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Circular Economy Country Specific Report

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Content

1.	Introduction-----	3
1.1.	Circular Economy in the European policy context -----	3
1.2.	Circular Economy in the Republic of North Macedonia -----	3
2.	Monitoring progress -----	4
2.1.	Legislation: general overview and main aspects -----	4
2.2.	Quality of Data-----	8
2.3.	CE Initiatives in Macedonia-----	8
3.	Findings -----	11
3.1.	Production and consumption -----	13
3.2.	Waste Management-----	15
3.3.	Secondary raw materials -----	18
3.4.	Competitiveness and innovation-----	18
4.	Concluding notes -----	18
5.	References / Bibliography -----	19

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1. Introduction

Circular Economy in the European policy context

On 11 March 2020, the European Commission adopted the new **Circular Economy Action Plan For a cleaner and more competitive Europe.¹**

As noted in the communication, **to citizens**, circular economy will provide **high quality, functional and safe products, which are efficient and affordable**, last longer and are designed for reuse, repair, and high-quality recycling. A whole **new range of sustainable services**, product-as-service models and digital solutions will bring about a better quality of life, innovative jobs and upgraded knowledge and skills.

This Plan provides a **future-oriented agenda to achieve a cleaner and more competitive Europe in co-creation with economic actors, consumers, citizens and civil society organisations**. It aims at accelerating the transformational change required by the European Green Deal, while building on circular economy actions implemented since 2015. This plan will ensure that the regulatory framework is streamlined and made fit for a sustainable future, that the new opportunities from the transition are maximised, while minimising burdens on people and businesses.

The plan presents a set of interrelated initiatives to establish a **strong and coherent product policy framework that will make sustainable products, services, and business models the norm, and transform the consumption patterns, so that no waste is produced in the first place**. Further measures will be put in place to **reduce waste** and ensure that the EU has a **well-functioning internal market for high quality secondary raw materials**.

The EU will continue to **lead the way to a circular economy at the global level** and use its influence, expertise and financial resources to implement **the 2030 Sustainable Development Goals**. This plan aims also at ensuring that circular economy works for people, regions and cities, fully contributes to climate neutrality and harnesses the potential of research, innovation and digitalisation. It foresees the further development of a **sound monitoring framework** contributing to measuring well-being beyond GDP.

Circular Economy in the Republic of North Macedonia

Our economy is still mainly oriented to the "creation, use and disposal" of material resources in a linear way. In circular economy, systems are designed to make better use of valuable materials and products, for not as much of use of primary resources, and for greater economic opportunities.

As a candidate country for accession to the EU, the Republic of North Macedonia needs to apply all European standards and best practices, as well as to comply with the EU legislation, and to find a way to manage waste, which is an important segment in the change from linear to circular economy.

Ensuring a waste management system in accordance with the prescribed standards will not only contribute to a better environment, but will also contribute to the protection of human health and will ensure the implementation of circular economy in the country.

In that respect, the EU targets should be the key indicators for sustainable waste management. However, for some EU measures, the target dates envisaged with the plan have already been breached, and for others the dynamics are feasible and realistic in the Macedonian context. Additional time for implementation will be negotiated as part of EU accession negotiations.

¹ https://eur-lex.europa.eu/resource.html?uri=cellar:9903b325-6388-11ea-b735-01aa75ed71a1.0017.02/DOC_1&format=PDF

The aim of this third country report is to contribute to mapping the situation in the country with regards to the existing (un)enabling environment (legal, economic, social) and to support awareness and advocacy efforts aimed at increasing knowledge regarding circular economy and influencing both general public and respective authorities on the necessity and benefits of this particular new approach.

2. Monitoring progress

Monitoring the transition towards achieving more sustainable circularity of the resources in the economic cycle in the country is a challenging task, especially in relation to the availability of and accessibility to relevant, verifiable and up-to-date data, and the indicators to measure progress.

Legislation: general overview and main aspects

To ensure easier following of the developments in the sphere of legislation, the report uses the same structure, providing a general overview with updates from 2020.

No	Name	Relevance	EU levers (examples)	
Production and consumption				
1	Self-sufficiency for raw materials	Circular economy should help to address the supply risks for raw materials, in particular critical raw materials.	Raw Materials Initiative; Resource Efficiency Roadmap	<ul style="list-style-type: none"> • National Strategy on Sustainable Development (2010) • National Strategy for Sustainable Development of Forestry (2006); • National Strategy for Clean Development Mechanism (2007) • National Strategy for Environmental Approximation (2008) • NPAA 2017 (2017-2019) • Strategy for Renewable Resources (2010); • Strategy for Energy Efficiency (until 2020); • Water Strategy; • National Strategy for Clean Development Mechanism (2007)
2	Green public procurement*	Public procurement accounts for a large share of consumption and can drive circular economy.	Public Procurement Strategy; EU support schemes and voluntary criteria for green public procurement	<ul style="list-style-type: none"> • Economic reforms (2018-2020) • Law on Public Procurements (2019) - new, • Law on Waste Management (2019) - new • Waste Management Strategy (2008-2020)
3a-c	Waste generation	In a circular economy, waste generation is minimised.	Waste Framework Directive; directives on specific waste streams; Strategy for Plastics	

