COM (2022) 142), subject to approval, intends to develop binding product-specific eco-design requirements to increase textiles' performance in terms of durability, reusability, reparability, fibre-to-fibre recyclability and mandatory recycled fibre content, to minimise and track the presence of substances of concern and to reduce the adverse impacts on climate and the environment.[206] In doing so, specific attention will be paid to the cost-effectiveness and proportionality of measures, as well as the affordability of textiles[207]. The Eco-design for Sustainable Products Regulation, together with new rules on EPR under the Waste Framework Directive, is expected to encourage more sustainable alternatives to fast changing fashion trends.

[206] https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12822-EU-strategy-for-sustainable-textiles
[207] EU Strategy for Sustainable and Circular Textiles

National legislation and practices should therefore be aligned with existing and future European legislation to promote eco-design for reuse and recycling within the Romanian context. The design of textile and apparel products made to last should be supported through the research and development activities of academic institutions and producers.

Responsible body in the governance model

Ministry of Economy

Implementing stakeholders

Ministry of Research, Innovation and Digitization; Ministry of Environment, Water and Forestry; Producers, scientific bodies (research institutes, universities).

Time horizon

2024-2031

Funding

Environment Fund Administration;

National Research Development and Innovation Plan 2022-2027;

Regional Operational Program for 2021-2027, Smart growth, digitalization and financial instruments.

Private investments by producers.

Action 4: Creation of EPR schemes to tackle the separate collection of textile waste

Creation of EPR schemes to promote separate collection of textile and apparel, support eco-modulation (incentivization of producers for assuring a closed loop for their products) and support consumers to repair and reuse products

Description

As in European legislation, local waste producers and waste holders have the obligation to implement separate collection for textiles until January 1, 2025 with the support of local public administrative authorities. In accordance with the provisions of Ordinance no.92/2021, the local public administration authorities, including the municipality of Bucharest, are obliged to provide the necessary spaces for separate waste collection, taking into account the urban planning regulations and those issued by the Ministry of Health, equipping them with containers specific to each type of waste and to develop appropriate centres that offer the population the possibility to dispose of certain types of waste, including textiles, free of charge.

Making producers responsible for the waste that their products create is essential to decouple textile waste generation from the growth of the sector. EPR requirements have proven to be effective in improving separate collection of other types of waste and its subsequent management is in line with the waste hierarchy.[208] Through eco-modulation, EPRs can incentivise product design that promotes circularity throughout the material life cycle and considers its implications at the end of the life cycle as well. As EPR is not included yet in Ordinance 92/2021, further changes of the law should be made.

[208] Waste hierarchy refers to the priority order in treating waste, starting from prevention, continuing with preparation for reuse, recycling and recovery, to disposal, in declining order of priority.

EPR schemes for textiles should adhere to the EU waste hierarchy, promoting durability, reuse, and repair first and foremost – not only focusing on the end-of-life stage. The system should have a clear, transparent, and democratic governance, while observing the following principles:

- The minimum performance requirements laid out by EPR eco-modulation fees, should be complemented by additional requirements according to environmental performance along the value chain and circularity potential.
- Fees paid by the producer should vary according to specific criteria relating to aspects of product environmental performance, with more 'environmentally friendly' products charged at a lower rate to incentivize eco-design. The systematic modulation of EPR schemes could be coupled by the setting up of a bonus/malus schemes to reflect circular performances (e.g. durability, reusability/adaptability, repairability/ reversibility, recycled contents).
- EPR schemes should be coupled with ambitious reuse targets, prioritizing local reuse. It should go beyond garments and footwear, to include household textiles, carpets, mattresses, and other types of textiles.

Responsible body in the governance model

Ministry of Environment, Waters and Forests

Implementing stakeholders

Producers, retailers

Time horizon

2024-2031

Funding

National budget

Contributions from private producers and retailers.

Action 5: State support of new business models

Supporting new business models (such as product-as-service models, take-back services, second-hand collections, and repair services, etc) and the application of new technologies as for example by providing public funds or through fiscal measures, such as VAT reduction on repairs

Description

To disrupt the current linear pathway for clothes, new models to access and maintain clothes are essential that are not cantered around ownership and that offer high quality, great fit and additional services, to respond to market segments that value durability (e.g. sales with warranties, clothing-on-demand, clothing resale, or repair services). The goal behind these business models is to generate new revenue streams based on turning 'waste' into useful and valuable input to other production cycles. These point towards "product as a service" models that could start the shift away from a throwaway culture for clothes by scaling up short-term clothing rental and making durability more attractive.

Companies should make the transition to new circular business models, such as **product-as-service** models, take-back services, second- hand collection and **repair** services. Although these new models

still represent a niche market, they have been shown to extend the lifetime of textile products, and are a cost effective and affordable alternative to current consumers' choices.

Repair & Warranty is an example of a Product-Oriented Product Service System, where business models are still mainly geared towards sales of products, but some extra services are added. Under the repair and warranty model, one company not only sells the product, but also the services that are needed during the use phase of the product, e.g. in the provision of a care and maintenance contract. This concept promotes sustainable consumer behaviour through the lifetime extension of a garment.

Regulations with regards to ownership, transport and trade of textiles waste streams need to be adapted to facilitate the emergence of these new business models. Lack of regulatory incentives (e.g. EPR, subsidies, taxation) should be addressed in order to stimulate product as a service business model, reuse of clothing and materials' value preservation.

Responsible body in the governance model

Ministry of Economy, Ministry of Research, Innovation and Digitization, Ministry of Public Finance

Implementing stakeholders

Producers, retailers

Time horizon

2024-2031

Funding

Environmental Fund Administration;

Ministry of Economy – Circular Economy Program;

EU funding for green economic diversification from Regional and Cohesion Funds.

Private investments from producers.

A.8 Electrical and electronic equipment

Action 1: Preparing the private sector for the coming SPI and CEI

Preparing the industry for the upcoming Eco-design for Sustainable Products Regulation and Circular Electronics Initiative - CEI that establish mandatory new Eco-design legal requirements for EEE sector on durability, maintainability, modularity, reparability and recyclability

Description

Product design plays a very important role in the transition towards climate-neutrality, resource-efficiency and circular economy as around 80%[209] of all product-related environmental impact is determined during the product design phase. This realization has resulted in several EU initiatives that aim to establish a framework for product sustainability from the design phase. An example in this regard is the EU's Circular Economy Action Plan (CEAP) adopted in 2020. Two other initiatives that are especially relevant for the EEE sector are the Eco-design for Sustainable Products Regulation and the

[209] https://joint-research-centre.ec.europa.eu/scientific-activities-z/sustainable-product-policy_en

Circular Electronic Initiative. These two legislative initiatives will broaden the scope of the existing Eco-design directive beyond energy efficiency of the products and will apply to a larger range of products.

The Eco-design for Sustainable Products Regulation will include, among other elements: requirement for digital product passport, restrictions regarding unsold goods, incentives for GPP, measures to increase recycled content in products and to prolong the lifespan of the products (extending the guarantee of the products by categories)[210].

Circular Electronic Initiative will establish more actions regarding EEE, including the "right to repair" that will also cover the right to update software and encourage take-back schemes. It will also introduce specific measures for information communications technology (ICT) - including mobile phones, tablets and laptops that fall under the scope of the Eco-design Directive, as for example common charger standards for mobile phones and other devices. Finally, it will also review rules regarding hazardous substances contained by EEE[211].

