



**JOINT OPERATIONAL PROGRAMME
BLACK SEA BASIN 2014-2020**

**Project:
“Knowing Circular Economy in Black Sea Basin”
“BSB-CIRCLECON”**

**Output O.T1.2 BSB-CIRCLECON
Regional Study in Georgia: processes, effects and challenges**

Program: Joint Operational Programme Black Sea Basin 2014-2020
The programme is co-financed by the European Union through the European Neighbourhood Instrument and by the participating countries: Armenia, Bulgaria, Georgia, Greece, Romania, Republic of Moldova, Turkey and Ukraine

Input by PP4 International Centre for Social Research and Policy Analysis



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Executive Summary

Because of the potential impact on the environment, the current trend of material use and waste generation puts unprecedented pressure on the climate. The inefficiency of the existing economic model leads to excessive use of natural resources, waste disposal, and environmental problems to be addressed. The concept of a vibrant economy has the potential to contribute to a resource-efficient and environmentally friendly society.

Georgia has made commitments to the green economy as part of its partnership with the European Union. The Eastern Partnership Summit Declarations and the Organization Agreement with the EU reflect this (2014). Georgia agrees to strengthen cooperation on environmental concerns in Chapter 3 (Article VI) of the Convention, which sets out the long-term goal of sustainable development and economic recovery.

Georgia is working on a comprehensive economic strategy that will include production, utilization, waste management, second-hand raw materials, innovation, and investment. The Georgia Waste Management Code incorporates the concept of Manufacturer Extended Responsibility in this approach. Extended Manufacturer Product (EPR) is a financial mechanism that provides liability and cost for the collection, sorting, and handling of products used by the manufacturer (manufacturer or importer). This is an important step in developing a national recycling system and in acquiring the financial resources needed to ensure separate advanced recycling, recycling, discovery, or waste disposal. Electrical and electronic waste, used oil, expired tires, trash batteries, and garbage disposal are currently covered by the Georgia Producer Commitment Program. In addition, the Additional Coordinator Loads for packaging and end-of-life vehicles are disputed. Government is also working on the Climate Action Plan and the Green Economy strategy at the same time. The latter reflects the country's aspirations to adopt the 2009 OECD Green Growth Declaration.

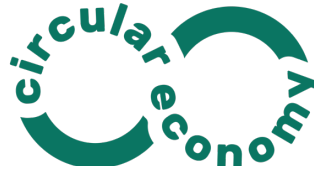
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1. Introduction

The aim of the regional State of the Art analysis in the field of Waste Management and Circular Economy is to describe in detail, in quality and quantity terms, the current situation of waste management and circular economy issues, especially, waste collection - waste treatment - waste recycling - waste reuse - main environmental challenges in each area -- soil, area and water pollution status - general people behavioural patterns related to waste. At present, there is a number of regional data & studies which are not comparable; therefore BSB_CIRCLECON addresses this issue by establishing a common basis for the implementation of data base common methodology for data collection which will be used by all partners in order to allow comparison of results and also the integration of information into expertise in the regions for the project. In this respect, the State-of-the-Art Analysis shall be pay attention to identification of existing documents and relevant stakeholders/experts; analysis of existing documents and interviews with stakeholders/experts in order to get information and data about the current situation of Waste Management and Circular Economy in each area. The methodology and specifications were developed by Leading Partner and are common for all partners as to insure compatibility of results and comparability of data.

All countries and areas of the Black Sea Basin encounter environmental challenges. The “big lake” - Black Sea is a common asset and a common problem as pollution, marine litter and plastic affect every single inhabitant of the eligible area. Without joined planning, close cooperation and mutual awareness of complementary actions waste cannot be anticipated. The adoption of systematic measures is the one-way solution for the BSB. Why circular economy? Because, the model saves energy and water, reduces waste, it helps preserve natural resources, It generates new uses for used products, helps fight against climate change, promotes innovation and creates jobs and wealth.

The planned objectives and results cannot be achieved without CB cooperation or at the best case scenario will affect one area without any result to the neighbor hooding area. Waste, plastics, pollution, marine litter “travel” from here to there, by the air, in the sea, with the rivers; so isolated plans and actions cannot protect the communities. Awareness raising, understanding the problem, adopting the solutions from all -or at least the

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majority- can lead to real benefits for BSB communities. The partners will play the role of the lighthouses in their areas, the activities' target groups will be the multipliers within their countries.

As it is described in the GAs, the proposed activities, solutions and deliverables are jointly developed by the partners in different countries, aiming to secure clear cross border added value.

The partners will achieve a high level of knowledge in the cutting edge model adopted from EU; they will also upgrade their environmental and business model by adapting ISO 14000; target audience will benefit from tailor-made studies, new educational tools, new inventory of applications to exploit; some 50 experts are expected to be trained, more than 350 organisations to be advised, 10 organisations to form an EGTC under CE principles; more than 1400 are expected to be informed directly about CE model adoption techniques.

Every year, more than 100 billion tons of resources enter the economy, including metals, minerals, and fossil fuels, as well as biological elements derived from plants and animals. Only 8.6% of the waste is recycled and reused. If current trends continue, resource use will have quadrupled since 1970 and could treble again by 2050. To sustainably support our current resource use, we'd require 1.5 Earths.

Humans, wildlife, and the environment are all suffering as a result of this widespread consumption. Shifting from linear, use-it-up-and-throw-it-away models to a circular economy, where waste and pollution are planned out, products and materials are maintained in use for longer, and natural systems can regenerate, is more important than ever.

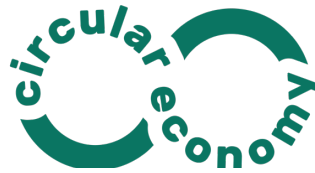
The circular economy concept is all about making better use of natural resources like forests, soil, water, air, metals and minerals. There is no universally accepted definition of

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circular economy, and various stakeholders associate it with diverse levels of sustainability.

According to the European Commission definition, a circular economy aims to maintain the value of products, materials and resources for as long as possible by returning them into the product cycle at the end of their use, while minimising the generation of waste. The fewer products we discard, the less materials we extract, the better for our environment.¹

This process starts at the very beginning of a product's lifecycle: smart product design and production processes can help save resources, avoid inefficient waste management and create new business opportunities.

What are the benefits?

The circular economy offers an opportunity to reinvent our economy, making it more sustainable and competitive. This brings benefits for European businesses, industries, and citizens such as:

- more innovative and efficient ways of producing and consuming;
- protection for businesses against scarcity of resources and volatile prices;
- opportunities for local jobs and social integration;
- optimisation of waste management which boosts recycling and reduces landfill;
- energy savings as less production processes requires less energy;²

Action on the circular economy ties in closely with key EU policy priorities and with global efforts on sustainable development.

In 2015, the European Commission adopted an ambitious 'Circular Economy Package'. An EU Action Plan for the circular economy establishes a concrete programme of actions outlining measures that cover the entire product life cycle: from production and consumption to waste management and the market for secondary raw materials. On 4 March 2019, the

¹ (ec.europa.eu > eurostat > webOverview - Circular economy - Eurostat , n.d.)