4	Food waste*	Discarding food has negative environmental, climate and economic impacts.	General Food Law Regulation; Waste Framework Directive; various initiatives (e.g. Platform on Food Losses and Food Waste)	<ul style="list-style-type: none"> • National Plan for Waste Management (2009-2015) – <i>outdated</i> • Regional and local waste management plans • National Waste Management Plan (2018-20140) - <i>new</i> • Plan for Prevention of Waste Generation (2018-20140) - <i>new</i> • Electrical and Electronic Waste Management Plan with feasibility study (2013 – 2020) • Plan for closing of non-compliant landfills in the Republic of Macedonia (2011) • Law on Food Safety (2010) & a corpus of legal acts related to food
Waste management				
5a-b	Overall recycling rates	Increasing recycling is part of the transition to a circular economy.	Waste Framework Directive	<ul style="list-style-type: none"> • Waste Management Strategy (2008-2020) • Law on Waste Management (2019) – new, not yet adopted
6a-f	Recycling rates for specific waste streams	This reflects the progress in recycling key waste streams.	Waste Framework Directive; Landfill Directive; directives on specific waste streams	<ul style="list-style-type: none"> • Law on packaging and packaging waste Management (2009) – new law yet to be adopted in 2020; • Law on batteries and accumulators waste management (2010); new law yet to be adopted in 2020; • Law on electrical and electronic equipment waste management (2012) - new law yet to be adopted in 2020; • Regional and local waste management plans • National Waste Management Plan (2020-2030) - new • Plan for Prevention of Waste Generation (2020-2030) - new • Electrical and Electronic Waste Management Plan with feasibility study (2013 – 2020) • Program for packaging waste management (2011-2020) • Set of Rulebooks on transposing Landfill Directive (1999/31) • Draft Law on Extended Producer Responsibility for Management of Special Waste Streams (2019)
Secondary raw materials				

7a-b	Contribution of recycled materials to raw materials demand	In a circular economy, secondary raw materials are commonly used to make new products.	Waste Framework Directive; Eco-design Directive; EU Ecolabel; REACH; initiative on the interface between chemicals, products and waste policies; Strategy for Plastics; quality standards for secondary raw materials	<ul style="list-style-type: none"> • Waste Management Strategy (2008-2020) • National Strategy for Clean Development Mechanism (2007) • Set of Rulebooks on eco labelling (food, chemicals, textile, wood, detergents, tourists accommodation) • Rulebook on the form and content of the forms for transboundary waste transfer <p><i>Note:</i></p> <p><i>Import, export and transit of hazardous waste in the Republic of North Macedonia is performed according to the Basel Convention on the Control of Transboundary Movement of Hazardous Waste and its storage. At the end of 2019, there was an initiative to amend the Law on Waste Management and forbid import of any waste to be used for energy source. In January 2020, the Parliament of North Macedonia, after nearly two months of receiving the proposal, finally passed the amendments to the Law on Waste Management that prohibit the import of waste to be used as an energy source. On February 24, 2020, the ban on import and export of combustible waste between Bulgaria and North Macedonia entered into force. Both countries pledged that from February 24, such waste would not pass from Bulgaria to Macedonia or from Macedonia to Bulgaria.</i></p>
8	Trade in recyclable raw materials	Trade in recyclables reflects the importance of the internal market and global participation in the circular economy.	Internal Market policy; Waste Shipment Regulation; Trade policy	
Competitiveness and innovation				
9a-c	Private investments, jobs and gross value added	This reflects the contribution of circular economy to the creation of jobs and growth.	Investment Plan for Europe; Structural and Investment Funds; InnovFin; Circular Economy Finance Support Platform; Sustainable Finance Strategy; Green Employment Initiative; New Skills Agenda for Europe; Internal Market policy	<ul style="list-style-type: none"> • Economic reforms (2018-2020) • Industrial Strategy with a focus on the Manufacturing Sector (2018) – draft • Law on Financial Support of Investments (2018) – new • Horizon 2020 • Fund for Innovations and Technology Development (support for micro, small and medium size enterprises) <p><i>Note: At the European Innovative Ranking List (2020)² the Republic of North Macedonia is assessed as a "modest innovator", with progress in relative performance compared to EU in 2012 by 10.8 index points), but 4 index points behind compared to EU in 2019.</i></p>

² EIS 2020, Country profiles <https://ec.europa.eu/docsroom/documents/41896>

10	Patents	Innovative technologies related to the circular economy boost the EU's global competitiveness.	Horizon 2020	
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The new National Waste Management Plan (NWMP) 2020-2030³ for the Republic of North Macedonia focuses on finding practical, acceptable and financially feasible solutions and ways to finalize the activities that remained unrealized during the period of the previous NWMP (2009-2015).

The main activities presented in NWMP 2020-2030 are aimed at improving the standards for household waste management in RN Macedonia, especially the problems of environmentally unsafe waste disposal at municipal non-standard landfills, which urgently need to be closed and new regional waste management centers need to be established. In addition, NWMP 2020-2030 aims to regulate the management of industrial and medical waste as well as the special waste streams.

A novelty in this plan, compared to the previous national plan, is that it includes programs for special waste streams (packaging waste, waste batteries and accumulators, as well as waste electrical and electronic equipment). It aims to provide specific guidelines for achieving the goals set out in the relevant laws on special waste streams, especially in the part of the quantities released on the market of these materials and products, as well as future forecasts and development trends in the next ten years.