It is also important to consider that the WEEE Directive is changing, shifting emphasis towards waste prevention and collection, from collection and recycling.

To facilitate a smooth transition regarding the transposition and implementations of these new requirements, the affected stakeholders – particularly producers of EEEs, should be adequately prepared. This should entail dissemination of relevant information, their engagement in regular discussion, etc, before the initiatives become mandatory. This could take the form of government-initiated working groups with the participation of entities from both public and private sectors, including research institutes. During this preparation process, the government should also establish the indicators, tools and methodologies for monitoring and assessing progress, and introduce support measures to facilitate conformance among domestic actors.

One of the concerns raised during the stakeholders' consultations related to disadvantages that would result from the implementation of these new regulations is the fact that economic entities from outside of the EU that have lower regulatory standards in this regard will have cheaper products. The enforcement of the Eco-design Directive for all EEE products that enter the EU market is therefore crucial in order to ensure a fair market.

Compliance with eco design requirements will also require for Romania to prepare laboratories for testing and labelling products according to EU standards. To achieve prolonged lifespan of and EEE, it will be essential to carry out tests and studies to establish the lifespan for each category of EEE and issue guarantees accordingly. These measures should be aligned with the initiatives of other MS, per the requirements of the emerging regulatory frameworks.

Responsible body in the governance model

Ministry of Economics, Ministry of Research, Innovation and Digitization, Ministry of EU Funds, Ministry of Environment, Water and Forests

Implementing stakeholders

Producers

Time horizon

[210] https://www.europarl.europa.eu/legislative-train/theme-a-european-green-deal/file-sustainable-products-initiative
[211] https://www.europarl.europa.eu/legislative-train/theme-a-european-green-deal/file-circular-electronics

2024-2029

Funding

Studies/assessment/working groups: National Research Development and Innovation Plan 2022-2027: 5.7. Innovations Partnerships Programme

Capacity development: Just Transition Operational Program (POTJ 2021-2027): 2.1.1. Priority: 2. Mitigating the socio-economic impact of the transition to climate neutrality (Enterprise and entrepreneurship development)

Trainings: Education and Employment Program - 7.e.4. Promoting the development of high-quality tertiary education programs that are flexible and linked to the demands of the labour market

Action 2: Adoption of policies to encourage repair and reuse of EEE

Adoption of clear policies to encourage repair and reuse of EEE

Description

Currently, the repair and reuse system of EEE in Romania consists of four main components:

- through the retailers, that are sending the products to the service companies that provide repairs of the products under guarantee as legal obligation of the producers;
- through repair, recondition services companies or individuals that are promoting their services online;
- through small repair shops that exist mainly in urban areas;
- through some NGOs "[212] that are receiving donations of mainly ITC equipment from companies and repair the equipment for donating further to people that do not afford to buy this kind of product or to schools from rural area.

Regarding the second-hand market, there are generally two streams. The first stream is represented by online platforms[213], where used and refurbished products are sold from customer to customer (C2C) and/or business to customer (B2C). A significant part of the population also makes exchanges and sales through more informal channels, through personal and social networks. According to a study by the Ecotic Association from 2022,[214] approximately 50% of the products sold on the second market of EEE are sold other individuals from the sellers' families or social circles.

The development of repair and reuse services in Romania is hindered by several factors, confirmed also a study conducted by the European Commission in 2018. [215] These include:

- High price for repair services;
- Lack of spare parts (even during guarantee period);
- Insufficient technical knowledge to repair certain products;
- Lack of awareness by the consumers regarding WEEE collection infrastructure, which leads to transformation in waste of some products that could be reused through repair;
- Impossibility to repair because of the design of the product.

[212] Like "Ateliere fara Frontiere"https://www.atelierefarafrontiere.ro/english
[213] As for example OLX.ro, Okazii.ro, Flip.ro (dedicated to mobile phones) or evoMAG.ro.
[214] https://www.ecotic.ro/wp-content/uploads/2022/10/Studiu-web-min.pdf
[215] https://www.europarl.europa.eu/RegData/etudes/BRIE/2019/640158/EPRS_BRI(2019)640158_EN.pdf

Stakeholder consultations indicated that the repair, reconditioning and reuse system, especially for EEE, has a big potential and should be encouraged. Some of the measures in these regards could include:

- The development of a network of repair shops, with the support of local authorities and/or producers (in money or in kind, e.g. making working space available at low cost), for large consumer electric and electronic products (those that are easy to repair, with no advanced technology) where these could be repaired at a relatively low price for the owner, or could be donated to be sold to other customers after repair or refurbishment.
- Encourage producers to have stocks of spare parts for longer periods (at least equal to the legal guarantee period) ensuring that EEE can be repaired.
- Training of technicians by vocational training institutions (VETs) for new generation of products.
- Stimulation of "take back" schemes and circular business models, that centers around refurbishment, leasing, renting, sharing, through adequate measures.
- Creation of a digital platform for the exchange of used EEE among businesses (B2B) at attractive or even symbolic price.

Currently, the “1 to 0” takeback system is mandatory for distributors in Romania, (i.e. the used equipment can be brought back to the retail point, even without purchasing a new one). A significant part of the population, however, has no knowledge of this system and, consequently, doesn't use it. Education and awareness campaigns will have be launched to address this problem.

In urban areas there are some repair shops in relatively small number and difficult to find. There are also some companies that provide repair services at home, under producer's responsibility or only service companies, but the price is unattractive and fails to encourage repairing as an alternative to purchasing new items. [216]

Creating dedicated areas at treatment and collection centers for discarded EEE products that could be repaired and reused could contribute to extend the life-time of EEE products and reduce the amount of WEEE. Prepared-to-reuse products, accessible to repair shops, could solve this issue. Currently, collection centers do not assess the potential of discarded EEE products to be repaired and refurbished. This could be remediated through adequate investments in the skills of employees at the collection centers, technological endowment, and physical infrastructure, with the discarded EEE with potential to be repaired to then be made available to repair shops.

According to the stakeholder’s consultation, measures that encourage preparation for reuse, reuse and repair of EEE should be one of the main priorities in this sector, but the end-of-life criteria for WEEE and the criteria for prepare-for-reuse and repaired product should be clarified in the national legislation. This would be necessary to be able to differentiate “prepared-for-reuse" and “repaired” EEE products from WEEE. At present, once a product is declared “waste” it is impossible to be legally reintroduced in the commercial stream. Reporting on collection rates and reaching established targes should factor in these differentiations to avoid double accounting. The central authorities have to consider all these aspects and complete the legislative framework.

Furthermore, to create the necessary foundation for the repair and reuse mechanism described here, it is necessary to amend current legislations and regulations in place, to establish a clear national legal and/or policy framework to encourage repair and reuse of EEEs. In addition to the regulation regarding classifications of prepare for reuse and repaired for WEEE and of the mechanisms to be reintroduced in

[216] https://ec.europa.eu/info/sites/default/files/ec_circular_economy_final_report_0.pdf

the market, this could also extend to the provision of fiscal incentives, such as VAT exemption for repaired products.

These adjustments should be based on an assessment study of the potential of discarded WEEE to be reintroduced in the market and of the conditions to enable optimal outcomes, by for example examining the key features of EEEs discarded in Romania, criteria that could be used to assess them to determine their potential to be reused, the type of materials that can be extracted from the WEEE to be recycled or reused as material in production, etc.

