Waste

Waste Management towards a more Circular Economy

UNECE

UN environment programme

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From the global perspective for waste policies…

Without urgent action, in 2050, the global waste amounts will increase by 70% of the current levels according to the What a Waste 2.0: **A Global Snapshot of Solid Waste Management to 2050** report (World Bank 2018), driven by rapid urbanisation and growing populations. This corresponds to a global annual waste generation of 3.4 billion tonnes over the next 30 years, up from 2.02 billion tonnes in 2016.

Although only accounting for 16 per cent of the world's population, high-income countries are generating in total more than one-third (34 per cent) of the world's waste. This shows that economic development is still far too much linked to increased waste generation.

The World Bank report shows that:

- 3.5 billion people, or half of the world's population, are without access to waste management services, and open dumping remains the prevalent waste-disposal method in most low- and lower-middle-income countries.
- More than 1.3 billion tonnes of municipal solid waste were estimated to have been generated in 2012, and 2.2 billion tonnes a year are expected by 2025.
- Urbanisation, industrialisation, increasing population, and economic development contribute to the rise in waste and its increasing complexity and hazardousness.

The Sustainable Development Goals of the 2030 Agenda for Sustainable Development adopted by the world leaders in 2015 include proper waste management and a strategic vision for using waste as resources in a more circular economy. All countries of the UN-ECE region are making progress in this direction at different levels of economic development.

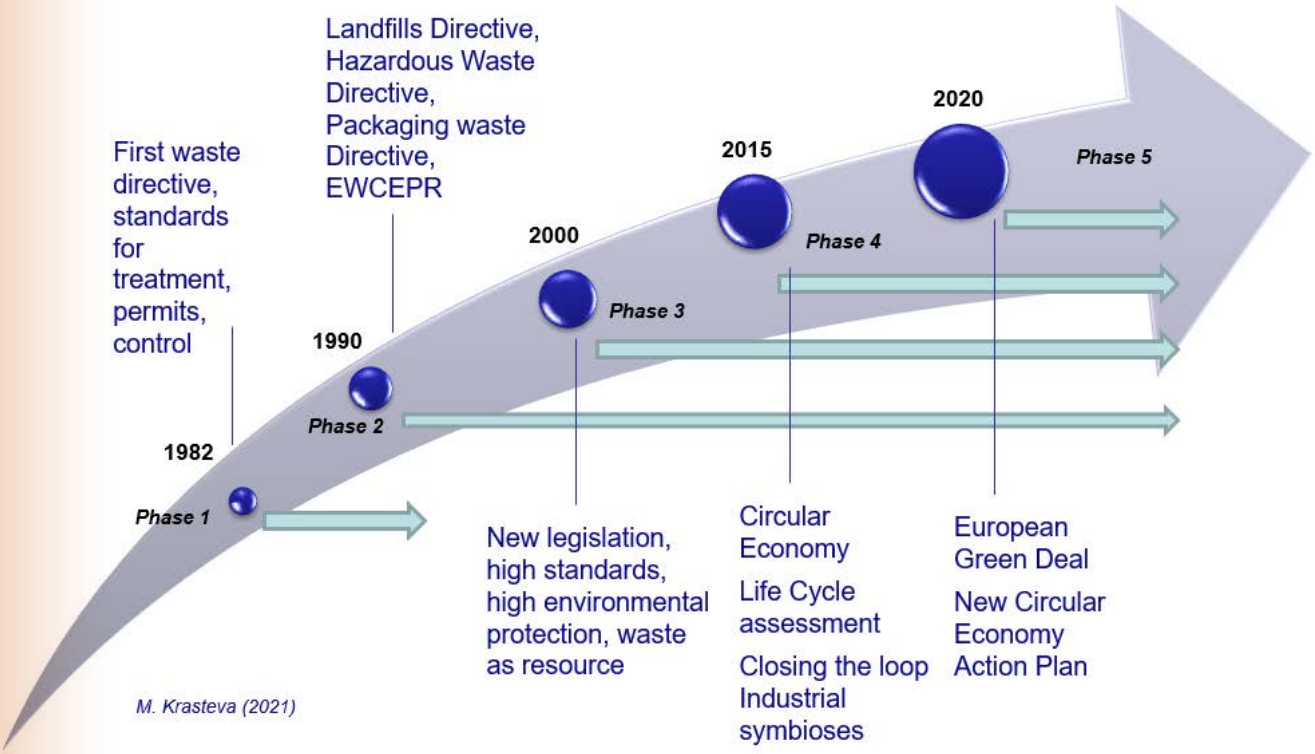
United Nations Agenda for Sustainable Development and European Union policies