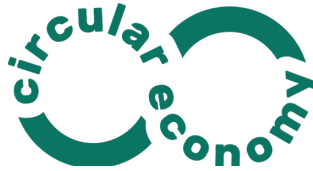
² (Overview - Circular economy - Eurostat - European Commission , n.d.)

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European Commission adopted a comprehensive report on the implementation of the Circular Economy Action Plan.³

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, Europe's new agenda for sustainable growth. 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. It introduces legislative and non-legislative measures targeting areas where action at the EU level brings real added value.⁴

³ (An EU action plan for the Circular Economy - Opinion Factsheet Overview - Circular economy - Eurostat - European Commission, n.d.)

⁴ (Overview - Circular economy - Eurostat, n.d.)

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2. Methods

This study provides a review of the existing literature on the circular economy in Georgia with the purpose of improving understanding of the concept as well as its various dimensions and expected impacts. The study uses reports from internationally recognized research organizations (World Economic Forum, European Union, UN) and papers by foreign and Georgian researchers.

It has the following structure. Section 3 explores the origins of the circular economy concept, the different available definitions as well as the issues that have received criticism. Section 2 first describes the main circular economy processes and then presents three examples of how these processes can be applied in different sectors. This is followed by a presentation of the main economic, environmental and social impacts of the circular economy transition according to the existing evidence in the literature (section 4). The last section draws some conclusions for policy-makers and researchers based on the research conducted for this study. The analysis in this paper is based on a desk-based review of the available limited literature in the field of circular economy (reports, scientific articles, policy publications, etc.) in Georgia. Additionally, the research team conducted structured interviews with six experts from policy, business and academia in order to collect their views on the issues addressed in this paper. The interviewed experts are listed in an Annex at the end of this paper.

3. General presentation of the country/region

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Basic information about Georgia

Republic of Georgia is a small, densely populated country in in the Caucasus region of Eurasia.

Total area - 69.7 thousand km². Located at the crossroads of Western Asia and Eastern Europe, it is bounded to the west by the Black Sea, to the north by Russia, to the south by Turkey and Armenia, and to the southeast by Azerbaijan.

Population - about 5 million people.

Capital - Tbilisi, over 1 million residents.

The state language - Georgian.

Religion - Orthodox Christian 83.9%, Muslim 9.9%, Armenian-Gregorian 3.9%, Catholic 0.8%, other 0.8%, none 0.7%.

Georgia (Georgian: Sakartvelo) regained independence on April 9, 1991. Georgia is a member of the United Nations and Council of Europe.

Form of Government: Unitary Parliamentary Republic.

Head of State: President.

Head of Government: Prime Minister.

National currency - Lari

Internet zone - .ge

Telephone code - 995.

Georgia (საქართველო, Sakartvelo) is a country located at the crossroads of Eastern and Western Europe. It is part of the Caucasus area, with the Black Sea to the west, Russia to the north and east, Turkey and Armenia to the south, and Azerbaijan to the southeast. It has a population of 3.7 million people, with an area of 69,700 square kilometers (26,911

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square miles) and a population of 69,700 square kilometers (26,911 square miles) excluding the occupied areas. Georgia is a unitary parliamentary country administered by a representative democracy. Tbilisi, Georgia's capital and largest city, is home to almost a quarter of the country's population.

Participation in Euro-Atlantic integration, more efficient governance, higher economy, and a better functioning welfare state are among Georgia's common priorities. This opened the way for the signing of an Association Agreement with the European Union (EU) in 2016, which included a preferential trade regime known as the Deep and Comprehensive Free Trade Area. Georgia is well positioned to attract foreign direct investment (FDI) thanks to free trade agreements with key trading partners such as the EU and China.

Georgia's main economic activities include the cultivation of agricultural products like grapes, citrus fruits, and hazelnuts; mining of manganese, copper, and gold; and output of industrial sector producing alcoholic and nonalcoholic beverages, metals, machinery, and chemicals. The country imports nearly all its needed supplies of fossil fuel and oil products. It's sizeable hydropower capacity that now provides most of its

energy needs. Georgia has overcome the chronic energy shortages and gas supply interruptions of the past by renovating hydropower plants and by increasingly counting on gas imports from Azerbaijan rather than from Russia. Construction of the Baku-Tbilisi-Ceyhan pipeline, the Baku-Tbilisi-Erzurum gas pipeline, and also the Kars-Akhalkalaki Railroad are a part of a technique to maximize Georgia's strategic location between Europe and Asia and develop its role as a transit point for gas, oil, and other goods.⁵

Georgia has made promises to the green economy as part of its cooperation with the European Union. The Eastern Partnership Summit Declarations and the Association Agreement with the EU reflect this (2014). Georgia agrees to strengthening cooperation on environmental concerns in Chapter 3 (Title VI) of the Association Agreement, contributing to the long-term goal of sustainable development and greening the economy.

⁵ (www.knowyourcountry.com › georgia1111Georgia AML Report | KnowYourCountry, n.d.)

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Since Georgia signed association agreement with European Union, it will be logical and natural to adopt the view of the EU regarding the concept of a circular economy and its implementation.

Despite the ambitious declarations, Circular economy (CE) is still in its infancy in Georgia. According to the information presented in the block authored by By Dr. Dariusz Edward Prasek, International Expert in environmental, social and governance areas and Circular Economy, member of the United Nations Advisory Board on Circular Economy and Solomon Pavliashvili, Deputy Minister of Environment Protection and Agriculture “Georgia has recently embarked on an accelerated path towards a transition to a circular economy. With the concerted efforts of the government, civil society organizations, and international partners, Georgia initiated the development of the circular economy strategy and took some important steps to include, for example, the introduction of the Extended Producer Responsibility (EPR) in the national Waste Management Code.”⁶

Georgia is in the process of developing a circular economy strategy that includes production, consumption, waste management, secondary raw materials, innovation, and investments. In this direction, Georgia introduced the Extended Producer Responsibility in its Waste Management Code. Extended Producer Responsibility is a financial instrument that attributes to the producer (either manufacturer or importer) the responsibility and costs for the collection, and eventually for sorting and treating, of used products. This is an important step to improve the recycling scheme in the country and to bring about the financial resources to ensure improved separate collection, recycling, recovery, or waste treatment . Georgia's Extended Producer Responsibility is currently used for waste from electric and electronic equipment, used oils, end-of-life tires, waste batteries, and waste accumulators. Moreover, the Extended Producer Responsibility regulations are under discussion for packaging and end-of-life vehicles. In parallel, the government is also developing a Climate Action Plan and a Green Economy strategy. The latter articulates the country's plans to adopt the 2009 OECD Declaration on Green Growth .

⁶ (Prasek DE, Pavliashvili S (2020) Accelerating Georgia's Transition to a Circular Economy. Part I.)

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In Georgia, over 900,000 tons of waste are generated each year, with more than 75% ending up in landfills, increasing pollution and creating long-term dangers to the environment and human health. Georgia's National Waste Management Strategy for 2016-2030 includes a recycling target timetable for specific waste kinds. For example, by 2025, the country should be recycling 50% of plastic waste and 80% by 2030. Georgia must execute a complicated combination of measures to minimize excessive trash creation and promote the transition to sustainable waste management in order to achieve this lofty target.