Such measures could greatly contribute to the extension of the durability of EEEs and the development of secondary markets in reused/refurbished EEEs and key components, with potential benefits on economic competitiveness and reduced dependence on imports of critical materials.

Responsible body in the governance model

Ministry of Economy and Ministry of Finance

Implementing stakeholders

Ministry of Environment, Water and Forests, Ministry of Education, local authorities, Producers, Distributors, Retailers

Time horizon

2024-2029

Funding

State budget (for legislative changes)

Just Transition Operational Program (POTJ 2021-2027): 2.1.1. Priority: 2. Mitigating the socio-economic impact of the transition to climate neutrality (Enterprise and entrepreneurship development)

Private investments

Action 3: Improvement of the national collection system for discarded WEEE and WB&A

Improvement of the national collection system for EEE and B&A disposed of by the population

Description

To promote circularity in the EEE sector, it is very important to improve the current collection and recycling infrastructure.

According to an Interpol report from 2020, only 35% (arround 3.5 million tonnes) of WEEE generally end up in dedicated collection and recycling systems, with the remaining 65%, about 6.2 million tonnes, either exported, landfilled or inadequately disposed of.[217] This has been confirmed also by studies conducted in Romania. A study of consumer habits conducted in Romania in 2022, by GBD Research and Ecotic, found that of the 8,300 tons of EEE disposed within a period of a year, more than half (4550 tonnes) were disposed of incorrectly. [218] The study also found that over two thirds of the survey respondents were not aware of the existence of a collection point in their neighbourhood. The

[217] https://blacksea-cbc.net/wp-content/uploads/2020/09/BSB457_MWM-GMR_-_Guide-to-European-Union-Practices-on-Waste-Recycling-Technologies_EN.pdf
[218] https://www.ecotic.ro/wp-content/uploads/2022/10/Studiu-web-min.pdf

conclusion of the study was that one third of the population gives away EEE they no longer need for reuse by others, one third of the population disposes of WEEE incorrectly, and only about third of the respondents takes WEEE to shops, municipalities, or other collection points.

Other studies have also indicated that at national level there are very few WEEE collection points set up by local public authorities, with the majority of WEEE being collected by private collectors or retailers under the one-to-one mechanism.[219] Collection campaigns are organised sporadically and only in certain areas. Some sanitation companies provide on-demand collection of WEEE from households, but this service is not well known among the population and there is no data available to see how much is collected.

The Ministry of Environment, Water and Forests, through Environmental Administration Fund has developed "Rabla" programme, for home appliances – a concept that involves replacing used equipment with more energy-efficient home appliances. The programme grants vouchers for the purchase of household appliances, in exchange for old equipment handed over when the new one is delivered. The programme helps the collection of old equipment, but it should ensure that the value of the incentive to not encourage overconsumption.

Most retailers have organised in-store collection points for used batteries, and small WEEE, free of charge, and apply take-back scheme for big WEEE, as required by GEO 5/2015. To increase recycling rate of WBA, however, authorities should further extent the scope of the obligations and apply penalties to retailers who do not have collection infrastructure.

Collection points set up by retailers are not enough, more public collection points are needed and should be provided by local public authorities in partnership with sanitation companies and other waste collectors. The legislation in force, GEO 5/2015, stipulates that there must be one fixed point per 50,000 inhabitants, but not less than one centre in each administrative-territorial unit. This infrastructure is not in place yet.

In the absence of adequate collection infrastructure, WEEE is thrown away with household waste. Small WEEE ends up in landfills, other types of WEEE often end up via informal collectors either at iron collection centres where some of the components are destroyed for iron recovery, are illegally burned and/or illegally abandoned. These illegal practices are causing significant environmental damage, health damage to the population and, not least, economic damage, as valuable components are lost and cannot be recovered after incineration.[220]

According to the Financing Guidelines related to the NRRP - Waste Management Component, by the end of September 2024, at least 250 Voluntary Collection Centres (VCCs) will have to be installed, with a total of 565 such centres to be set up and operational by the end of June 2026. Eligible beneficiaries can include local public authorities, inter-community development associations and other associations. It is very important to have a uniform allocation of these centres to cover the entire national territory.

An efficient WEEE collection infrastructure can be further bolstered through the establishment of a Clearing House, a central, private organisation dedicated to ensuring the sharing of responsibilities among the PROs for performing adequate management of WEEE. A Clearing House generally helps coordination to ensure national collection, to apply EU harmonized standards in collection, transport, treatment, and recycling processes, to improve centralized data flows, launch and carry out national

[219] Unpublished Jaspers study with recommendations about improving the efficiency of the current EPR scheme for WEEE in Romania.
[220] https://ecoteca.ro/deseurile-electronice-deee-cum-sunt-colectate-si-reciclate-in-romania.html

education campaigns, and to provide support to local authorities for proper development of collection infrastructure. Also, this entity should identify and finance the optimum cost of collecting, transporting, and treating WEEE.

Romania has in the past already considered the set up a Clearing House through the National Waste Management Plan. A Jaspers study was in fact undertaken in 2020 to make recommendations to the MEWF with respect to the improvement of the packaging and WEEE industry EPR system, that also recommended the establishment of a Clearing House as a solution. According to this study, the Clearing House to be established should have the following main responsibilities:

- Allocation of responsibility for separately collected WEEE to the PROs based on their respective market share (to be calculated by the public coordinating body);
- Administration of the register of collectors and operators performing WEEE treatment/recycling;
- Monitoring the performance of the PROs against the allocation made;
- Verification of fees (financial contribution) paid by PROs to collection points;
- Provision of financial support for setting up municipal collection points and/or preparing for re-use;
- Coordination of public awareness campaigns at national level;
- Carrying out studies to improve WEEE management; and
- Reporting data to the public coordinating body.

According to the stakeholders consulted, due to the current legislation regarding collection targets for PROs, there is a discrepancy in the costs paid by producers for collecting of WEEE between older and newly established PROs, thus placing PROs that were set up three years ago at a disadvantage of prices. One solution could be to have a provision (a guarantee deposit) set up in the first year for the entire quantity transferred from the producers to the PRO.

WEEE and WBA collection targets are difficult to achieve without a proper formal collection infrastructure with wide geographical coverage and without ensuring fair prices for actual collection and treatment of WEEE. The urgency to act in these directions is further enhanced by the continuous upward adjustments for WEEE and WBA collection targets.

Responsible body in the governance model

Ministry of Economy and Ministry of Environment, Water and Forests

Implementing stakeholders

Local authorities

Time horizon

2024-2026

Funding

NRRP - C.3 - Waste management

Action 4: Encouraging environmentally friendly treatment and recovery of WEEE

Encouragement of environmentally friendly treatment and recovery of WEEE, through the application of CENELEC standards

Description

EEEs contain more than 1,000 different materials and chemicals, of which many are hazardous, and other have considerable market value, such as silver, gold, platinum. Improving material recovery of this waste stream has the aim to reduce the environmental impact and to improve economic competitiveness in the process, by channel back some of the materials into the production process.

As WEEE contains a wide variety of metals, metal-alloys, plastics, glass among other materials, disassembly has the potential to significantly increase the recycling yield and purity of precious metals, critical raw materials and of plastics. The treatment process steps aim to liberate, separate, and refine these materials. In this respect, it is becoming mandatory to create centres for recovering functional parts and materials, that allow for the identification of the component materials and parts and enable safe dis-assembly, as for example in certified treatment facilities.