In September 2015, the United Nations Sustainable Development Summit adopted a new framework to guide development efforts between 2015 and 2030, entitled "Transforming our world: the 2030 Agenda for sustainable development". The 2030 Agenda contains 17 Sustainable Development Goals (SDGs), divided into 169 targets, which are informed by 244 Indicators.

Many SDGs directly relate to waste management. These include: access to basic services (Target 1.4), elimination of dumping to improve water quality (Target 6.3.), municipal solid waste management (Target 11.6), food waste (Target 12.3), chemicals and hazardous waste, including e-waste (Target 12.4), recycling (Target 12.5), and marine litter (14.1). In addition, two closely related targets address domestic material consumption and material footprint (8.4 and 12.2). Consequently, sustainable waste management can contribute to achieving a number of SDGs.

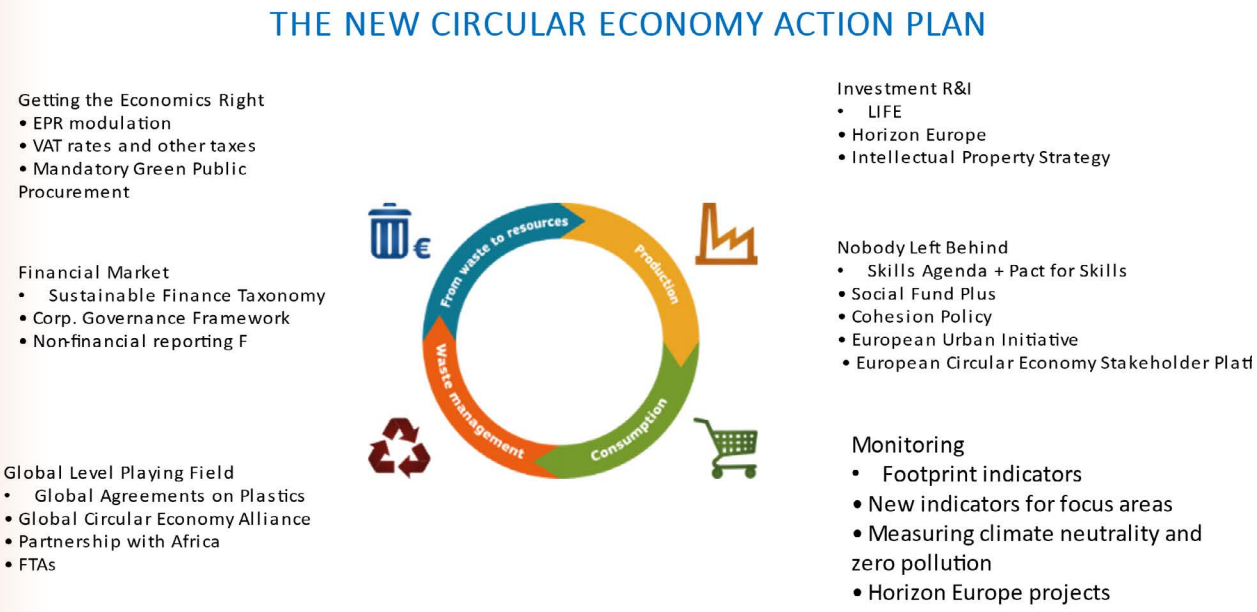
Sustainable development objectives have represented a key issue of EU policy for long and are thus firmly anchored in the European Treaties (Articles 3 (5) and 21 (2) of the Treaty on European Union) as well as mainstreamed in key cross-cutting projects, sectoral policies and initiatives. Moreover, the overarching European Green Deal as the new central policy agenda for sustainable growth provides a highly relevant role model for policies in the UNECE region, most relevant for European Union accession-oriented Balkan and "deeply" EU-associated Caucasus countries, and also observed with interest from Central Asian countries aiming for economic and ecological modernisation.