Georgia has progressed well in recent decades on the environmental front, and has begun to harmonize national legal and policy frameworks, as well as governmental institutions, with EU norms. Georgia's solid waste management (SWM) program has made significant progress since the introduction of the Waste Management Code (WMC) in 2015. Following that, a comprehensive National Waste Management Strategy (NWMS) and accompanying National Waste Management Plan were developed (NWMP). To support SWM, a number of implementing regulations and guidelines have been adopted, and their implementation has begun in stages. Municipal Waste Management Plans (MWMPs) have been officially adopted by local self-governments (LSGs), and their implementation has begun.

Moreover, a number of waste-generating firms have filed waste management plans to the Ministry of Environmental Protection and Agriculture (MEPA) for approval, and have begun reporting on their wastes on an annual basis in accordance with WMC criteria. MEPA and other relevant authorities have set up a number of computerized waste registries, and waste producers' waste accounting has improved dramatically. MSW collection in Georgia has improved dramatically, with rates around 100% in urban regions and around 64% in rural areas. A number of functioning landfills that posed severe threats to human health and the environment were closed and remediated, while those with lower consequences were repaired and slated for closure and remediation.

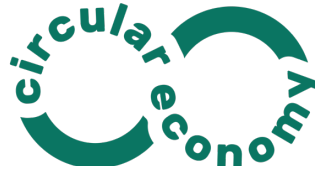
International financial institutions (IFIs) sponsored the construction of new regional sanitary landfills that complied with EU regulations, as well as provided assistance in

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establishing required transportation systems and transfer stations. One of the most significant reforms in the SWM sector is the recent implementation of the Extended Producer Responsibility (EPR) principle by enacting technical requirements on batteries and accumulators, used oils, end-of-life tires (ELTs), and waste electronic and electrical equipment (WEEE). Various stakeholders have developed draft regulations on packaging and end-of-life vehicles (ELVs), which are currently being discussed. Through Producer Responsibility Organizations, the EPR model implies larger duties for producers—including importers of specialized products—for waste management caused by product use, either individually or collectively (PROs).

Despite Georgia's progress toward integrated SWM, the country still confronts numerous problems in the short, medium, and long term. Better infrastructure and sustainable practices—including know-how, financing methods, and increased capacity—can benefit the sector even more, particularly at the local level. SWM can benefit from additional support in implementing full cost-recovery policies for MSWM and reinforcing newly adopted EPR regulations. As mandated by WMC, the sector can reinforce high levels of participation and encourage specific waste producers, consumers, and local governments to better collaborate on developing and implementing EPR schemes (especially for packaging wastes), as well as begin separate collection and recycling of dry recyclables and household hazardous wastes.⁷

According to the Environmental Protection & Agriculture ministry Facebook page post “The project “Assessment of the Circularity of the Georgian Economy” is funded by the Government of Sweden and aims, in close cooperation with the Government of Georgia, to identify and set targets for the National Circular Economy Policy and Circular Objectives. The process of transition to a circular economy.

The Coordination Council was approved by the Minister of Environment and Agriculture of Georgia and is an inter-agency working group of the Government of Georgia to achieve these goals.” Although, no details are available for the public on the composition of the Coordination Council on Circular Economy in Georgia.

⁷ (GEORGIA Solid Waste Sector Assessment Report, 2021, p. World Bank)

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According to the GSNE “Orchis” Facebook page, organization is implementing “Circular Economy Programme in Georgia” funded by the Government of Sweden. “To Map Circular Economy in Georgia’ commonly by the MoEPA and GSNE “Orchis”. The project ‘To Map Circular Economy in Georgia’ is being implemented by GSNE “Orchis”, through funding of the Government of Sweden, with the support of Georgian Ministries of Environmental Protection & Agriculture, Regional Development & Infrastructure, Education & Science, and Culture & Sport, and in close cooperation with the Solid Waste Management Company of Georgia and Environmental Information & Education Centre. Ongoing circular economy program being implemented by the Georgian Society of Nature Explorers “Orchis” within the framework of “Keep Georgia Tidy” Project and supported by the Government of Sweden. This program is the basis for the Georgia’s accelerated shift to circularity. It is also a vital contribution to fulfill Georgian commitments under the Association Agreement with the European Union.”

Within our desk research we could find the information about the program exclusively as the announcements on social media pages and news outlets. For the period of our study, unfortunately no reports or studies were available to the broad public through the webpage of the project or other internet means, therefore for presenting the program we will rely on the information provided by Facebook page of the GSNE “Orchis” and mainly Open Government data of Swedish aid (<https://openaid.se/en/activities/SE-0-SE-6-13312A0101-GEO-41081>), where the information regarding the project “Keep Georgia Tidy” is provided to the public.

Following the “Decision on Amendment of Contribution, Keep Georgia Tidy Circular Economy” document, ... “Environmental Protection and Agriculture (MEPA) requested assistance from Sida on expertise and facilitation in mapping circularity with the aim to develop a Circular Economy policy for Georgia.

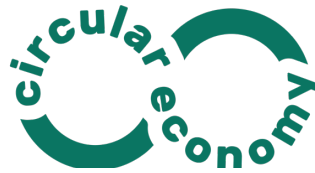
The request from MEPA is in line with Swedish Country Strategy for Georgia, EU Association Agenda and Georgia’s SDG commitments. It was further concluded that the request fits within the scope of KGT’s existing programme goals and objectives. KGT has over the years

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developed an extensive network of expertise and a trustful relationship with MEPA. The Swedish Embassy therefore requested KGT to work with MEPA to develop and submit a proposal on how to assist MEPA to meet its objectives.

Accordingly, Keep Georgia Tidy submitted a proposal that will add a Circular Economy component to the current Swedish contribution. The component will be implemented by KGT through its consortium partner GSNE Orchis. ...

International expertise in Circular Economy will team up with local Georgian experts on the Georgia economy and environmental, social and governance context. The implementing partner will in close cooperation with the Government of Georgia map and establish a country baseline for Circular Economy. Appropriate policy targets shall be identified and established. Priority Sectors for circular economy initiatives and sector-specific policy options shall be determined in close cooperation with the Government of Georgia. “

According to the “Amendment to the Agreement on Keep Georgia Tidy between the Swedish International Development Cooperation Agency Sida and Keep Georgia Tidy (KGT), Circular Economy component was added for the implementation during period November 1, 2020 to 31 October 2022. From the all of the mentioned above the results of the projects, in terms of studies, reports, strategy, mapping, etc should be available to the public in autumn of 2022 latest.