In the context of the approximation of RN Macedonia and alignment with the EU goals related to the introduction of circular economy, this Planning Document also provides a framework of measures, and envisages a period in which these activities could move forward in the country. The key measures and activities proposed in the Planning Document are divided under clusters (in line with the new Action plan for Circular Economy for a cleaner and more competitive Europe)⁴ with a starting / implementation period appropriate for RN Macedonia.

Table1. Referent Circular Economy Action Plan for a cleaner and more competitive country

KEY CLUSTERS ⁵	EU (REALISATION DATES)	NORTH MACEDONIA (REALISATION DATES)
A SUSTAINABLE PRODUCT POLICY FRAMEWORK,	2020-2022	2022 -2024
KEY PRODUCT VALUE CHAINS,	2020-2021	2021 -2025
LESS WASTE, MORE VALUE	2021-2022	2022 -2024
MAKING CIRCULARITY WORK FOR PEOPLE, REGIONS AND CITIES	2020	2022
CROSSCUTTING ACTIONS,	2020-2023	2022-2025

³ <http://www.moepp.gov.mk/wp-content/uploads/2020/08/NPUO-2020-2030-final-draft.pdf>

⁴ https://eur-lex.europa.eu/resource.html?uri=cellar:9903b325-6388-11ea-b735-01aa75ed71a1.0017.02/DOC_1&format=PDF

⁵ https://ec.europa.eu/environment/circular-economy/pdf/implementation_tracking_table.pdf

LEADING EFFORTS AT GLOBAL LEVEL	2020-2023	AFTER THE START OF THE MEMBERSHIP NEGOTIATIONS
MONITORING PROGRESS	2021	2024

Public Hearing on the Draft Strategic Environmental Assessment Report for the National Waste Management Plan 2020-2030 is foreseen before the end of 2020.

Quality of Data

The key challenges, noted in our 2019 country report, pertaining to data quality generation (and availability), as a prerequisite for designing evidence-based strategies and systems to monitor the progress in any sector, including the developments in the sectors that are fundamental for circular economy (aspects of circularity of resources in the production and consumption, waste management, secondary raw materials, stimulation of circularity of resources in competitiveness and innovation initiatives) are still relevant.

For instance, concerning waste management, the lack of reliable data limits the accuracy and reliability of any planning process and makes it impossible to measure the performance effectively in relation to the main objectives set in NWMP. In order to generate quality data on waste management and the “fate” of waste, improved data collection methods are needed. A long-term solution is the implementation of a comprehensive data collection and monitoring scheme based on electronic tracking and reporting of data from the generators, to the collectors and subsequent waste handlers.

Economic incentives to promote recycling are still limited and the lack of an organized extended producer responsibility scheme is hindering the market. In practice, there is no mechanism to verify and crosscheck the quality of the data supplied, as different official sources (like the Macedonian Environmental Information Centre and the State Statistical Office) provide different figures. In 2019, North Macedonia has 43 active municipal communal non-standard landfills. Only two of these landfills - the landfill Drisla in Skopje and the landfill in Gevgelija - have a permit by the MoEPP as sanitary landfills, and large quantities of the communal waste (solid and biodegradable) still end up at more than 1000 illegal dumpsites. In addition, only few of the communal non-standard landfills have equipment for measuring the weight of the deposited waste, which means that there is no way to accurately record the amount of waste that is deposited at the landfill, let alone to quantify it by type of waste (for example, food waste).

There is a need for a clear mechanism that will require (and ensure) the submission of quality data (for example, aggregated and/ or segregated by streams of waste, recycling and reusability) and availability for their verification (methodology used). The development of information technology systems is estimated at 1.5 million euros to 4 million euros, and the costs for the maintenance of the system are projected at up to 185,000 euros per year. A set of indicators for circular economy, as well as more relevant indicators for the waste management sector, are lacking.

CE Initiatives in Macedonia

The role of awareness raising, education, training and capacity building on the concept of circular economy should not be underestimated. In the recent years, there have been a number of initiatives and

actions, which promote the concept of circularity of resources (materials, goods, and services) in the economy cycle, even though many were not explicitly named as “circular economy” activities.

Circular (re)use of materials as a way forward...

- ***“Trash for Cash” initiatives***

Vending Machines for plastic and glass bottles in the Municipality of Centar

The Centar Municipality Public Parking Enterprise and the Municipality of Centar (one of the ten municipalities in Skopje), announced pioneering the idea of Reverse Vending Machines (RVM) for plastic and glass bottles this year in order to motivate local residents to get involved in the process of selective waste disposal.

The enormous volume of waste created by the increasing consumption of the modern society puts a huge pressure and generates the need for all actors in the chain of waste creation to act decisively against this challenge. The selective waste disposal, collection and recycling is extremely important in the overall process for maintaining a clean and unpolluted environment. On top of that, this “trash”, put into the cycle of circular economy, can be turned into “cash” – or, in other words, into a “win-win” situation.

To become feasible, a selective waste disposal system requires numbers, that is, the more people are part of it, the more successful it is. Thus, the question is how to scale it up, and make it attractive, so citizens are motivated to become more efficient and faster involved in the process of selective waste disposal?