All countries wishing to develop their policies towards achieving sustainable waste management and circular economy need to go through a series of regulatory steps, similar to those that the European Union has taken over the past 40 years and as illustrated below.



New Circular Economy Action Plan (European Union)

On 11 March 2020, the European Commission adopted a new Circular Economy Action Plan – one of the main building blocks of the European Green Deal. The new Action Plan announces initiatives along the entire life cycle of products, targeting, for example, their design, promoting circular economy processes, fostering sustainable consumption, and aiming to ensure that the resources used are kept in the EU economy for as long as possible. In addition, it introduces legislative and non-legislative measures targeting areas where action at the EU level assures real added value. EU regulatory and economic action will then, in turn, also determinate policies in EU accession and associated countries in the UN-ECE region.



Source: EU New Circular Economy Action Plan (2020)

Over the past 10-15 years, the EU has progressed towards a more circular economy and has become more resource-efficient. Extended Producer Responsibility (EPR) is a key policy instrument and part of the topic in the Circular Economic package from 2015.

The circular economy is an alternative to the linear economic model and is restorative by intention and design. It is an answer to the global challenges of this century, such as climate change and waste generation; replacing the end-of-life concept with restoration, shifting toward the use of renewable energy, requiring fewer virgin resources from the natural system (take), and leaving fewer emissions and pollution through disposal (waste). Therefore, circularity is an imperative part of a broader industry transformation towards climate-neutrality and long-term competitiveness. Substantial material savings can be realised throughout value chains and production processes, generating extra value and open economic opportunities. In a circular economy, the added value of a product is retained as long as possible.

A more circular economy could substantially reduce CO2 emissions in light of the Paris Agreement targets, including for the major material flows (in terms of emissions): steel, plastics, aluminium and cement.