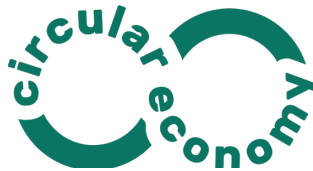
“The civil society organisation Keep Georgia Tidy (KGT) has applied to Sida for funding 28 500 000 to carry out the “Keep Georgia Tidy” programme in Georgia during the period 2019-2023. KGT, together with its local partner organizations, Georgian Society of Nature Explorers Orchis and Greens Movement of Georgia/Friends of the Earth-Georgia, and Swedish partners Keep Sweden Tidy and Gästrike Återvinnare in cooperation with the Ministry of Environment Protection and Agriculture of Georgia and its structural unit - Environmental information and Education Centre will implement this intervention. The programme aims to reduce greenhouse gas emissions and pollution of environment by 2023 through environmental sustainable education and promotion of circular economy in Georgia. The specific objectives of the programme are: to obtain an environmentally

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conscious generation in Georgia by 2023 and; to reduce pollution from municipal waste (40%) and greenhouse gas emissions (10%) in Georgia by 2023. The proposed intervention will improve the knowledge of the young generation on main aspects of waste management, its negative impact on health and environment, climate change, biodiversity/eco-systems, circular economy and the sustainable development goals (SDGs). Waste management system improvement with the support of the Swedish Association Gästrike Återvinnare (GÅ) together with GNSE Orchis and GMG/FOA will support to EU Association Agreement requirements fulfillment in waste sector of Georgia. Circular economy promotion and increased awareness among estimated 700 000 representatives of stakeholders by benefits of circular economy is expected to support the acceleration of green economy development in the country.⁸

Expected results

The overall objective of the intervention is to reduce greenhouse gas emissions and pollution of environment by 2023 through environmental sustainable education and promotion circular economy in Georgia. The specific objectives that the programme aims to achieve are: To attain environmentally conscious generation in Georgia by 2023 To reduce pollution from municipal waste (40%) and greenhouse gas emissions (10%) in Georgia by 2023 “Circular economy promotion and increased awareness an estimated 700 000 representatives of stakeholders on benefits of circular economy will support to acceleration of green economy development in the country.”

GSNE “Orchis” started contributing to the outcome 2.9 Increased awareness among 70 000 representatives of stakeholders on the benefits of circular economy; acceleration of Green Economy development, via using waste management improvement as per EU standards and reduction of pollution and accelerate systemic change through wider policy and advocacy work.

As a result of raised awareness, the Government of Georgia (MEPA) requested assistance on broadening the scope of Circular economy component, particularly Development of the Circular Economy Strategy for Georgia - the need for Mapping the Circularity. “⁹

⁸ (Keep Georgia Tidy | Openaid, n.d.)

⁹ (Keep Georgia Tidy | Openaid, n.d.)

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Existing Environmental Legislation with a View on the Circular Economy

The Association Agreement between the EU and Georgia (signed on June 27, 2014) creates the basis for cooperation between Georgia and the EU. Under the terms of the agreement, Georgia pledges to implement changes and eventually integrate its own legislation in relevant sectors with 300 EU legal acts, especially in the fields of the environment and sustainable development.

Certain institutional foundations have been prepared for the formation of a "green" economy in Georgia. Namely: the Law of Georgia on Environmental Protection (1996) has been adopted; Three National Environmental Action Programs of Georgia; Law of Georgia - "Waste Management Code"; "National Waste Management Strategy 2016-2030 and National Action Plan 2016-2020". In accordance with the requirements of the EU-Georgia Association Agreement directives, these documents reflect Georgia's environmental goals and priorities, set long-term strategic goals, tasks to be implemented in the next 5 years and specific actions necessary to improve the state of the environment.

Law on Environmental Protection (Georgia)

This basic environmental legislation of Georgia (Georgia 1996) refers also to a "stable development", which in principle means a sustainable development (Art. 4 (k), (l)). Moreover, this law mentions the polluter-pays principle (Art. 5 (e)), waste prevention and recycling (Art. 5 (g), (i)).¹⁰

Waste Management Code (Georgia)

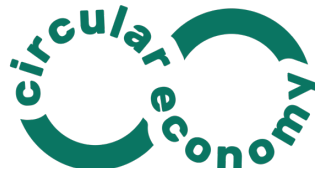
This Code (Georgia 2014) establishes "a legal framework to implement measures that will facilitate waste prevention and its increased reuse as well as environmentally safe treatment of waste" (cf. Art. 1), thus clearly pointing to the waste hierarchy, which is

¹⁰ (Wiethmeth CENN Textbook 1 - Economics - StuDocu, n.d.)



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detailed again in Art. 4. In Art. 9, EPR is mentioned to address issue such as product design and others. It should also be mentioned that Georgia is cutting back on plastics waste by forbidding plastics bags. The “National Waste Management Strategy” [NWMS] (Code: Article 11) for the period 2016-2030, and the “National Waste Management Action Plan of Georgia” [NWAP] (Code: Article 12) for the period 2016-2020 are prepared in accordance with the Association Agreement and the Code.¹¹

Georgia - Extended Producer Responsibility (EPR)

The Extended Producer Responsibility has been introduced into the Waste Management Code of Georgia. Four regulations dealing with EPR have been adopted in June 2020. Packaging waste and EoLV draft regulation are at the stage of final discussion with stakeholders. Deposit Refund System for packaging is going to be implemented. There is still a need for capacity development for all stakeholders for implementation of EPR legislation. The key elements of effective EPR implementation should bring the achievement of two main environmentally-related goals: 1) Design improvements of products - the EPR system should provide incentives for manufacturers to improve products and systems surrounding the life cycle of products; 2) High use of the product and material quality through effective collection and re-use or recycling - this goal can be sub-divided into three sub-goals, which are a) effective collection, b) environmentally-sound treatment of collected products and c) high use of products and materials in the form of re-use and recycling.¹²

EPR is directly linked to green and circular economy development.

At this stage, EPR applies to the following waste products: waste from electric and electronic equipment, used oils, end-of-life tyres and vehicles, as well as waste batteries and accumulators.

EPR will be gradually expanded to cover other waste products. However, the introduction of this principle is crucial for starting the practical implementation of the circularity as it

¹¹ (National Plastic Waste Prevention Program for Georgia Draft, n.d.)

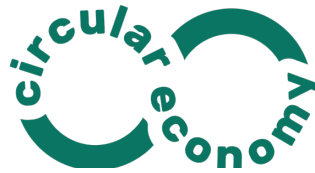
¹² (<http://unece.org/environment-policy/environmental-monitoring-and-assessment/measuring-and-monitoring-circular/>, n.d.)

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promotes the idea of treating waste as a resource, and stimulates the establishment of value chains required for the reuse, recycling and recovery of waste.

The implementation of EPR has been supported by regulations and guidelines covering such topics as: (i) liabilities and requirements for the setting up and authorization of individual and collective compliance schemes and EPR organizations by producers (including importers); (ii) rules for the establishment of EPR register and producers' registration; (iii) scope of decision authority and liabilities of involved parties; (iv) technical regulations on the collection and treatment for each category of specific waste; (v) targets to be achieved for the gradual adoption of EPR; and (vi) control mechanisms. These technical regulations were developed through the support of the EU, USAID, SIDA and UNDP, and with the involvement of international and local experts. The experience of Sweden, Germany, Austria, Greece, Bulgaria and other countries was also shared. All stakeholders, and especially companies directly subject to EPR, were actively engaged in this process. Large scale public hearings, sectoral meetings, workshops, discussions with individual companies and media-campaigns were conducted, contributing to the process.¹³

The Ministry of Environmental Protection and Agriculture also prepared several technical regulations for handling, under EPR, such materials and products as waste electric and electronic equipment, waste oils, end-of-life tyres, and waste batteries. These regulations are currently going through the formal approval process and are expected to enter into force this year, with the deadline for registration of producers set for mid-2021. The regulations stipulate the targets for the 2022-2023 period. The delay in the legislative process was caused by the COVID-19 pandemic situation. However, the government extended the deadline to give producers ample time for registration, and for the establishment of EPR organizations and other preparatory works. There are other technical regulations that are currently under the preparatory and review processes. These include on packaging wastes and on end-of-life vehicles. These draft regulations will be additionally submitted to the GoG in the nearest future.