One quite successful concept, the so-called “Deposit refund system” is a proven waste collection method that guarantees high material collection and recycling rates, and is recommended in many strategic documents by international organizations.

Another option are the so-called “reverse vending” machines. They operate on the same principle as standard vending machines (put money, get output), but are called a “reverse vending machine” due to the reverse process (“put a product, get a money-return”).

Nine such machines have already been purchased, and the municipal council has approved provision of 18 more by the end of the year. They were installed in the beginning of November this year, even though originally announced for March 2020..

The Municipality of Centar has provided subsidies for this project in its budget for 2020. The municipal authorities hope that this positive example will be the beginning for further engagement of other municipalities, institutions, and private companies in order to reduce waste, but also to increase the percentage of collected packaging waste that can be recycled into raw materials.

All resident citizens, who choose to participate in this process of selective waste disposal, will receive subsidies from the municipality in exchange for plastic and glass bottles. For each bottle they put in the RVM, a certain amount of money (1.5 denars for each bottle) will be received on the new Green Pay Card, allowing them to buy in certain markets, shops, bars, etc. on discount, or to pay for the services provided by the parking company.

Good examples are welcome. A long-term shift in the mindsets of all involved in the waste management system in our country is even more than welcome.

- ***Green business ideas help for better environment...***

"**GREEN IDEAS**" is an annual competition that supports the development of small, local and green, sustainable business ideas in Albania, Kosovo, North Macedonia, Montenegro, Serbia, Bosnia and Herzegovina and Greece. The winners of the national competitions, 3 from each country, compete in a regional competition for prizes worth of \$ 5,000 or \$ 10,000. The regional competition has been held since 2012 as part of a program for the Western Balkans funded by the Rockefeller Brothers Fund (USA).

ARNO (Association for development of new ideas), for the sixth year in a row, administers the national competition "Green Ideas" in Macedonia and is proud that so far the country has regional winners and a total investment of 60,000 dollars for the development of green businesses in the country.

Among the winners of this year's national competition is Sofija Daceva, with her idea of "VAJS Additives".

A story of a young innovator with green ideas and a commitment for putting circular economy concept into practice

Sofija Daceva is only 25 years old, but with a solid entrepreneurial experience. She already owns two companies, through which she plans to create new and innovative products, for which she uses by-products as raw materials. At a time when the world is facing a pandemic and the challenge of how to continue living and leaving as little environmental footprint as possible, the idea that leads Sofia forward is a world with zero waste. Her company "VAJS Group", (one of the winners of this year ARNO "Green Ideas" Competition) is working on processing pomace (a mixture of grapes skin and seed), one of the most abundant residues in the grapes processing and wine production industry, into a multifunctional food additive.

What is VAJS additive and why is it an innovative product?

In the world, over 13 million tons of pomace is produced annually, and in Macedonia alone more than 22,000 tons per year. It is a by-product, that occurs in the process of wine production and although it is a very useful product, it remains unused. After more than a year and a half of research and development, the company VAJS Group has developed an innovative technological process for extracting three healthy ingredients from the pomace: antioxidants, fibres and food colouring pigmentation. This enabled the development of a multifunctional additive from quince, also known as VAJS Additive. At present, food companies use three different additives to obtain these properties, while the VAJS additive is a product that possesses all three functionalities. This will actually be a healthier and more cost-effective solution for food industry producers.

Sofia came up with the idea of processing the pomace while working on another, no less interesting project - the production of ice cream from wine. For this, the British Government and Warwick University, where she completed her postgraduate studies in Innovation and Entrepreneurship, support Sofia.

What exactly and in which industries can the additive from the processed pomace be used for?

According to the young innovator, the additive produced from pomace can have a very wide application, but of course, it requires detailed research and experiments to confirm its usage potentials. At the moment, their company is experimenting in three different sectors of the food industry, the baking industry, confectionery and dairy sector. The pomace has been tested in several specific products such as bread, ice cream, candy, and the latest experiment will focus on adding an additive to cheese.

According to the obtained results, the additive has proved successful and useful in all industries, so in the first year they plan to focus only on these three sectors. They already have interest from four factories in Macedonia, and there is also interest from companies from the United Kingdom.

When the waste is valued as a resource....

This idea of collecting waste from wineries and then processing it into a new product is based on a similar principle like the one of the Sunilens company, which collects household waste oil and processes it into bio-fuel.

According to this young inventor, especially in recent years, environmental awareness is increasing, mainly due to the consequences from pollution and environment degradation we are facing more frequently than before.

In particular, for the wineries, after the production of wine or brandy, they usually dispose of the pomace properly in a way that it ends up in the landfills, where it is often burnt. This has a negative impact on the soil and environment. Additionally, some cities in the country, as well as in the Balkans, face illegal removal of the pomace, which ends up in rivers or in sewer systems. VAJS Group noted this problem and for that purpose developed a model of circular economy through which the conventional supply chain of wineries will be changed to circular, i.e. the pomace will be purchased from the wineries and it will be processed into a product useful for humans.

So far, VAJS Group has talked to several small wineries that have expressed satisfaction with this idea, as it is an ideal solution to their problem with the pomace and will have a positive result for both parties.

Will this waste generate a new waste?

According to the technological process for the production of the additive, 80% of the pomace is used, and the remaining 20%, which consists of branches, insects and other by-products is removed before starting with the production process and it can be further processed and used as organic fertilizer, as this waste is of organic origin.