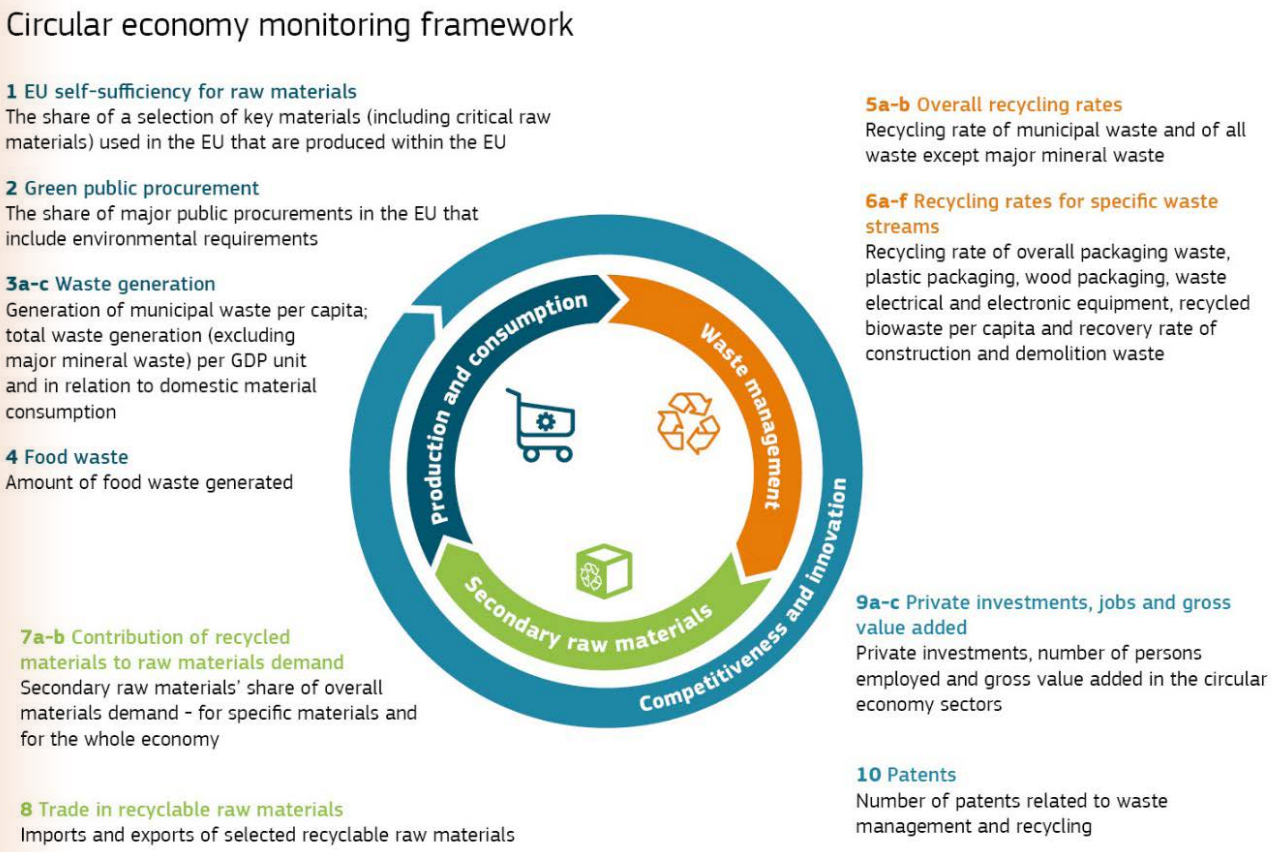
Circular Economy Indicators in the European Union

The monitoring framework on the circular economy set up by the European Commission consists of ten indicators, some of which are broken down into sub-indicators for monitoring the circular economy. These indicators, which were deliberately restricted in number, were chosen because of their inclusive nature and, for the most part, their accessibility at the European level. Moreover, in 2021, it was decided to maintain these indicators as far as possible to see how they developed over time.

The monitoring framework uses available data while also earmarking areas where new indicators are being developed, particularly green public procurement and food waste.

About half of the indicators in this framework come from Eurostat; others are produced by the Joint Research Centre (JRC) and the Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW). The indicator on patents comes from the European Patent Office.

The monitoring framework, depicted in the image below, provides a snapshot of what we know today. Eurostat will regularly update the monitoring framework available in this website section to ensure consistent reporting. In addition, the European Commission will continue to elaborate on the indicators that need further developments, particularly regarding the methodology and/or data collections and set targets for a circular economy.



Source: EU circular economy monitoring framework (2018)

If explored in potential cooperation with Eurostat, the above indicators – with the first one applied at country instead of at EU level – could provide policy-relevant information also to non-EU country policies in the UN-ECE region, while 3, 4, 5 and 6 are also relevant for the global SDG 12 indicator system.

Progress made in the UNDA project countries

The target countries within the UNDA Project "Improved environmental monitoring and assessment in support of the 2030 Sustainable Development Agenda in South-Eastern Europe, Central Asia and the Caucasus" commit to a thorough and intensive transition towards achieving SDG 11 and 12, particular for the area of Waste Management, by 2030.

Thus, a broadly spread transition process, from legislative adaption over respective institutional development to actively involving industry, services, education and the general public, has been initiated and is currently in progress.

Achieving the SDG 11 and 12 presents a challenge of mutual responsibility concerning all countries, thus sharing achievements and knowledge helps them learn from each other and thus accelerate their progress.