The EU WEEE directive, 2012/19/EU, published in 2012, aims to ensure that WEEE is collected and transported appropriately, to reduce environmental and health impact. Article 8(5) of the directive mandates the development of a standard for the treatment of WEEE, including recovery, recycling and preparing for re-use, by the European standardisation organisation[221].

The European Committee for Electrotehnical Standardization (CENELEC) has already developed a system that establishes the minimum quality level for the collection, storage, transport, recycling and reuse of e-waste.[222] The CENELEC standard applies primarily to the processes related to preparing used EEE for reuse and provides a framework to ensure the quality and safety of refurbished EEE for consumers. More specifically, the main objectives of the CENELEC standards are to:

- Support treatment operators in fulfilling the requirements of the WEEE Directive;
- Provide additional guidance to operators, focusing on:
  - the treatment of waste for all products that fall under the scope of the WEEE Directive;
  - the collection and logistics of WEEE to allow proper treatment.

Romania has completed the process of adopting all CENELEC standards in the field of WEEE, including the preparation for re-use. The list of Romanian standards that are aligned with EU standards with respect to the treatment, including recovery, recycling and preparation for re-use of WEEE was approved by OM 417/2021.

According to stakeholder consultations, the implementation of the standards has an average cost of 3-4 million Euros. This is the reason why the standards, are implemented, fullly or partially, only by a small number of treatment facilities in Romania. There is no centralized data available for Romania regarding the collection and treatment facilities of WEEE that implemented CENELEC standards, but only a few such facilities were idetified.[223]

In the absence of widespread implementation of CENELEC standards, enhancing regulatory supervision over adherence with the requirements of the WEEE Directive is very important to ensure level playing field for all operators and enhance the circularity prospects of some of the materials used in production.

[221] https://www.cencenelec.eu/
[222] https://weee-forum.org/
[223] Some examples in this regard include: : GreenWEEE International, RematHolding, TW Recycling.

In the absence of convincing evidence that they achieve compliance with the requirements of the Directive (the burden of proof lying on the company), the companies should be sanctioned. This action should be in line with the general principle of the New Legislative Framework on EU product policy that allows companies to comply with requirements in different ways if they can demonstrate that they achieve the objectives of the legislation.

While the sanctions can be an effective way to correct lack of will to adhere to regulatory standards, non-compliance can also be related to lack of capacity to implement them. Whenever this is the case, operators should be offered assistance to improve their practices and conform with minimum standards. According to one of the stakeholders interviewed, investments to ensure implementation of relevant standards is greatly hindered by the poor collection system of WEEE, even though a significant quantity of EEE is discarded by the population and targets are not met. That is why, the authorities should support this segment of the sector with fundings but also to prioritize the collection infrastructure development. A part of the NRRP funds allocated for recycling capacities, for example, should be directed to upgrade current facilities to adhere to relevant standards. In parallel, a Clearing House comprising of existing EPR schemes (PROs) could provide know-how and support to implement the standards.

Responsible body in the governance model

Ministry of Environment, Water and Forests

Implementing stakeholders

Producers, through PRO's and WEEE treatment operators

Time horizon

2024-2029

Funding

Private investments.

NRRP - C9 - PRIVATE SECTOR SUPPORT, RESEARCH, DEVELOPMENT AND INNOVATION

Regional Operational Programs for 2021-2027 - Education and Employment Program - 7.e.4. Promoting the development of high-quality tertiary education programs that are flexible and linked to the demands of the labour market

National budget (for legislative adjustments)

Action 5: Minimum content requirements regarding the use of secondary raw materials in EEE production

Establishment of minimum content requirements regarding the use of secondary raw materials used for production of EEE

Description

Circular use of materials is currently very low in Romania. According to Eurostat[224], Romania has 1,3% circularity rate, defined as" the share of material resources used which came from recycled waste

[224] https://ec.europa.eu/info/publications/2022-european-semester-country-reports_en

materials", compared with EU rate of 12.8%. This is particularly concerning considering the radical growth in the global use of materials and the pressures that this will place on economies and the environment. According to a report by the OECD from 2019, the use of global materials (both primary and secondary) is expected to double until 2060, from 79 Gt in 2011 to 167 Gt.[225] Greater reliance on the use of secondary raw materials is therefore particularly important, facilitated by technological advancements and circular economy policies. The OECD study therefore anticipates the use rate of secondary materials will accelerate at a much higher rate than those of primary materials. It is important for Romania to catch up with other EU MSs in terms of circular material use and be part of this global process.

The sustainable design of products, collection, and high-performance treatment operations of WEEE in Romania can play a key role in this process by prolonging the lifespan of the products and injecting back into economy the secondary (recycled) materials resulting from the WEEE collection and treatment processes. For the secondary material market to develop, all stages must be economically viable from the moment of WEEE collection to the end of the treatment process. Otherwise, secondary raw materials with low quality and/or high prices in comparison with primary raw materials, will not be adopted. To further stimulate the usage of recycled waste materials, a minimum percentage of secondary raw material used in the manufacturing of EEE should be established, as in the case of plastic packaging for bottles.

According to stakeholders' opinion, however, there are several barriers that hinder the development of the secondary materials' market. Some of the most important ones include: uncompetitive price of recycled materials relative to the primary ones, absence of adequate measures in place to ensure safety and quality of the secondary materials, and lack of clear rules on 'end-of-waste' for products and materials. Currently, the secondary material from WEEE treatment facilities in Romania is mainly exported in countries where the secondary material market is more developed. Concerns regarding the low quality of secondary materials could be rectified through the application of adequate standards, as explained in Action 4 as well. In terms of competitive prices, the National Regulatory Authority for Public Utility Services, that operates under the jurisdiction of the Ministry of Regional Development and Public Administration, could establish a price benchmark for secondary materials relative to the primary ones, that also factors in the costs with implementation of adequate standards. The Romanian authorities should also create a body, under the surveillance of Ministry of Economy or Ministry of Environment, Water and Forests, to support the industry with the dissemination of relevant information and conformance with EU rules regarding the "end-of-waste" criteria.

Once these barriers were addressed, the introduction of a minimum recycling material content in EEE production in Romania could be established, informed by studies regarding the availability, costs, and quality of secondary materials. Until then, the producers that are using recycled material in their products must be incentivized by, for example, benefiting from tax reductions.

Responsible body in the governance model

- Ministry of Economy, Ministry of Environment, Water and Forests
- Ministry of Finance

Implementing stakeholders

- Producers

[225] https://www.oecd.org/environment/waste/highlights-global-material-resources-outlook-to-2060.pdf

- National Regulatory Authority for Public Utility Services, under Ministry of Regional Development and Public Administration

Time horizon

2024-2029

Funding

- National budget
- NRRP - C.3 - Waste management
- Private investments.

A.9 Waste

Action 1: Reinforcement of the pay-as-you-throw system

Reinforcement of the pay-as-you throw system

Description

In Romania, most households pay a flat fee for municipal waste collection and management regardless the amount of waste they produced or the separate collection rate they achieved. Furthermore, citizens do not bear all the costs of the MSW management system, as various subsidies are provided from public local budgets, thereby jeopardizing the refurbishment, replacement, renewal and extension of the waste collection and treatment infrastructure.

By contrast, in a "pay as you throw" (PAYT) system, users of the waste collection service are required to pay a fee based on how much waste they really produce and the extent to which they use the waste management service. As the costs of separately collected waste are covered by producers via the EPR system (as it is the case for packaging waste), citizens only bear the costs of recyclable waste excluding packaging, of residual waste management and management of bio-waste. However, ideally, the PAYT system would provide the financial incentives for citizens to increase the separate collection of waste in general and diminish the quantity of residual municipal waste, as a large quantity of waste generated is associated with a higher price.