In fact, this is one of the goals of VAJS Group: developing a circular business model with zero percent waste, but of course, it takes time and additional resources.

- *Innovation is in the air...*

Investing in young innovators is a path to a sustainable circular economy

During February 2020, the Fund for Innovation and Technological Development (FITR) has organized a consultative debate on the new mechanism for financial support of young innovators. FITR has prepared a "Rulebook on Financial Support of Scientific and Technological Excellence and Entrepreneurship for Students and Youth" - a draft document aimed at establishing the rules under which financial and technical assistance is to be provided to talented children and their mentors.

Representatives of several educational institutions and civic associations participating in the debate assessed this step as positive, supplementing it with their own suggestions and comments that should be taken in finalizing the rulebook.

The purpose of establishing the new measure, as reported by FITR, is to open additional opportunities for financing young innovators, which will cover all phases, from identifying their potential and opportunities, preparation for participation in international competitions and financial support.

This measure is intended for all educational institutions and associations that implement activities to support talented students or work on the development of entrepreneurial skills among young people.

Investing in young innovators is a path to a sustainable circular economy.

Innovation can spark new ideas for circular economy

Innovation is an important stepping stone for the economic development and investment of any country. Even in the latest EU progress reports⁶ on innovation, the countries of the Western Balkans (Montenegro, Serbia and Northern Macedonia) are assessed as "modest to moderate" innovators.

From that perspective, the latest initiative to create a Regional Innovation Fund should certainly encourage greater cooperation and contribute to making the region more attractive to foreign investors.

At the end of April 2020, a working meeting, organized by the Fund for Innovation and Technological Development (FITR), the Regional Cooperation Council and the World Economic Forum was held to define the next steps for the implementation of the initiative to create a Regional Innovation Fund. The meeting was attended by the ministers from the region of the six Western Balkan countries, as well as representatives of the European Commission, the World Bank, directors and representatives of the business sector. The FITR model functioning and the results achieved so far at the national level were presented at the meeting.

All participants supported the idea and the need for increased regional cooperation and the creation of a regional fund that would be of great importance in times of crisis as shown by the COVID-19 pandemic. The main goal of such a fund would be to support young innovators and new start-up companies, which would keep local talents in the country, but would also, encourage and attract more foreign capital inflows and increased competitiveness of the region as a whole.

According to FITR, by creating a regional market of over 20 million, the region will be more attractive to investors as a whole rather than as fragmented markets. Thus, the region will prove that it is worth investing in it. According to their analysis, companies that have financial support show particularly high productivity growth compared to previous years. Their analyses of over 200 micro to medium companies, supported through the Fund, showed that the average profit growth in 2019 is over 70%, and the amount of funds paid to the state budget on various grounds by 25% exceeds the amount paid by the state through the Fund in support of innovation and technological development in 2019.

Representatives of the international institutions stressed that the creation of such a fund would be a very positive move forward because there is a lack of concrete regional initiatives. According to the RCC, it is crucial that it will be created in the region and for the region.

This Regional Innovation Fund should, among other things, contribute to strengthening cross-border cooperation and encourage investments in the private sector and innovation. Thereby it could open new

⁶ https://ec.europa.eu/growth/industry/policy/innovation/scoreboards_en

opportunities towards financing business projects in the region, especially start-up companies, which would help reduce the problem with brain drain.

The next meeting of the working group was scheduled for the end of May 2020, where the initial model of the Regional Innovation Fund would be presented, prepared by FITR, the Regional Cooperation Council, the World Economic Forum, and the Innovation Fund of the Republic of Serbia. The plan of the Regional Innovation Fund is expected to give a special focus to the Western Balkans Green Agenda and the circular economy concept.

3. Findings

Using the approach and logic as in our two previous reports, based on the EU proposed Monitoring framework⁷ and indicators,⁸ the assessment of the developments in 2020 is grouped under the following stages and aspects of circular economy: (1) production and consumption, (2) waste management, (3) secondary raw materials, and (4) competitiveness and innovation. This follows the logic and structure of the EU circular economy action plan in broad terms.

Production and consumption

Limited progress can be observed towards more circular trends in production and consumption, in terms of waste generation.

The indicator on **self-sufficiency** is related to measuring the extent to which the country is dependant on the supply of raw materials. In that respect, North Macedonia belongs to the group of raw materials dependant countries.

According to the State Statistical Office⁹ data, the total value of export of goods from the Republic of North Macedonia in the period January –September 2020 decreased by 15% compared to the same period in 2019. The value of imported goods in the period January –September 2020 is 13% less compared to the same period in 2019. Import coverage by export in the period January –September 2020 is 76.0%.

According to the latest edition of "Macedonia in figures 2020"¹⁰ of the Statistical Office of the Republic of North Macedonia, in the period 2009 - 2019 the commodity exchange with foreign countries continues the positive trend of increase in terms of the coverage of import with export. Thus, in 2019, export participates with 43.2% in the total trade exchange, which is an increase of 8.4% compared to 2009. In 2019, the EU¹¹ is the North Macedonia's main trading partner, accounting for 80, 79% of the country's exports and 62.40% of its imports. Exports from the country are centred on several products, the most important being: ferro-nickel alloys, iron and steel, and textiles. The main imports are crude oil, electricity, flat-rolled iron and steel products, and vehicles.