Waste management policies in project countries are oriented toward resources efficiency, reduction of waste, safe disposal of toxic waste and pollutants. Therefore, implemented waste policy and strategy are in line with SDG.

In all countries, the waste treatment infrastructure is not entirely well established and still needs adequate investments in the infrastructure for waste collection, sorting, treatment, recovery and disposal of non-recoverable fractions, which is a barrier for ongoing improvement of resource efficiency in the countries.

EU Member States (such as Austria) and EU Accession Candidates (such as North Macedonia) may have the advantage of already adjusting, respectively, to get acquainted with stricter standards in the field of waste management, e.g. those on landfilling and recycling. Nevertheless, these countries face new challenges towards achieving SDG 11 and 12 (e.g. a return system for plastic packaging in the retail being introduced in Austria in 2021).

In all project countries, waste data collection and management systems for reporting by the main stakeholders in the waste management area are established or in the process of ongoing improvement. In addition, policy-relevant indicators are introduced in line with the SDG indicators, including national recycling rate (Bosnia and Herzegovina) and specific targets for managing hazardous waste and targets for recycling packaging waste, Waste Electrical and Electronic Equipment (WEEE), waste batteries, End-of-life vehicles (EoLV) and tires. The national statistics offices and the Ministries of Environment are responsible for data reporting, monitoring, control and analytical activities.

North Macedonia, Bosnia and Hercegovina, Georgia, Kazakhstan introduced specific targets essential for reporting of SDG indicators, including:

- Municipal waste generated
- Hazardous waste generated
- Municipal waste collected
- Recycling rate of packaging waste, including targets per materials of packaging waste
- Collection and recycling of WEEE
- Landfilling rate

North Macedonia and Bosnia, and Hercegovina introduced Municipal waste recycling goals, which are in line with 12.5.1 SDG

Challenges identified within the UNDA project

Deploying high-quality waste monitoring and data management systems requires considerable national and international efforts. In the framework of the UNDA project, the following challenges have been identified:

- Need of update of legislation on waste reporting
- Development of information system for online gathering current and accurate data and information for the quantity, type, treatment of the different waste streams.
- Update and extend existing Waste Data and Information Management system
- Need of development of rulebooks for reporting of different waste streams for all stakeholders, including WEEE
- Undertaking measures for education and implementation of campaigns for increasing public awareness for the treatment of waste and data reporting
- Awareness-raising to the obligated stakeholders for data reporting
- Need of more reliable statistical information system by improving the cooperation between the various organizations collecting statistical information

What are the opportunities and benefits of a sound waste management?

Waste presents major challenges and equally major opportunities especially acute for developing economies and economies in transition.

If addressed through the correct combination of policies, waste management can deliver

- Economic benefits, when efficient practices are introduced into production and consumption, valuable materials are recovered, and people find jobs and pursue business opportunities
- Social benefits, when communities are lifted out of poverty and health problems are solved or lessened
- Environmental benefits, when impacts are reduced or eliminated, water and air quality is improved, and greenhouse emissions are reduced.

Priority areas for improvements (for all countries in the UNECE region)

Waste management performance
Collection coverage
Waste generation
Waste destinations
Data quality

Governance
Plans and targets
Responsibilities
Extended Producer Responsibility schemes

Legal framework
Strategies
Waste management
Law, List of waste
Waste management plans

Incentives
Collection fees
Pay-as-you-throw

Collection and treatment infrastructure
Separate collection
Treatment plants

Social aspects
Informal sector
Jobs

Adopted Legislation on priority waste streams for Circular Economy

Source: Second Regional Conference: measuring and monitoring the circular economy and the use of data for policy-making. EEA webinar presentation

How can policy-makers and citizens improve the waste management in Eastern Europe, Caucasus and Central Asian countries

Successful waste management requires a comprehensive policy approach and regulatory framework.