The Vision of the Waste Management in Georgia is: “Georgia to become a preventing and recycling society” by:

¹³ (Accelerating Georgia's Transition to a Circular Economy. Part I , n.d.)

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4 Circular Economy in quantitative perspective

The most challenging practical application of the GGI concerns gathering data. Data sources used to construct the indicators include primarily official national statistics, but also data from administrative sources and in some cases from research studies. Collecting data for the policy response indicators is the most problematic part for almost all countries. Lack of coherent data over longer periods was another challenge. These factors tend to limit the indicators' usefulness for assessing progress in greening the economic development and the role of policies in this process.

While the Ministry of Economy may assume leadership in the process, the major environmental authority and statistical agencies should have a strong voice in the process. The involved ministries may wish to establish an inter-ministerial supervisory group for a regular exchange during the process that can ensure political support for the project and is able to decide on follow up policy action. Stakeholders from academia, non-governmental organisations (NGO), and actors of the private sector may wish to contribute to the process.

Within the policy-making and implementation cycle, uses of indicators are multiple and include:

- **Baseline definition and target setting:** Indicators can be used to clarify the need for policy interventions, by providing information on the current situation, and enabling the definition of desirable qualitative and quantitative changes;
- **Performance monitoring:** Indicators sets can enable the measurement of progress in relation to specific targets set in policies;
- **Benchmarking:** Indicators can serve comparison purposes nationally and internationally. This can contribute to limiting gaps in performance between countries or between administrative-territorial units within a country;

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- Reporting on performance and awareness raising: Indicators can contribute to the broader objective of ensuring government transparency and accountability, and making the general public aware of the impact of policy interventions.¹⁴

With the aim to develop a consistent measurement system of the circular economy, the European Environmental Agency (EEA) and the Italian Institute for Environmental Protection and Research (ISPRA) developed the Bellagio Declaration under the mandate of the European Network of the Heads of Environment Protection Agencies (EPA Network). This document proposes a set of seven principles for developing a circular monitoring system (Figure 1).

Figure 1: Bellagio Declaration's seven principles

Source: European Environmental Agency EEA [26]

Building on the knowledge of the existing monitoring systems and the Bellagio Declaration, we propose a simplified framework to set up a national-level circular economy monitoring system (Figure 2). This framework pays particular attention to a key circular economy aspect of the flow of materials and waste.

¹⁴ EaP GREEN (2016), *Measuring The Green Transformation Of The Economy: Guide For EU Eastern Partnership Countries*. Paris
http://www.green-economies-eap.org/resources/EaP%20GREEN_GGI%20Guide_clean_ENG_FINAL.pdf

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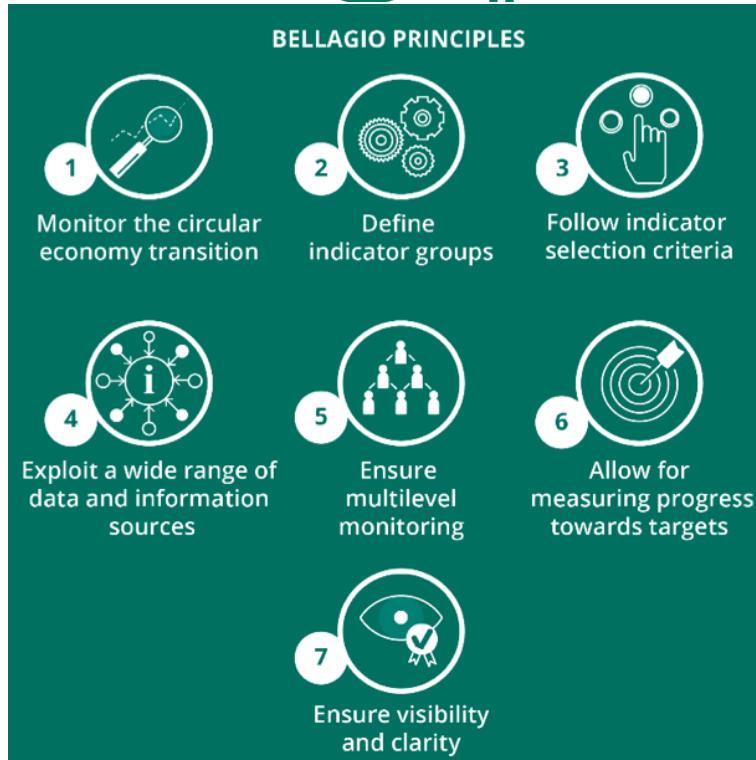
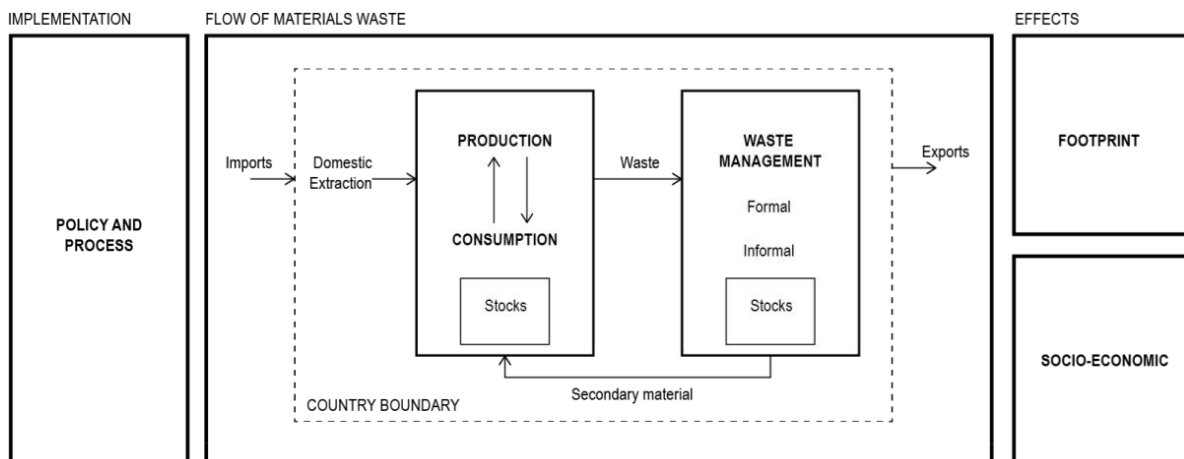


Figure 2: Simplified framework for national-level circular economy monitoring system