The PAYT system is currently implemented in Romanian legislation through Art. 9 paragraph 1 letter c) of GEO no. 196/2005 regarding the Environmental Fund, supplemented by the provisions of Cap. IV of Order no. 578/2006 for the approval of the Methodology for calculating the contributions and taxes owed to the Environmental Fund. Also, the document 'Recommendations for the application of the legislative amendments introduced by Emergency Ordinance No. 74/2018 for amending and supplementing Law No. 211/2011 on the Waste Regime, Law No. 249/2015 on the management of packaging and packaging waste and Government Emergency Ordinance No. 196/2005 on the Environmental Fund, approved with amendments and additions by Law No. 31/20***19'*** provides clarifications to local authorities regarding the implementation of the PAYT approach. The PAYT system may be used by local public authorities, where technically and economically feasible, to encourage the selective collection of home waste, in accordance with Law 211/2011. The implementation of PAYT is monitored through the County Waste Management Plans/Waste Management Plan for the Municipality of Bucharest (in accordance with the provisions of the Annex to the Order of the Deputy Prime Minister, Minister of the Environment no.140/2019).

Nonetheless, the obligation to implement PAYT system is weakened by the disclaimer that it must be applied only "whenever it is technically and economically viable", without further clarifications on what this means in practice. As a result, until this point in time, only a few municipalities implemented some elementary PAYT systems, where households pay for waste collection and management, based approximately on the separate collection performance. Besides this, there are several additional practical challenges identified as well:

- In the contracts for the delegation of waste management service, the rates vary according to the fractional costs (lei/ton), while final consumers support the costs either by paying a fee to the territorial administrative unit or by paying a fee directly to the sanitation operator. In reality, however, it frequently happens that neither the territorial administrative unit nor the sanitation operator impose any fees on citizens;
- In the case of door-to-door waste collection, it is not possible to adopt this economic strategy based on weight since the weighing equipment often decalibrates, making it impossible to weigh waste from household to household in an accurate manner;
- The obligation to implement the Pay-as-You-Throw instrument at local level is not doubled by the imposition of an implementation deadline, which means that territorial administrative units still do not have a sufficient incentive to regulate it or to oblige the sanitation operator to apply it in the contracts they conclude with users of the sanitation service. Due to this, it is necessary to set legal timeframes for the adoption of local legislation pertaining to the use of this economic instrument.

Therefore, the PAYT system in Romania needs to be reinforced/improved to address these challanges. The specific steps to ensure progress in this regard would entail:

- Development of a preparatory study on the implementation of the PAYT approach at the national level, taking into account existing best practices and challenges/difficulties encountered with respect to determining the amount of waste generated, and setting the prices for households based on the services rendered and the amount of waste collected. Imposition of specific mandatory deadlines in the legal framework for the adoption of local regulations governing the PAYT system. Before these deadlines are incorporated into the legal framework, consultations with local government representatives, professionals in the field of waste management, and business owners should be initiated to determine feasible and desirable options. This would also encourage territorial administrative units to include explicit implementation timelines in the joint contracts they have with the sanitation provider.
- Finally, it is necessary to continuously monitor the implementation of the PAYT across local administrative units where it has already been adopted. This can be accomplished by putting in place monitoring systems coordinated by the national environmental guard and the local law enforcement agencies with a view to a stricter application of the penalties already stipulated under the laws currently in effect (such as legislation 249/2015).

Responsible body in the governance model

Ministry of Environment, Water and Forests

Implementing stakeholders

National Environmental Guard, Local authorities.

Time horizon

2024-2027

Source of funding

Technical Assistance Operational Programme 2021-2027

Local budget of cities

National budget for legislating cost

Action 2: Development (improvement) of suitable infrastructure for waste collection

Development (improvement) of suitable infrastructure for waste collection.

Description

Romania has gradually introduced solid waste integrated management systems (SWIMS) to modernize the municipal waste management system, which facilitated the expansion of the coverage of waste collection services in urban and rural areas. Up to twenty systems were fully operational by 2019. The remaining municipalities outsource sanitation services, resulting in longer transportation times and greater expenses. Municipal separate collection and recycling rates are, however, still low.[226]

The recycling rate of municipal waste is one of the lowest in the EU and landfilling is still the dominant form of waste management. [227] In 2018, the recycling rate of all waste excluding major mineral waste amounted to only 29% compared to the EU average of 55%[228]. Similarly, the recycling rate of municipal waste reached only 14% in 2020 compared to the EU average of 48%, ranking Romania among the lowest performing EU countries. As a result, the Commission identified Romania as one of the countries at risk of missing the 2020 and 2025 EU targets of 50% and 55% respectively. Since best practices of municipal solid waste (MSW) collections are typically implemented via door-to-door or kerbside collection rounds from households and businesses (as part of pay-as-you-throw system, or through regular municipal waste collection), this specific action proposes the following measures to be taken:

- Preparatory study to establish convenient and accessible infrastructure for separate collection of municipal waste, which would inform legislation on elements such as:
    - Minimum requirements for waste collection frequency in family houses vs apartment/high-rise buildings;
    - Minimum infrastructure requirements in terms of number and size of containers in family houses vs high-rise buildings (aiming for door-to-door collection in family houses for separately collected waste).
- Stimulating conformance with separate collection rules among households and businesses, through the imposition of sanctions;
- Improving acceptance of separate collection measures and ensuring that the provided infrastructure is adequate for the local conditions, with the involvement of local stakeholders such as businesses, citizens, shop owners, and different city departments that are relevant for an integrated waste collection strategy.

Responsible body in the governance model

[226] https://unece.org/sites/default/files/2021-12/ECE_CEP_189_0.pdf
[227] https://ec.europa.eu/eurostat/databrowser/view/env_wasmun/default/table?lang=en
[228] https://ec.europa.eu/eurostat/databrowser/view/env_wastrt/default/table?lang=en

Ministry of Environment, Water and Forests, and Ministry of Economy

Implementing stakeholders

Ministry of Environment, Water and Forests, Local Authorities

Time horizon

2024-2027

Source of funding

The NRRP, P1- Green transition, C3- Waste Management

Sustainable Development Programme 2021-2027, P1.Action 1.3 Efficient waste management in order to accelerate the transition to the circular economy, to meet the requirements of environmental directives

Action 3: Development of clear end-of-waste criteria

Development of clear end-of-waste criteria to increase recycling and other waste valorization options

Description

To achieve a functioning system relying on circular economy principles, a clear guideline is needed that informs when and how a certain waste material can be turned into a product. The requirements established by the European Commission for specific materials can be a starting point in this regard, that introduced end-of-waste (EoW) criteria, seeking to meet both environmental protection and economic benefits. These criteria intend to promote recycling in the EU by establishing legal certainty, level playing field, and eliminating unnecessary administrative burdens.[229]

Currently, in Romania, the general provisions of GEO no. 92/2021 regarding the termination of the waste status are not specific enough to regulate the conditions and criteria that must be met for the acceptance of waste for recycling and for the termination of the waste status. The specific steps to ensure progress in this regard would entail:

- Preparatory study to complement the existing legislative framework designed to:
  - Inform the ranking and prioritization of waste for which criteria must be established to determine the conditions under which waste ceases to be considered waste, pursuant to Directive 851/2018 and Ordinance no. 92/2021;
  - Clarify the circumstances under which the waste status ends that could inform mandatory rules to be adopted at the national level;
  - Establish precise standards for the technologies used for recycling and for the waste to be accepted for recycling and/or reuse;
- Based on the study, the responsible authority should decide on the legislative changes necessary, upon consultation with relevant stakeholders within a working group ideally created specifically for this purpose;
- Monitoring compliance with EoW standards and regulatory rules

[229] https://environment.ec.europa.eu/topics/waste-and-recycling/waste-framework-directive_en

- In practice, operators should provide data on the generation of EoW materials and the amounts that cease to be waste based on the specified criteria, to track progress and address potential problems. Assessment of conformance with EoW criteria should be based on transparent and verifiable assessment system overseen by a national body.