At the global level, the UN SDG Community is establishing and further developing https://sdg12hub.org/, a platform for integrating all relevant data reporting on SDG 12 indicators, to provide a one-stop-shop for governments, businesses, civil society and the public for tracking progress on the achievement of Goal 12 of the 2030 Agenda for Sustainable Development: ensuring sustainable consumption and production patterns.

Furthermore, sound waste management requires the following key elements:

Governance and policy

- Waste management policies with priority toward efficient use of resources, waste prevention and minimization, safe disposal of toxic waste and minimized pollutants. Implemented waste policy and strategies need to be in line with SDGs.
- Supporting frameworks for waste reduction, and using waste as resources, including targets for collection, recovery and recycling operations
- Mechanisms for review and reform. An important aspect of the policy is to ensure that the weight and balance of policy across the different dimensions are appropriate. Overinvestment in final

disposal, for example, may reduce the incentive to reduce waste generation and discourage reuse, recovery, and recycling (depending on other elements of policy, e.g. prices).

- Legislation and subsidiary regulations (including legislation in compliance with relevant obligations under international law), along with implementation, compliance, and enforcement actions to ensure their effectiveness
- Clear delineation of responsibilities and mandates among actors (e.g. national and local authorities, producers, importers) and adequate allocation of resources, authority, and power to fulfil these responsibilities (including sub-national or regional cooperation mechanisms)

Waste Treatment infrastructure

- Sufficient waste treatment infrastructure is needed that require adequate investments in the facilities for waste collection, sorting, treatment, recovery and disposal of non-recoverable fractions, which is a barrier for ongoing improvement of resource efficiency in the countries
- Sharing technologies and best practices, and where appropriate, regional cooperation

Extended Producer Responsibility

- Introduction of Extended Producer Responsibility (EPR), recognised as an internationally applied policy principle helping to reduce waste generation and promote re-use and recycling operations, is making producers of the product responsible for the entire live cycle of the product, including the end - of - use stage.

Taxation system and economic instruments

- System of economic instruments including taxes and financial incentives supporting the sector to be implemented as an effective policy tool in the prevention, minimisation and sound management of waste.
- Fees and charges need to support costs recovery of waste management, polluter pays, and ensure the financial sustainability of waste management services.

Enforcement and compliance

- Coordination mechanisms among enforcement authorities
- Community participation mechanisms
- Pilot programmes and technical support/exchange initiatives to assist local implementation
- Monitoring and data management:
- Monitoring of policy progress and gathering and publication of data and information
- Ensuring direct electronic reporting by waste management actors to Authorities, and effective management of policy-relevant data
- Sustainable close coordination between waste management authorities and statistical offices for national and international reporting

Education and awareness

- Education and publicity programmes to change public attitudes and behaviour
- Programmes to train and maintain teams of skilled and committed waste management workers, not only in the waste management industry itself but also in public waste management services and in those enterprises which are major generators of waste

Case studies

Comprehensive policy development and challenges in North Macedonia

North Macedonia has started an active process of implementing sustainable waste management policies since 1996. Waste Management Strategies and legislation cover all important waste streams, Extended Producers Responsibility has been implemented for packaging, Waste Electrical

and Electronic Equipment, batteries. As an EU candidate country, North Macedonia has set goals for increasing separate collection and recycling in increasing approximation to the requirements of EU legislation.

In spite of systematic efforts, gaps still exist in policy implementation, technical infrastructure, data collection: While an EU-compliant municipal waste landfill serves the capital region of Skopje, none of 54 municipal landfill sites meets the requirements for sanitary operation and environmental protection. The informal sector still performs the collection and recovery of recyclable materials. Composting and anaerobic digestion of biodegradable waste is not generally practised, and several specific waste streams – such as construction and demolition wastes, agricultural and livestock waste or Waste tires and oils – need increased efforts in collection and treatment.