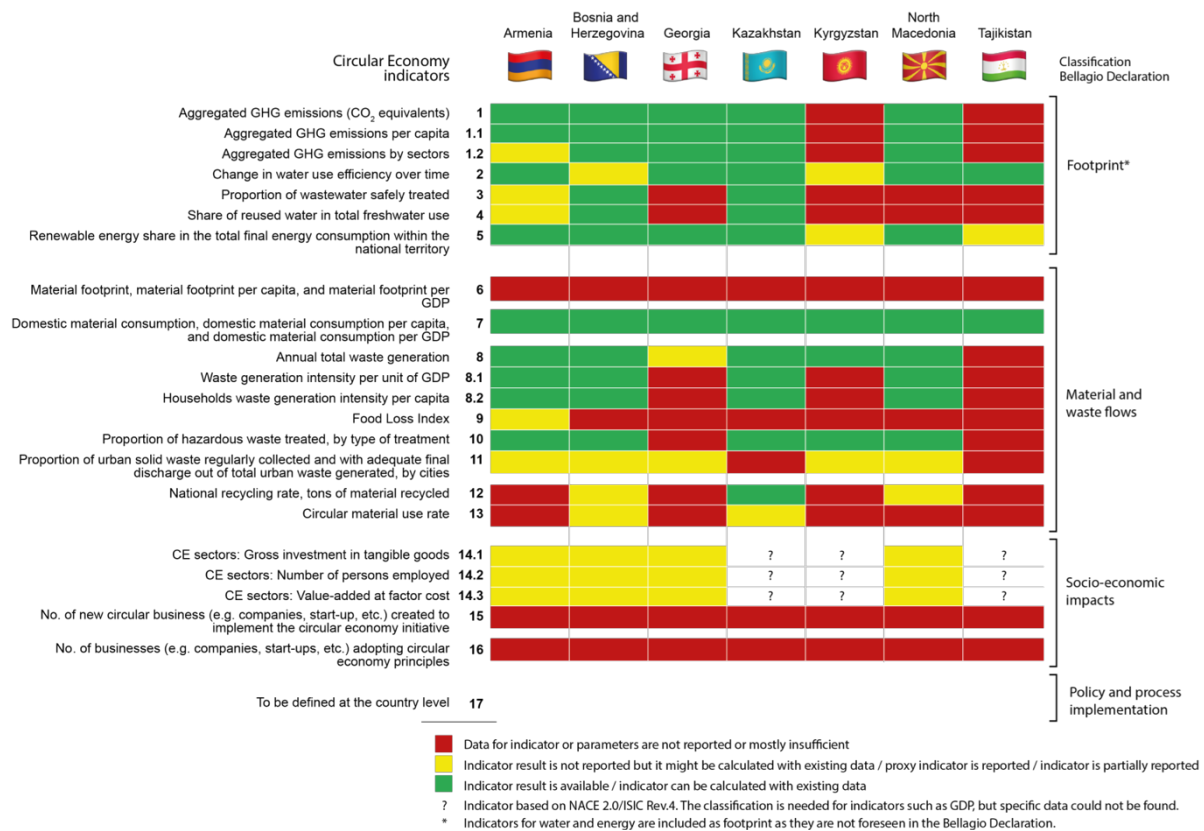


Source: European Environmental Agency EEA [26]

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The proposed indicators in Table 1 were analyzed against the available data published by National Statistical Offices or international organizations, such as UNECE, EEA, and OECD. The result of the analysis is shown in Figure 3. The examination shows a heterogeneous pattern in data availability. Although data for some indicators are largely available, such as Domestic Material Consumption, Aggregated GHG Emissions, and Annual Waste Generation, data for other indicators might be missing in many countries. In this sense, particularly important data for a circular economy is not largely available. This is the case of National Recycling Rates that is only fully available in Kazakhstan.¹⁵

Figure 3: Analysis of the proposed circular economy indicators considering data availability



¹⁵ (MEASURING AND MONITORING THE CIRCULAR ECONOMY AND USE OF DATA FOR POLICY-MAKING)

Georgia

Nr	Indicator	Source for data
1	Aggregated GHG emissions (CO2 equivalents)	https://geostat.ge/media/39730/B-3.-Greenhouse-gas-emissions-ENG.XLSX
1.1	Aggregated GHG emissions per capita	https://geostat.ge/media/39730/B-3.-Greenhouse-gas-emissions-ENG.XLSX
1.2	Aggregated GHG emissions by sectors (Energy, Industrial Processes, Solvent, and Other Product use, Agriculture, Land use and forestry, Waste)	https://geostat.ge/media/39730/B-3.-Greenhouse-gas-emissions-ENG.XLSX
2	Change in water use efficiency over time (SDG indicator 6.4.1)	reported https://unstats.un.org/sdgs/indicators/database/
3	Proportion of wastewater safely treated (SDG Indicator 6.3.1)	Some parameter estimated 2020 or reported 2015 https://unstats.un.org/sdgs/indicators/database/
4	Share of reused water in total freshwater use	
5	Renewable energy share in the total final energy consumption within the national territory (SDG indicator 7.2.1)	https://geostat.ge/media/35836/G-4.-Renewable-energy-supply_ENG.xls
6	Material footprint, material footprint per capita, and material footprint per GDP (SDG indicator 12.2.1)	Data not found in the national reporting system
7	Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP (SDG indicator 12.2.2)	https://www.geostat.ge/en/modules/categories/566/environmental-economic-accounts
8	Annual total waste generation	data 2007 https://unstats.un.org/sdgs/indicators/database/
8.1	Waste generation intensity per unit of GDP	Data not found in the national reporting system
8.2	Households waste generation intensity per capita	Data not found in the national reporting system
9	Food Loss Index (Indicator 12.3.1)	Food loss estimated 2020 with low confidence https://unstats.un.org/sdgs/indicators/database/
10	Proportion of hazardous waste treated, by type of treatment (SDG indicator 12.4.2)	Data not found in the national reporting system
11	Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban waste generated, by cities. (SDG indicator 11.6.1)	estimated for 3 cities in 2007 https://unstats.un.org/sdgs/indicators/database/
12	National recycling rate, tons of material recycled (SDG indicator 12.5.1)	Data not found in the national reporting system
13	Circular material use rate	Data not found in the national reporting system
14.1	Private investments, jobs and GVA related to circular economy sectors: Gross investment in tangible goods	This indicator is based on national accounts and use a selection of NACE codes. The country uses NACE-equivalent codes for the calculation of GDP. Hence, the data could be extracted.
14.2	Private investments, jobs and GVA related to circular economy sectors: Number of persons employed	This indicator is based on national accounts and use a selection of NACE codes. The country uses NACE-equivalent codes for the calculation of GDP. Hence, the data could be extracted.
14.3	Private investments, jobs and GVA related to circular economy sectors: Value-added at factor cost	This indicator is based on national accounts and use a selection of NACE codes. The country uses NACE-equivalent codes for the calculation of GDP. Hence, the data could be extracted.
15	No. of new circular business (e.g. companies, start-up, etc.) created to implement the circular economy initiative	Data not found in the national reporting system
16	No. of businesses (e.g. companies, start-ups, etc.) adopting circular economy principles	Data not found in the national reporting system

Unfortunately, the issue of obtaining any reliable, official data in Georgia is still problem. This was the case in terms of presenting data for circular economy indicators in Georgia. Without having baseline data, it will not be possible to monitor the progress made in transition to CE, thus evaluating the success of the projects implemented and donor support received.