⁷ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on a monitoring framework for the circular economy, 2018, <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1516265440535&uri=COM:2018:29:FIN>

⁸ Eurostat: Circular economy indicators, <https://ec.europa.eu/eurostat/web/circular-economy/indicators>

⁹ State Statistical Office, http://www.stat.gov.mk/pdf/2020/7.1.20.13_mk.pdf

¹⁰ Macedonia in Figures 2020, pp 49, <http://www.stat.gov.mk/publikacii/2020/Makedonija%20vo%20brojki-2020-web.pdf>

¹¹ State Statistical Office, Statistical Yearbook 2020, http://www.stat.gov.mk/PrikaziPublikacija_1.aspx?rbr=816

Concerning energy, compared to 2017, the energy dependence of the Republic of North Macedonia on imports in 2018¹² showed a tendency of increase (from 56,5 % in 2017 to 58,1 % in 2018). In 2018, the energy dependence of the Republic of North Macedonia on import was 58.1%. The final energy consumption was 893 kgoe per capita, and the final electricity consumption was 2941 kWh per capita. The share of renewable energy in the gross final consumption for the year in question (2018) was 18%. The share of electricity from renewable sources in the gross production of electricity shows a tendency of increase, from 23,1 % in 2017 to 35,1% in 2018. The share of electricity from renewable sources in the gross consumption of electricity also shows a tendency of increase, from 17,1 % in 2017 to 26,1% in 2018.

Public Procurement represents a substantial share of the GDP of any country, including North Macedonia. It can give substantial boost of the so-called **green public procurement**, which in turn can perform as a driver for circular economy and for innovation. In the last seven years, (2010-2016) public procurements were from 25% to 37% of the state budget. In 2017, the Public Procurement represented only 19% of the country's budget, which was 11 percentage points less than in the previous year (2016)¹³, while in 2018 it was 15,71%¹⁴. The new Law on Public Procurement¹⁵ (adopted in January 2019) foresees provisions that should enable the introduction of certain environmental criteria in the public procurement procedures, in accordance with the regulations on environmental protection and in line with the relevant provisions of the EU Directives. However, as "green procurement" provisions were to enter in force as of January 2020, its implementation in practice is yet to be seen, as there are no segregated (officially available) data or in-depth analyses whether and to what extent green public procurement conditions were either requested or met.

The EU commitment to encourage "green public procurement" is also foreseen in the new Circular Economy Action Plan for a cleaner and more competitive Europe¹⁶ from March 11, 2020. Namely, in the plan, a Mandatory Green Public Procurement criteria and targets in sectoral legislation and phasing-in mandatory reporting on GPP, are foreseen as of 2021. North Macedonia foresees the implementation of the mandatory green public procurement criteria as of 2022.¹⁷

The **municipal waste generation**¹⁸ per capita in 2019, (an average of 456 kg per capita) has increased by 10.7 % compared to 2018. Municipal waste is collected by or on behalf of municipal authorities. It consists of waste from the households, including the bulky waste, similar waste from commercial and trade industries, official buildings, institutions and small businesses, waste from gardens, street waste, the content of waste containers and the waste from market cleaning. The State Statistics Office gathers the data on the amount of collected waste via the municipal public enterprises' annual reports; the data on the generated waste is calculated based on estimation. Therefore, the quantities of generated municipal waste per capita in the period between 2010 and 2019 are to be taken as estimates.

Table: Municipal waste generation per capita in the period 2010-2019 (Source: State Statistical Office)

¹² Macedonia in Figures 2020, pp 46, <http://www.stat.gov.mk/publikacii/2020/Makedonija%20vo%20brojki-2020-web.pdf>

¹³<http://balkantenderwatch.eu/local/uploaded/MKD%20local/Извештај%20од%20мониторингот%20на%20јавните%20набавки%20во%20Република%20Македонија%2030.pdf>

¹⁴<http://balkantenderwatch.eu/local/uploaded/MKD%20local/Policy%20and%20Media/Media%20brief%20-%20BTW%20-%20North%20Macedonia%202018%20Local.pdf>

¹⁵ <https://www.pravdiko.mk/wp-content/uploads/2013/12/Zakon-za-javnite-nabavki-01-02-2019.pdf>

¹⁶ https://eur-lex.europa.eu/resource.html?uri=cellar:9903b325-6388-11ea-b735-01aa75ed71a1.0017.02/DOC_1&format=PDF

¹⁷ Draft SEA Report: National Waste Management Plan 2020-2030, pp.22

¹⁸ State Statistical Office, Environmental Statistics 2019, pp.58 <http://www.stat.gov.mk/Publikacii/ZivotnaSredina2019.pdf>

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Generated waste (t)	721,507	735,250	786,909	792,785	765,156	786,182	796,585	786,881	854,865	915,943
Annual amount per capita (kg)	351	357	382	384	370	380	384	379	412	456

Reducing **food waste** is perceived to have an enormous potential for saving the resources we use to produce the food we eat. The EU Directive 2018/851, which entered into force on 5 July 2018, sets out measures to protect the environment and reduce waste, including food waste, promote the use of renewable energy and increase energy efficiency and provide new economic opportunities. The Directive contains binding and non-binding provisions for EU Member States that include preventive measures to reduce food losses in the process of production, retail and other food distribution, including households, by setting specific targets at the EU level for food waste reduction, 30% by 2015 and 50% by 2030. According to the directive, Member States are required to conduct food waste reduction campaigns, measure progress and exchange good practices between countries and food business operators, developing a generally accepted methodology and minimum standards for uniform food waste quantification.