Responsible body in the governance model

Ministry of Economy

Implementing stakeholders

Ministry of Environment, Water and Forests, Ministry of Economy, Technical Universities, Ministry of Finance

Time horizon

2024-2027

Source of Financing

Technical Assistance Operational Programme 2021-2027

National budget for legislating costs

Action 4: Development of a unified online waste management monitoring framework

Development of a unified national online platform for monitoring waste management indicators, accessible to all relevant local, regional, and central authorities

Description

Currently, the lack of an integrated online system of record keeping regarding waste, and circular economy indicators in general, does not enable assessing the quality of data reported and/or sharing of relevant information among relevant entities. Some waste reporting systems do exist and are managed by the National Environmental Protection Agency (NEPA), the Environmental Fund and Public Administrations. However, well-structured, and valid statistical information can be collected only when EU-compatible methodology is implemented on all waste streams, through an integrated online system of record keeping. Currently, reporting on waste management by operators is usually not done by appointed and trained persons, based on a clear methodology.[230]

This action starts from the need that all activities that are within the responsibilities of the Ministry of Environment, Water, and Forests must be monitored, and stored on a specific intranet platform that all relevant environmental authorities can access in real-time (Ministry of the Environment, Administration of the Environment Fund, National Agency for Environmental Protection, Administration of the Danube Delta etc.). Also, a data management system, accessible to all stakeholders is needed to monitor waste management and circular economy performance and take data-based decisions.

Therefore, to develop such a system, we propose the following steps:

- Implementation of EU-compatible methodology for data collection on all waste streams and circular economy indicators as stated in the European Monitoring Framework developed by Eurostat[231];

[230] https://unece.org/sites/default/files/2021-12/ECE_CEP_189_0.pdf
231 https://ec.europa.eu/eurostat/web/circular-economy/indicators/monitoring-framework

- Integration of the SIATD system and SIM.waste applications according to art. 9 para. (1) lit. a) from GEO no. 196/2005 as the existence of several IT reporting systems on waste management is only appropriate if each reporting system has a distinct job or serves a distinct purpose;
- Appointment of trained persons for data collection, based on clear methodology;
- Development of an intranet platform.

Responsible body in the governance model

Ministry of Environment, Water and Forests

Implementing stakeholders

Ministry of Environment, Water and Forests, Administration of the Environment Fund, Ministry of Research, Innovation and Digitization, National Institute of Statistics, National Agency for Environmental Protection, Administration of the Danube Delta, Environmental Fund Administration and National Agency for Environmental Protection, National Public Health Authority

Time horizon

2024-2029

Funding

Regional Operational Program of Romania for 2021-2027: Smart growth, digitalization and financial instrument, P2- Digitization in the central public administration and the business environment

Tehnical Assitance Operational Programme 2021-2027

NRPP (Digitalization of Environmental Protection component)

Action 5: Promotion of training and research in waste sorting and treatment facilities

Promotion of training and research in waste sorting and treatment facilities (including automatic waste sorting facilities, sorting of biodegradable and bio-based plastics, possible chemical recycling of plastics or textiles, biogas and composting facilities)

Description

To achieve greater resource efficiency and facilitate transition towards circular economy, familiarity with and competence regarding future waste infrastructure requirements should be enhanced, as for example with respect to biotechnology solutions for treatment of bio-waste. Moreover, there is a need for innovative approaches to reduce the long-term costs and environmental impacts of the legacy of landfilled waste[232]. The stakeholders we interviewed emphasized the importance of promoting training and research in these directions, as there is a serious shortage of environmental engineers specialized in waste management, not only with competencies in the circular economy principles, but also with competences adapted to the new advances in recycling and recovery technologies. At the same time the existing university and training curricula are outdated.

Therefore, a concerted effort from the public authorities and the industry itself is needed to adapt the curricula to the needs of the industry and to new technological advancements in the realm of waste

232 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/765914/resources-waste-strategy-dec-2018.pdf

management. This could offer a competitive advantage to research and innovation in Romania in general. This, however, requires adequate legal framework and appropriate investment in education and research. This action therefore proposes the following steps:

- Initial consultations with universities and teachers from technical backgrounds to identify best methods to promote theoretical and practical knowledge of students and researchers in areas related to waste sorting and treatment facilities;
- Adjustments of existing or development of new curricula and of teaching materials regarding newest evidence-based treatment facilities of waste (automatic waste sorting facilities, sorting of biodegradable and bio-based plastics, possible chemical recycling of plastics or textiles, etc.) at graduate and post-graduate level, particularly for the engineering field,
- Collaborations between industry and higher educational institutes through:
    - initiation of internships dedicated to doctoral students studying waste sorting and treatment;
    - development of training programs in conjunction with academic and industry professionals for engineers working in organizations engaged with waste management and sorting activities.

Responsible body in the governance model

Ministry of Education and the Ministry of Research, Innovation and Digitisation

Implementing stakeholders

Ministry of Environment, Water and Forests, Technical Universities.

Time horizon

2024-2029

Funding

Operational Programme Increasing Intelligence, Digitization and Financial Instruments- Priority 3. Development of the research-development-innovation capacity of higher education institutes

Education and Employment Programme: Priority 7. Increasing the quality of the offer of education and professional training to ensure the fairness of the system and a better adaptation to the dynamics of the labor market and to the challenges of innovation and technological progress.

Action 6: Launch of waste-related awareness and information campaigns

Launch of information and awareness raising campaigns to increase separate waste collection, reduce waste production, littering and illegal dumping

Description

Considering the environmental attitudes and behavior among Romanian citizens, a shift from a tendency towards overconsumption to a more reasonable and considerate consumption behaviour should be encouraged via continuous campaigns, education, and a greater availability of information. Past and ongoing efforts by public authorities in these regards should be further enhanced, considering the following:

- Awareness campaigns and clean-up days related to plastic waste can be extended to general waste management and the importance to separate household and industrial waste properly;

- Communication campaigns should be designed to both encourage and enable behavioral changes, particularly with respect to reduction of waste and maintenance of durable goods;
- Campaigns should be launched to strengthen implementation of the PAYT system among citizens by explaining issues regarding environmental benefits, outcomes of the fractions collected and quality controls of the sorted waste fractions;
- Public events and meetings between local authorities and residents should be organized to address questions and concerns.