Georgia is yet to collect and publish waste management data on a regular basis. The 2015 WMC was the first to impose a legal need to collect data on the types and volumes of municipal waste. Articles 29 to 30 of the Waste Management Code contain the provisions that establish the data collection system. The applicable Articles' text can be found in Annex 1 of this CFS under "Law of Georgia: Waste Management Code." The rules concerning reporting obligations (Art 29) and the waste data base (Art 30) take effect on January 1, 2018. By that time, the reporting system must have been developed and made operational.

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Official statistics are exclusively produced by the National Statistics Office of Georgia (GeoStat) and the National Bank of Georgia. Geostat is the only official producer of environmental statistics. GeoStat does not collect environmental data, which is the responsibility of the MENRP and the Ministry of Energy, but it does conduct activities that are related to environmental statistics. As a result, GeoStat: o generates a number of environmental indicators, such as fertilizer and pesticide use, import-export statistics, livestock, population, and GDP.

The goal of Geostat is to disseminate statistics on trash produced by homes and industry, broken down by NACE sector. Geostat and MENRP collaborated with Swedish specialists to conduct an assessment as part of a Geostat-Statistics Sweden collaboration initiative. According to GeoStat, the waste reporting system as it is currently designed by the MENRP will not be able to fully achieve this goal. The system does not have all of the data required to provide comprehensive trash statistics.

Relationship between the MENRP and GeoStat:

GeoStat publishes an annual electronic publication on environmental statistics based on Ministry statistics and covers the categories of Land Resources, Forest Resources and their Protection, Protected Areas, Water Resources, Ambient Air Protection, and Natural Hazards.

The data becomes official once Geostat has validated and published it.

Production and consumption

Green Procurement - The indicator measures the share of public procurement procedures above the EU thresholds (in number and value), which include environmental elements.

Public procurement accounts for a large proportion of European consumption - approximately 14% of EU GDP. If circularity requirements (reparability, durability, recyclability etc.) are systematically included in public contracts, public procurement can

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play a key role in the circular economy.¹⁶ The indicator is relevant to target Sustainable Development Goal 12.7. Promote public procurement practices that are sustainable, in accordance with national policies and priorities.¹⁷

European Commission has developed criteria to facilitate the inclusion of green requirements into public procurement tenders for more than 20 product groups. These include ‘core criteria’ suitable for any contracting authority and focused on key environmental issues, and ‘comprehensive criteria’ with a higher level of ambition aimed at purchasing the best environmentally-friendly products available on the market.¹⁸

Since the beginning of the year, as part of the EU-funded EU4Environment programme, UNEP has continued its engagement with the Georgian Environmental Information and Education Centre and procurement authorities to review and elaborate legislation on Sustainable Public Procurement (SPP).¹⁹ EU4Environment will assist the State Procurement Agency in drafting concrete legal provisions/articles, by-laws and guidelines on SPP. UNEP will also organise a series of awareness raising events to help businesses better respond to public tenders with sustainability criteria.²⁰

Sustainable public procurement refers to the public procurement of specific procurement objects by government agencies, such as office equipment, cleaning supplies, printing paper, taking a balanced decision making into account the three foundations of sustainable development - economic, social and environmental. The goal of sustainable public procurement is to increase environmental well-being and to introduce proper environmental management mechanisms.²¹

¹⁶ (EUR-Lex - 52018SC0017 - EN - EUR-Lex - Europa, n.d.)

¹⁷ (<https://ocm.icrom.org/sdgs/sdg-12-responsible-consumption-and-production/sdg-127-promote-sustainable-public-procurement/>, n.d.)

¹⁸ (<https://forbes.ge/green-public-procurement-and-circular-economy/>, n.d.)

¹⁹ (Sustainable public procurement in Georgia - EU4ENVIRONMENT, n.d.)

²⁰ (Sustainable public procurement in Georgia - EU4ENVIRONMENT, n.d.)

²¹ (<http://www.eiec.gov.ge/news/press-releases.aspx?lang=en-US>, n.d.)

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5. Regional challenges connected to circular economy

Based on interviews conducted in general, the main barriers that we can find to the development of the circular economy are:

- Legislation and regulations. linked to vertical integration and policy harmonization, with the goal of establishing a legislative body that normalizes and integrates the various European legislative levels with national, regional/autonomous, and local levels.
- Economy / finance. In the medium term, the Circular Economy needs a complete tax reform that includes measures to guide society toward sustainability, such as the reduction of taxes on labor and the increase of taxes on non-renewable resource usage in the form of fossil fuels and materials.
- Training and education. Not just in production systems, but also in consumption systems, a significant shift is required. The education system, at all levels, plays a critical role in fostering the development of more responsible users/consumers/citizens who can make daily decisions that prioritize resource conservation.

The main steps and vision of the government is presented in the following paragraph “The priorities of our committee envisage the conversations and public awareness on the fiscal model we need to create to make the population start the separation of the wastes. The obligation of the state is to arrange the infrastructure for the separation and start recycling the wastes. We also need to create the fiscal model to encourage the business on waste processing by a “green method”. The circular economy is a new sphere and every country adjusts their model and since the legal harmonization in Georgia is related to the EUAA, we need to start the development of the European model”, - the Chair of the Committee, Maia Bitadze stated.

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This, however, implies the necessary institutional readiness, including increased investment in environmental management, policy development and enforcement, and

administrative abilities. In order to define clear goals for long-term sustainable development, it is also vital to ensure civil sector engagement and include more people in public administration. For this reason, a suitable monitoring system should be established. As a result of this system, it will be feasible to continuously update the trajectory of sustainable development, resulting in more green jobs.

6. OUTLOOK, CONCLUSIONS and RECOMMENDATIONS

However, we are still in the pre-development stage of the transition to CE (Donner and de Vries, 2020; Ghisellini and Ulgiati, 2020a) and far from the goal of a full implementation of the CE both in the EU (Towa et al., 2021; Mayer et al., 2018) and at the global level (Haas et al., 2015).²² A transition (as the adoption of CE could be considered as) has been defined as “*a fundamental change in the structure, culture and practices of a societal (sub)system that is the result of a co-evolution of economic, technological, institutional, cultural and ecological developments at different scale levels*”(Bosman and Rotmans, 2016; Grin et al., 2010).²³ The CE, in its transition process aims to achieve an overall societal system change (D'Amato, 2021; Zecca, 2021; Becerra et al., 2020; Iacovidu et al., 2020), involving a reduction of the use of finite resources (e.g., metals and minerals) and their reuse/recycling across production and consumption cycles, the production of bio-based materials that return (biodegradable) back into the environment at the end of their life, leaving away the fossil fuels and bringing in sight the achievement of a 100% renewables based economy at feasible economic, environmental and social costs (Brown et al., 2021; Lebre et al., 2020; Olabi, 2019). For this to happen the CE requires the adoption of new legislation and policies, new production models (both private and public) and the replacement/adaptation of the existing systems (Bianchini and Rossi, 2021; Klein et al.,

²² (<https://www.sciencedirect.com/science/article/pii/S0959652621023842>, n.d.)