North Macedonia still does not have relevant legislation in place that will regulate the issue of food waste. It is worth noting that the laws related to waste management do not explicitly address the issue of food waste. Even in the new National Waste Management Plan 2020-2030 food waste is not considered as a specific waste stream, but is in some way incorporated into the biodegradable waste. As food waste occurs in all stages of the food production (harvesting, conservation, etc,) and distribution (in shops, restaurants, catering facilities, at home) chain, it is principally very difficult to quantify it and monitor the trends (are they improving or deteriorating), especially, when official or officially verifiable data is not publicly available (or does not exist).

Waste Management

Waste management generally shows slow but positive developments, yet with significant room for improvement for recycling across the key waste streams.

About **recycling rates of municipal waste**, they are still very low. The dominant way in the management of collected municipal and other types of non-hazardous waste is the disposal, i.e. landfilling of the waste at sanitary landfills and active municipal communal non-standard landfills. According to the data of the State Statistical Office, the total amount of **collected municipal waste** in the Republic of North Macedonia in 2019 was 632 484 tones. Compared to 2018, the total amount of collected municipal waste decreased by 1.1%.¹⁹ The highest amount of collected municipal waste was registered in the Skopje Region - 164, 971 tonnes or 26.1% of the total collected amount in the Republic of North Macedonia. Of the total amount of collected municipal waste, 522, 983 tonnes or 83% were collected from households, and the

¹⁹ State Statistical Office, News Release No, 9.1.20.02 from 22.04.2020, http://www.stat.gov.mk/pdf/2020/9.1.20.02_mk.pdf

remaining 17% from legal and natural persons (commercial waste). By waste type, the highest amount of collected waste is mixed municipal waste, 542, 664 tonnes or 85.8%, and the lowest amount is rubber waste, 778 tonnes or 0.1% of the total amount of collected waste.

In relation to the reported total collected municipal and other non-hazardous waste in 2019, only 0.7%²⁰ was reported as processed (composted waste, recycled paper, cardboard, glass, plastic and metal), which again shows tendency of increase compared to 0.28% in 2013.²¹

The **recycling rates for packaging waste** are showing a tendency of increase.

Although the **recycling of packaging waste** produced in North Macedonia is on the rise, most of this waste is not recycled. The EU's circular economy package has set new packaging targets, but they are unlikely to be achieved soon, and longer deadlines will be negotiated as part of accession negotiations. The goals for waste packaging recycling for North Macedonia, set in the existing Law on Packaging and Packaging Waste Management ("Official Gazette of the Republic of Macedonia" No. 161/09), will be redefined in the new Law on Packaging and Packaging Waste Management, which is yet to be adopted.

By the end of 2020, at least 50% of the weight of packaging waste generated on the territory of the Republic of North Macedonia should be recycled with recovery operations or energy processing operations.

Table: Total collected quantity and recycled or processed packaging waste for 2018

Total / By type	Quantity of packaging released on the market (t)	Total recycled packaging waste (t)	/%
Packaging waste	71,286.55	33,655.46	47.21%
Glass	11,547.89	2,853.21	24.71%
Plastics	19,964.41	7,687.31	38.51%
Paper and cardboard	24,182.84	21,863.66	90.41%
Metal	3,152.37	552.42	17.52%
Wood	8,982.15	698.86	7.78%
Composite materials	3,456.89	-	-

Source: Ministry of Environment and Physical Planning. Data are obtained from collective handlers submitting reports to the Ministry of Environment and Physical Planning

For 2018, the recycling rate of packaging waste was 47.21% (compared to 35.3% in 2015). As it can be seen from the above stated data, the total recycling percentage aims to achieve the objectives envisaged by law.

The **recycling of collected municipal bio waste** is negligible, (around 0.16% in 2019)²²

²⁰. Draft SEA Report: National waste Management Plan 2020-2030, pp. 95

²¹ ANNUAL REPORT 2018 from processed environmental quality data in the Republic of Northern Macedonia, pp.85
http://www.moepp.gov.mk/wp-content/uploads/2014/11/2018_Vkupen.pdf

²². Draft SEA Report: National waste Management Plan 2020-2030, pp. 95

The quantities of **electrical and electronic equipment (EEE)** imported and put on the market in the period extending from 2014 to 2020 (according to the data provided by the Customs Administration of the Republic of Northern Macedonia) increased from 14,251.84 tons in 2014 to 30,231 tons in 2020 (by June 30, 2020). Until 2019, there were three active collective handlers for WEEE. According to the data provided by these three companies, from a total of 12.897,93 tonnes put on the market in 2019, only 2.206,9 tonnes were collected and handed over for treatment (exported), as the country still does not have recycling facilities for the WEEE.

Understanding the picture of **construction waste and rubble management** in the Republic of North Macedonia is difficult and limited by the same problems related to the accuracy of data acquisition and reporting. There are no accurate sources of data on the total amount of produced construction waste in the country, and even less, how much of it is recycled.