Responsible body in the governance model

Ministry of Environment, Water and Forests

Implementing stakeholders

Ministry of Environment, Water and Forests, Ministry of Education, experts from academia, industry, public authorities and CSOs, Local authorities

Time horizon

2024-2029

Funding:

Environment Fund Administration,

National Budget- Ministry of Education,

Sustainable Development Programme 2021-2027, P1.Action 1.3 Efficient waste management in order to accelerate the transition to the circular economy, to meet the requirements of environmental directives

A.10 Water and wastewater

Action 1: Restoration of natural wetlands and soils

Restoration of natural wetlands and soils to improve their natural treatment capacity to reduce water stress and increase their buffer capacity in case of flooding

Description

Green infrastructure such as wetlands act as carbon sinks that can contribute to reaching climate goals if managed and protected correctly *(Chausson et al. 2020)*[233]. Water is valued as natural capital in a circular economy, which recognizes the economic importance of wetlands and of groundwater. By incorporating regenerative techniques, a circular economy maintains and enriches natural capital rather than degrade it. The main purpose of natural wetland restoration strategies is thus to improve or restore the water-holding capacity of soils and natural and man-made aquatic ecosystems[234].

In the absence of a specific policy framework for wetlands, the National Strategy and Action Plan for Biodiversity Conservation (NBSAP) serves as a policy tool for wetland management[235]. The use of green infrastructure and wetland restoration are also included as important elements in the National Management Plan developed under the Water Framework Directive.

[233] Chausson, A., Turner, B., Seddon, D., Chabaneix, N., Girardin, C. A., Kapos, V., ... & Seddon, N. (2020). Mapping the effectiveness of nature-based solutions for climate change adaptation. Global Change Biology, 26(11), 6134-6155.
[234] Delgado, Anna, Diego J. Rodriguez, Carlo A. Amadei and Midori Makino. 2021. "Water in Circular Economy and Resilience (WICER)." World Bank, Washington, DC
[235] https://unece.org/sites/default/files/2021-12/ECE_CEP_189_0.pdf

To identify the areas where there is potential for wetlands to filter wastewater and thereby reduce wastewater treatment requirement needs, concerted efforts have to be done in the direction of:

- Developing a clear policy framework for wetland conservation and management focusing on:
  - Setting objectives and targets for wetland conservation and management in the light of climate change;
  - Specifying measures to promote sustainable wetland management, including monitoring and evaluation of the condition of wetlands, particularly as they are exposed to risks associated with climate change; and
  - Setting specific enforcement measures such as sanctions for destruction or delisting of wetlands.
- Developing a prepatory study with the following components:
  - **Wetland assessment**: identifying the state and risks to wetlands;
  - **Wetland monitoring**: setting up a system for collecting of particular information to monitor wetland management.
- Conducting demonstration projects in partenership with academia and CSOs aimed at explaining and disseminating how wetlands can be restored and why are they important, to raise awareness among general population and businesses. These kind of demonstration project should clearly explain and include:
  - the role of wetlands in climate regulation, such as conserving and sustainably managing stored carbon;
  - the role of wetlands in provision of ecological and human community climate adaptation and resiliency ecosystem services suchs as flood storage, buffering of storm damage, protecting water quality by filtering pollutants and sediment out of runoff generated by severe storm events, groundwater recharge and provision of water supply during drought, and corridors and maintenance of biodiversity.

Responsible body in the governance model

Ministry of Environment, Water and Forests

Implementing stakeholders

National Environmental Guard, Local authorities

Time horizon

2024-2029

Funding

National Resilience and Recovery Plan- C1 Water Management

Horizon Europe,

Life Programme,

Sustainable Development Programme 2021-2027,P 2. Environmental protection by conserving biodiversity, ensuring air quality and remediating contaminated sites

Action 2: Increasing collection and treatment of wastewater from households

Increasing collection and treatment of wastewater from households, especially in rural areas

Description

According to the data provided by the National Authority for Public Utilities Community Services (ANRSC) in the report on the state of water supply and sewage treatment services, prepared annually by the Romanian Water Association, the total population covered by the operating areas of large regional and municipal operators were 15,104,249 inhabitants in 2021. [236] According to the National Administration of Romanian Waters, out of the total of 19.8 million equivalent inhabitants falling under the provisions of Directive 91/271/EEC, about 66% are connected to sewerage systems, of which 63.5% are connected to treatment plants. Since accession to the European Union, over the last 15 years, more than 10 billion euros have been invested in the water and sewerage sector, which has increased the population's connection to sewerage systems and treatment plants by about 20%. For the period 2023-2030, around €9 billion is allocated to water and sanitation systems, which will further expand the share of the population connected to the sewerage and treatment infrastructure. Also, a National Investment Plan for the drinking water and sanitation sector and a Strategy for the water and sanitation sector are currently being finalised.

However, there is still a significant proportion of households that is not connected to water supply and sewerage system, mainly in the rural parts of the country. For instance, in the north-east region of the country, only around 30 per cent of the population had access to sewerage services in 2018[237]. This is mainly caused by poor infrastructure and reluctance by a part of the rural population to get connected to both piped water and sewerage networks, due to concerns regarding affordability. In recent years, Romania has taken several measures to increase the efficiency of the operation and maintenance of these systems through the regionalisation process, while also providing support to low-income households to connect to and use water utilities and sewerage infrastructure (through the amendment of Law 241/2006 on water supply and sanitation services and through the National Recovery and Resilience Plan).

To further increase collection and treatment of wastewater, particularly from rural areas, this action proposes to:

- conduct a preparatory study at the national level to assess the feasibility of increasing connectivity and wastewater treatment in rural areas, taking into account the identification of problematic areas, connectivity potential, infrastructure readiness, and the main barriers faced by local rural authorities;
- Connect those households and communities identified to have the adequate potential by the preparatory study to centralised wastewater treatment plants, along with building new facilities such as water supply systems, water pipes, wastewater treatment plants and sanitation networks, to expand capacity;
- Create a working group aimed at developing advanced treatment facilities in collaboration with academia and the private sector by considering best practices from other EU countries and adapting them to the national context;
- Train those involved in wastewater management (collectors, operators, etc.) on the advantages of wastewater valorization and how to employ circular economy principles. The trainings could take the form of national workshops planned in conjunction with the academic community or through organizing exchange of experience sessions among collector and operators with a focus wastewater valorization and the implementation of other circular economy concepts. Also,

[236] https://insse.ro/cms/sites/default/files/com_presa/com_pdf/sistem_canal_2021r.pdf
[237] https://unece.org/sites/default/files/2021-12/ECE_CEP_189_0.pdf

theoretical preparation should be complemented by adequate emphasis on practical application, that might require some additional investments;

- Develop a guideline that supports decentralized wastewater management systems (DWWMS). The guideline should first inform on how the planning for DWWMS should be done based on i) population density, land availability, ii) topography, iii) reuse potential and iv) existing streams for discharge of treated wastewater. Secondly, the guideline should promote best practices related to business models of decentralised wastewater treatment systems;
- Assess and adjust the legislation applicable to economic operators that manage drinking water at the local level so that recirculation of domestic hot water (for washing) is restored and hot water is no longer eliminated in the canal of condominiums;
- Launch awareness raising campaigns among rural population on proper collection and treatment methods of water and wastewater in collaboration with NGOs and academia focused on communicating their advantages for public health and environment.

Responsible body in the governance model

Ministry of Development, Public Works, and Administration

Implementing stakeholders

Ministry of Environment, Water and Forests, Ministry of Agriculture and Rural Development, Local authorities, Romanian Water Association, academic institutions, vocational training centers, wastewater collectors.