²³

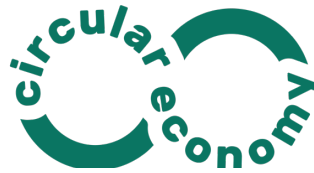
(https://www.researchgate.net/publication/257125698_Using_past_transitions_to_inform_scenarios_for_the_future_of_renewable_raw_materials_in_the_UK/, n.d.)

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2021; Re et al., 2020; D'Adamo et al., 2020; Rosa et al., 2019; Urbinati et al., 2017; Masi et al., 2018; Rizos et al., 2015) across and within value chains (Boyer et al., 2021, Walker et al., 2021; Ingrao et al., 2019), the implementation of complementary infrastructures, platforms and services for the CE (Markard et al., 2012), changes in consumption patterns and lifestyle and so on (Ghisellini and Ulgiati, 2020a; Comacho-Otero et al., 2018; Mugge et al., 2018). Currently, several barriers (e.g., political-legislative, cultural, financial, economic, operational, technological, informative) are hampering the CE transition (Garcia-Quevedo et al., 2020; Bressanelli et al., 2019; Ceptureanu et al., 2018; Kirchherr et al., 2018; Korhonen et al., 2018; Ritzen and Sandström, 2017). As a result, without the appropriate policies in place, a rapid adoption of CE is not likely to happen (Ghisellini et al., 2021; Williams, 2019).²⁴

Before initiating such an epochal change, like transition from linear economy to circular economy, in a country like Georgia, with very limited existing studies, researches and statistical data on circular economy, reliable and comprehensive baseline study on current situation related to CE should be implemented and made accessible to the broader public. Large scale study to assess how people in Georgia are aware or perceive the concept of the CE in a more general and societal perspective in order to widen the knowledge of individual perceptions on CE applications in practice (reuse, repair, remanufacturing, recycling), could greatly contribute to developing good strategy. We strongly believe that obtaining baseline information on current status in the country is vital in order to plan the transition to CE based on the evidence-based data. Such an approach will contribute to successful outcome and prevent the waste of the donor contribution.

Circular economy, entails repurposing any waste materials generated by a company, such as packaging, into new products. At the same time, even if the packaging is supposed to be circular, without effective waste management mechanisms in place, it cannot be reused, recycled, or composted. However, in certain underdeveloped countries, garbage collection infrastructure is either inadequate or non-existent.

Prevention comes first in the EU's "waste hierarchy," followed by reuse. The '4 Rs' concept, which argues that garbage should be minimized, reused, recycled, and restored, is the

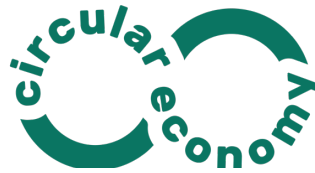
²⁴ (https://www.researchgate.net/publication/338142742_Value_co-creation_processes_in_the_circular_economy/, n.d.)

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modern approach to waste management. In Georgia, recycling is still underdeveloped sector. In the country, there are only a few dozen recycling enterprises. However, because the waste is not segregated, they do not have access to all of the recyclable materials they may possibly process.

Georgia lacks an integrated, comprehensive waste prevention legislation act or policy instrument. There are no defined preventative targets in the current national strategy. While in the EU, the aforementioned Circular Economy Action Plan calls for taking preventative measures throughout a product's lifecycle, focusing on design, promoting circular economy processes, fostering sustainable consumption, and attempting to keep local resources and products in the EU economy for as long as possible. Single-use plastics (SUP) and plastic bags are one of the primary areas tackled by the Action Plan. Plastic things that end up in the environment can take decades to degrade. Plastic pollution in the waters and along the coasts poses a threat to aquatic life. Furthermore, plastics are made from non-renewable resources.

According to the UNDP Deputy Head Anna Chernyshova, “Georgia’s fastest-growing cities, Tbilisi and Batumi, are struggling with a waste management issue. Separation is the first critical step towards a circular economy that benefits people and the environment.”²⁵

Greening Georgia's economy is critical, as present growth models continue to deplete natural asset inventories and jeopardize the integrity of ecosystem services that support economic activity.

Meanwhile, all essential parties, including the government and enterprises, must increase their knowledge and capacity for the circular economy in general, and for EPR in particular. The circular economy concept is all about making better use of natural resources like forests, soil, water, air, metals and minerals.

Accelerating this transition relies on the uptake of innovative new business models and disruptive technological innovation.²⁶

Here we outline two major aspects for developing CE in Georgia:

²⁵ (Changing waste management practices in Georgian cities, n.d.)

²⁶ (<https://www.weforum.org/agenda/2021/02/the-circulars-accelerator-circular-economy-zero-waste/>, n.d.)

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1. Inventing new products and manufacturing processes

The Innovating Goods and Production cluster brings together innovators who are merging innovative design methodologies with material and ingredient innovation to produce and deliver cutting-edge products, packaging, and manufacturing solutions. One such game-

changing innovation is Malaysia-based StixFresh, whose patented technology extends the shelf life of fresh food by up to 14 days. StixFresh's plant-based stickers, about the size of a 50-cent penny, rebuild the self-defense components of selected fresh fruits organically, creating a natural barrier to slow down degradation processes caused by bacterial or fungal activity. Food waste is anticipated to account for one-third of all food produced worldwide, making it the most critical option for addressing the climate catastrophe..

2. Capacity building efforts through workshops and courses

Without new financial mechanisms and concepts, the circular economy will stagnate. When used in conjunction with traditional loans, microfinance has proven to be beneficial to smaller community-led circular ventures.

By boosting basic awareness of circular business models through capacity training initiatives, certain European banks are successfully speeding up circular finance. Among them are workshops with clients on how to transition from linear to circular business models. They are also teaching their own staff, particularly client-facing employees, on the subject so that they are more fitted to engage with clients and are aligned with the circularity goals of the company.

3. Assisting SMEs in identifying potential for circular and transitional finance

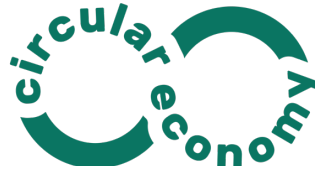
SMEs are the engines of innovation and entrepreneurship in any economy. To enable a whole-of-economy move toward circularity, it is vital to support SMEs that are establishing

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circular business models. SMEs, on the other hand, usually face a wide range of problems that require equally diverse solutions.

Given the significant expense of implementing CE for both consumers and enterprises, early government action is critical in fostering a positive and long-term image of the CE concept and model. In this regard, CE research's support for such interventions is crucial for establishing a CE path that is consistent with the three principles of sustainable

development, the society's intended objective, and capable of addressing today's unprecedented environmental concerns.

More than only recycling and repurposing resources are part of the shift to a circular economy (i.e., using wastepaper to make new paper). It's a call to consider the environmental impact of products and their parts from conception through disposal. In a circular economy, waste streams are eliminated by the use of actual, regenerative design. Because innovation is the fundamental driving force in change, it's critical to understand Circular Economy as much more than an environmental concern.

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Author: ICSRPA, Georgia ; December 2021

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Joint Operational Programme Black Sea Basin 2014-2020 is co-financed by the European Union through the European Neighbourhood Instrument and by the participating countries: Armenia, Bulgaria, Georgia, Greece, Republic of Moldova, Romania, Turkey and Ukraine.

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