In the National Waste Management Plan 2009-2015 (published in 2008) the following is stated regarding the generated construction waste: "The annual production of construction waste stream depends to a large extent on construction activities in the public and private sectors. Estimated quantities for Macedonia are based on experiences from other countries and it is estimated that around 230-250 kg / per capita / per year is generated; for Macedonia, the average annual amount of generated construction waste is estimated at between 460,000 and 500,000 tones / per year."²³

Recent various regional studies have come to a conclusion that this is a low estimate compared to the amount created in the new EU member states. The average for construction waste and rubble is 0.94 tons per capita per year in other countries.

Looking at these figures, it can be estimated that the quantities of generated construction waste and rubble in North Macedonia (excluding the excavation waste) should be between 1.3 and 2.95 million tons. Using the average, the quantities of construction waste and rubble generated can be estimated at 1.95 million tons.

Recycling targets: The Waste Framework Directive sets a target of achieving a processing rate of 70% (including preparation for reuse, recycling and other processing of materials) for all non-hazardous construction waste and rubble by 2020. For RN Macedonia, it is appropriate to negotiate the extension of the deadline to achieve the goal as part of the accession negotiations. Improving practice and infrastructure as well as installation of an appropriate data collecting system will take at least another 10 years by 2030. To achieve this goal, it is necessary to sort construction waste and rubble into its constituent fractions and to recycle inert waste (bricks, tiles and concrete) into a recycled aggregate.

Recycling of waste batteries and accumulators. Due to the lack of an electronic data collection system, and also the poor inspection to determine producers who do not meet the obligations under the Law, the only figures available to the MoEPP come from independent and collective collectors of this type of waste, who according to positive law, submit annual reports to the Ministry. However, these reports refer only to the producers who exercise their right and obligation through collective actions (by 2019, around 57% are organized through the three licensed collective entities). Data on all producers registered in the Registry of Producers maintained by the MoEPP in accordance with the law is missing. Data on small producers are not included here either.

In accordance to the annual reports for 2019 submitted to the Ministry of Environment and Physical Planning, on treatment of waste batteries and accumulators, provided by legal persons possessing permits for treatment of waste batteries and accumulators, from 8.796,79 tonnes put on the market, only 1.023,034 tones of waste batteries and accumulators were collected for further treatment (recycling).

²³ Ministry of Environment and Physical Planning, National Waste Management Plan of the Republic of Macedonia (2009 - 2015), www.moepp.gov.mk/wp-content/uploads/2014/12/NWMP_2009-2015_-of-RM_finaL.pdf

Secondary raw materials

The contribution of recycled materials to overall materials demand is relatively low. Trade in secondary raw materials is increasing

The contribution of recycled materials to satisfying the demand for raw materials is still small to negligible. In the Republic of North Macedonia, there are recycling facilities for plastic, paper, iron and steel, non-ferrous metals, and accumulators. However, the country lacks recycling facilities for glass, batteries, and electrical and electronic equipment.

Competitiveness and innovation

There is no available segregated data on the private investments in economic sectors relevant to circular economy (reuse and recycling), nor how many jobs or added value comes from this sector, because the current statistics do not distinguish those activities that clearly contribute to circular economy from those that do not.

The transition towards greater circularity in the country economy is foreseen in a number of national strategic documents (Draft Industrial Strategy with a focus on Manufacturing)²⁴ and legal acts (Law on Waste Management, and the new National Plan for Waste Management, 2020-2030). Support to the transition towards circular economy is manifested mainly through the Innovation and Technological Development Fund instrument helping domestic companies to improve their innovation.

Concerning innovation, the latest indicators of the European Innovative Ranking List (2020)²⁵ still categorise the Republic of North Macedonia as a "modest innovator" compared to other European countries. This ranking stems from poor performance (below the EU average) in relation to several key indicators, although there is a steady progress in relative performance compared to EU in 2012 by 10.8 index point), but 4 index points behind compared to EU in 2019.

As noted in the country profile list, "Attractive research systems, Innovators and Firm investments, are the strongest innovation dimensions. North Macedonia scores particularly well on *Foreign doctorate students, Medium and high-tech product exports, Non-R&D innovation expenditures, and Population with tertiary education*. Employment impacts, Finance and support and Intellectual assets are the weakest innovation dimensions. Overall, North Macedonia's lowest indicator scores include Public-private co-publications, Private co-funding of public R&D expenditures, Design applications, and Sales of new-to-market and new-to-firm product innovations".

4. Concluding notes

The introduction of EU regulations and standards requires new complementary waste management mechanisms, especially economic mechanisms.

In order to comply with the Circular Economy Package, North Macedonia will need to monitor the introduction of production processes and standards in order to minimize source waste and improve the

²⁴ <https://konkurentnost.mk/wp-content/uploads/2018/06/IndustryStrategy17MayCLEAN.pdf>

²⁵ EIS 2020, Country profiles <https://ec.europa.eu/docsroom/documents/41896>

recycling rate of used products. Successful compliance with the new regulations will require improved cooperation activities and shared responsibilities among all stakeholders.

Traditional inspection methods will need to be supplemented with new enforcement mechanisms based on preventive measures. There is an urgent need for improved protocols and an integrated system for data collection and reporting on waste management.

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