Time horizon

2024-2027

Funding

- National Resilience Plan, Component C1 – Water management:
  - Investment 1 - Expansion of water and sewerage systems in agglomerations of more than 2,000 equivalent inhabitants, prioritized through the Accelerated Plan for compliance with European directives;
  - Investment 2: Collection of wastewater in agglomerations smaller than 2000 l.e. that prevent the achievement of a good state of water bodies and / or affect protected natural areas;
  - Investment 3. Support the connection of the low-income population to the existing water supply and sewerage networks.
- Sustainable Development Programme 2021-2027, P1. Development of water and wastewater infrastructure and the transition to a circular economy

Action 3: Encouragement of the usage of stored rainwater

Encouragement of the usage of stored rainwater for grey usage (toilet flush, gardening, floor cleaning) in public and residential buildings

Description

Rainwater can be collected and stored in tanks in private and public buildings and used for household purposes (such as toilet flushing) and irrigation[238]. The collected water can be kept in reservoirs or used to recharge groundwater aquifers in times of scarcity. Rainwater has different quality characteristics than wastewater and as such it usually requires less treatment before it is fit for reuse. Therefore less energy and resources are consumed during its treatment process. Currently, rainwater harvesting is not incentived nor regulated at national level. Also, regarding grey water systems for building, there have been individual and private projects to install and use grey water systems in buildings over the years, but no national-level initiatives have been adopted.

ranges from simple to extremely complex when no The lack of strategies and technologies to guide the the process can make the management of greywater a very complex task.

The encouragement of the use of harvested rainwaters towards grey usage at the national level would entail the following steps:

- Study to assess the potentials for rainwater collection and grey water use installations in existing buildings at the national level, both in terms of infrastructural conditions and consumer demand;
- Collaboration between academics and the private sector to create tailored solutions for the most frequent building types that qualify for rainwater capture and black/grey water use, that could result in the preparation of guidelines;
- Setup of a pilot project focusing on installing grey water systems in public-sector buildings that could then be used as a good practice for the private sector as well;
- Introduction of incentives for the installation of grey water use systems when new buildings are built as this can contribute to reducing freshwater demand and increase water efficiency;
- Granting of financial incentives to the general population and SMEs to increase and use rainwater harvesting in existing buildings. Financial aid from the government could be provided for the purchase and installation of rainwater storage equipment, following the example of the installation of solar panels in the ”Casa Verde” programme;
- Launch of awareness campaigns regarding the benefits of rainwater collection and the methods for collecting rainwater in collabration with academia and NGOs.

Responsible body in the governance model

Ministry of Development, Public Works, and Administration

Implementing stakeholders

Ministry of Environment, Water and Forests, Ministry of Economy, NGOs

Time horizon

2024-2027

Source of Financing

National Budget

Technical Assistance Operational Programme 2021-2027

Action 4: Promotion and incentivization of the reutilization of sewage sludge

[238] Delgado, Anna, Diego J. Rodriguez, Carlo A. Amadei and Midori Makino. 2021. "Water in Circular Economy and Resilience (WICER).” World Bank, Washington, DC

Promotion and incentivization of the production of fertiliser and biogas from sewage sludge to communities and industry, in synergy with the agricultural sector

Description

In 2019, sewage sludge production in Romania reached 231,000 tones, corresponding to 11.9 kg per capita.[239] 24% of the sewage sludge produced was used for agricultural purposes or for composting. This relatively low rate of sewage sludge collection per capita for recovery purposes in Romania can be related to the correspondingly low rate of connection of the population to wastewater treatment facilities. As a result, compliance with the Urban Wastewater Treatment Directive (UWWTD) has been problematic – with Romania among the EU countries with most non-compliances with the UWWTD. To ensure progress in this direction, the following steps should be taken:

- To solve the absence of clear regulations regarding the use of sludge resulting from wastewater treatment in forestry and agriculture, further clarifications should be provided in this regard through further adjustments to "ORDER No. 344/708 of August 16, 2004 for the approval of the Technical Norms regarding the protection of the environment, particularly soils, when sewage sludge is used in agriculture."
- Provision of financial support to fund research on sludge treatment for agricultural use, with the participation of specialized institutes, as for example the Academy of Agricultural and Forestry Sciences "Gheorghe Ionescu-Sișești" (A.S.A.S.).
- Development of a demonstration project regarding the production of fertiliser and biogas from sewage sludge to serve for educational purposes and to illustrate the business case;
- Launch of educational and user awareness campaigns about the benefits of using sewage sludge in agriculture in partnership with academia and NGOS, and to encourage demand for local fertilizer products.

Responsible body in the governance model

Ministry of Agriculture and Rural Development

Implementing stakeholders

Ministry of Environment, Water and Forests, Local Authorities

Time horizon

2024-2027

Funding

NRRP, Priority 2.1 Investments in the water and wastewater sector to meet the requirements of environmental directives

MADR Financing

Action 5: Promotion and enforcement of water efficiency standards

Promotion and enforcement of water efficiency standards in industry to decrease consumption

[239] http://appsso.eurostat.ec.europa.eu/nui/submitViewTableAction.do

Description

It has been estimated that the water saving potential in Europe stands at 40%. This clearly illustrates the importance of improving water efficiency across sectors to tackle water scarcity and droughts[240]. In Romania, there is no national estimation available regarding water efficiency.. The majority of water used in agriculture is for irrigation, where water efficiency ranges from 60%-80%. [241]

Currently, there are no specific standards set for reusing treated urban wastewater for agricultural irrigation purposes. The European Commission has however adopted and published (non-legally binding) guidelines to help member states and stakeholders to adopt measures for the safe reuse of treated urban wastewater for agricultural irrigation. The EU Water Reuse Regulation sets out minimum water quality and monitoring requirements to ensure safe water reuse, as well as risk management requirements to assess and mitigate risks to health and the environment. [242]

To encourage water efficiency in Romania, the following measures should be pursued:

- Increasing water efficiency in industry:
  - Organization of trainings tailored to specific industries on how to comply with water efficiency standards in collaboration with academia;
  - Introduction of economic incentives to increase water efficiency in industry;
  - Promotion of wastewater treatment on-site to decrease harmful wastewater discharge and reduce water consumption;
  - Enhancement of collaboration among businesses to encourage exchanges of know-how.
- Increasing water efficiency in urban areas:
  - Integration of the EC guidelines[243] on safe reuse of treated urban waste water for agricultural irrigation in the national legislation;
  - Providing funding for the modernization of water infrastructure in public and private sector in order to, among others, eliminate water leakage in the systems;
  - Encouragement of collaboration between private and public sectors entities, including academic institutions, to identify practical solutions to improve water efficiency in urban areas.

Responsible body in the governance model

Ministry of Environment, Water and Forests

Implementing stakeholders

Research Institutes, local authorities

Time horizon

2024-2029

Funding

National Budget

[240] https://ec.europa.eu/environment/water/quantity/water_efficiency.htm
[241] https://wateractionhub.org/geos/country/181/d/romania/
[242] Further details available in "Guidelines in support of the application of Regulation (EU) 2020/741 on minimum requirements for water reuse" https://eur-lex.europa.eu/legal-content/RO/TXT/PDF/?uri=CELEX:52022XC0805(01)&from=EN
[243] Guidelines in support of the application of Regulation (EU) 2020/741 on minimum requirements for water reuse.

Technical Assistance Operational Programme 2021-2027

Annex B: Examples of Good Practices

See accompanying document.

Annex C: Monitoring and Evaluation Table

See accompanying document.