New Strategic documents will foresee measures for improving the situation:

1. Start activities and measures to prevent the generation of municipal and other types of waste, especially industrial hazardous waste.
2. Further selection of municipal waste and separation of the biodegradable fraction of municipal waste. To intensify the processes of recycling and composting of municipal waste and start the processes of its combustion with the production of electricity and heat. Controlled capture and use of gases from sanitary landfills.
3. Encouraging separate collection, sorting, recycling and energy processing of packaging waste.
4. Undertaking measures for education and implementing campaigns to increase public awareness for the treatment of waste.
5. Construction of landfills and incinerators for proper waste treatment of hazardous waste. Increased inspection control in order to properly manage municipal and hazardous waste by business entities and individuals. Establishment of an appropriate laboratory for detection of hazardous waste, hazardous substances and substances in mixed waste or waste of unknown content and / or origin.
6. Development of information system for online gathering current and accurate data and information for the quantity, type, treatment of the different waste streams.
7. New updated legislation and rulebooks on e-waste

Source: Waste management indicators and policies (UNDA webinar #3), North Macedonia presentation

Introducing Extended Producer Responsibility (EPR) in Georgia

Georgia took decision for EPR implementation already in 2012 with the adoption of a new comprehensive Law on waste management. Regulations for management within the scope of Extended Producer Responsibilities were prepared and adopted in 2019/2020 for Waste Electrical and Electronic Equipment (WEEE), waste batteries and accumulators, waste oil and used tires. Broad discussions with all stakeholders were performed for choosing the best options for implementations and targets are set up following annual gradual increasing reaching in ten years targets from the EU directives. In 2021, Packaging and End of Life Vehicles (EoLVs) are still in the process of very broad consultations in triple dialog between Central administrations (MEPA), business and municipalities. Deposit system for plastic bottles is in the process of feasibility and design. Data management system was implemented in 2014 for hazardous waste and treatment operators and for waste traceability. During the EU Technical assistance Project - Support to the reform in waste management sector in Georgia it was proposed to update and extend the information system with data collection from all treatment, collection and transport operators for all waste streams including EPR waste streams. Part of the Information system for EPR are the modules of the Register of producers of EEE, Batteries, Tires, oils, packaged products vehicles and for reporting data on the placed on the market products. The advantage of this extension will be an easier process of reporting and monitoring of the targets for collection, recovery, recycling using both data streams – for products and waste. Implementation of EPR is of big challenge for MEPA due to the reduced staffs and need of deep interdisciplinary knowledge for efficient functioning for the EPR. Capacity Building projects for staff in administrations and business is crucial for successful implementation.

Source: M. Krasteva and MEPA (2021)

Managing and monitoring Waste Electrical and Electronic Equipment (WEEE)

Globally E-waste constitutes one of the fastest-growing waste streams and poses a significant threat to health and sustainable development.

Among the project target countries, North Macedonia, Bosnia and Hercegovina and Georgia have approximated their policies, regulations and targets to those of the European Union. Georgia has

also participated in the UNEP-UNU/UNITAR-ITU project on the Regional E-Waste Monitor for the CIS+ region (which covered in addition 4 out of the 7 UNDA project beneficiary countries: Armenia, Kazakhstan, Kyrgyzstan, and Tajikistan)

That project has been recently concluded and the final report calls on all countries in the region to:

- Introduce and enforce a robust legal and policy framework focused on environmentally sound management of e-waste, or
- Monitor and reinforce existing systems to make them more efficient and effective

Also called for:

- Adequate financing of the systems, monitoring, and cooperation of all stakeholders -- essential for ensuring that the policies setup for e-waste management is sustained.
- Strengthened transnational cooperation to reduce the burden of large investments

The report concludes with detailed individual country profiles and elaborates on seven recommendations, headlined:

- Prevent more
- Be more aware
- Collect more
- Pollute less
- Pay adequately
- Work more safely, and
- Train more

Source: https://ewastemonitor.info/regional-e-waste-monitor-cisgeorgia-2021/

References

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