Resource efficiency and circular economy in Europe – even more from less

An overview of policies, approaches and targets of Slovenia in 2018

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This country profile was prepared as part of the 2019 EEA review of material resource efficiency, circular economy and raw material supply policies, which aimed to collect, analyse, and disseminate information about experience with the development and implementation of these policies in EEA member and cooperating countries.

At the time of writing, a summary report is being finalised. The report reflects on trends, similarities and differences in policy responses, showcases selected policy initiatives from member countries and identifies possible considerations for the development of future policies.

These country profiles were compiled and finalised by members from the European Topic Centre on Waste and Materials in a Green Economy, namely Bart Ullstein, Bettina Bahn-Walkowiak, Jeroen Gillabel, Margareta Wahlström, Jutta-Laine Ylijoki, Dirk Nelen, Theo Geerken, Veronique Van Hoof and Evelien Dils. The responsible EEA project managers for the work were Pawel Kazmierczyk and Daniel Montalvo.

Slovenia, facts and figures

Note: data in this section was sourced from Eurostat databases (April 2019), except where noted otherwise

GDP: EUR 43.0 billion (0.3 % of total EU28 in 2017)

Per capita GDP: EUR 20,800 Euro (purchasing power standard) (69.3 % of EU28 average per capita figure in 2017)

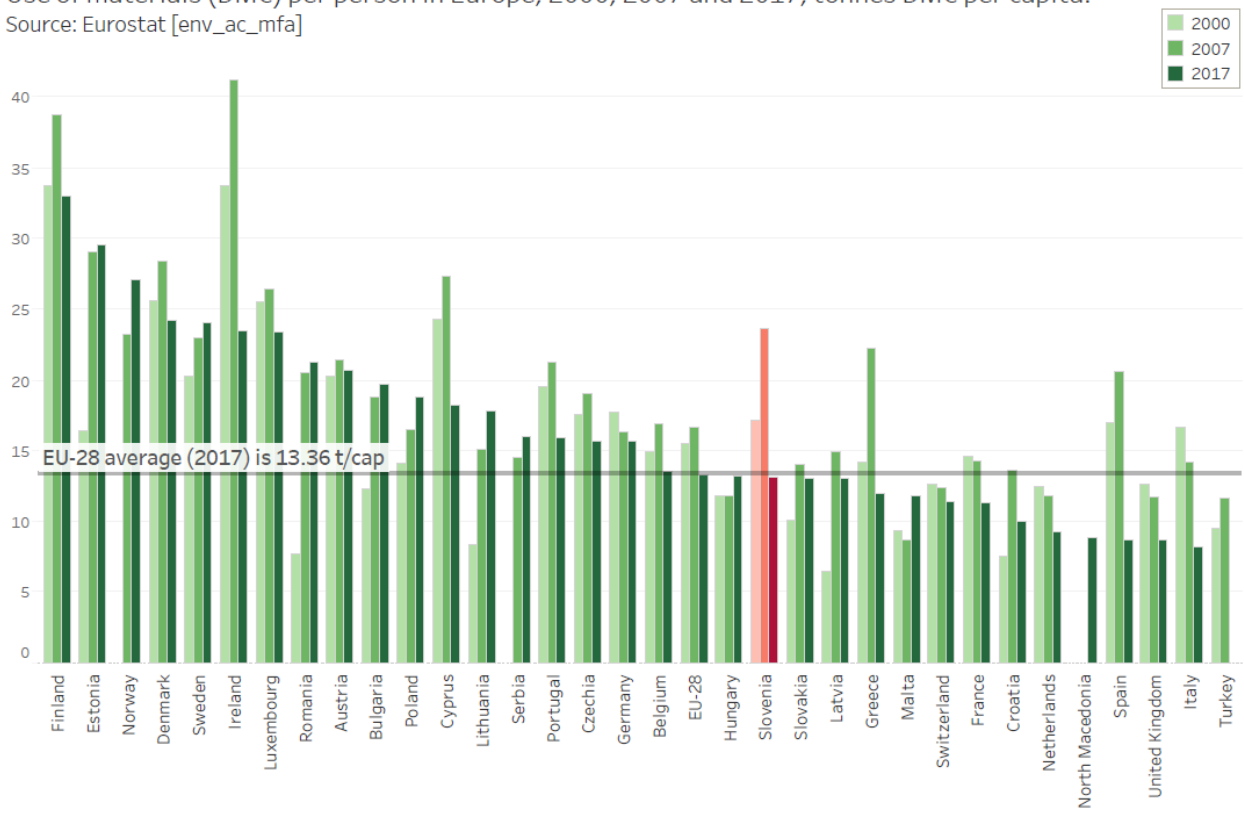
Use of materials (domestic material consumption (DMC))
27.1 million tonnes DMC (0.4 % of EU28 total in 2017)
13.1 tonnes DMC/capita (98.1 % of EU 28 average per capita in 2017)

Structure of the economy:
agriculture: 2.0 %
industry: 32.8 %
services: 65.2 %

Surface area: 20.3 thousand square kilometres (km^2) (0.5 % of total EU28)

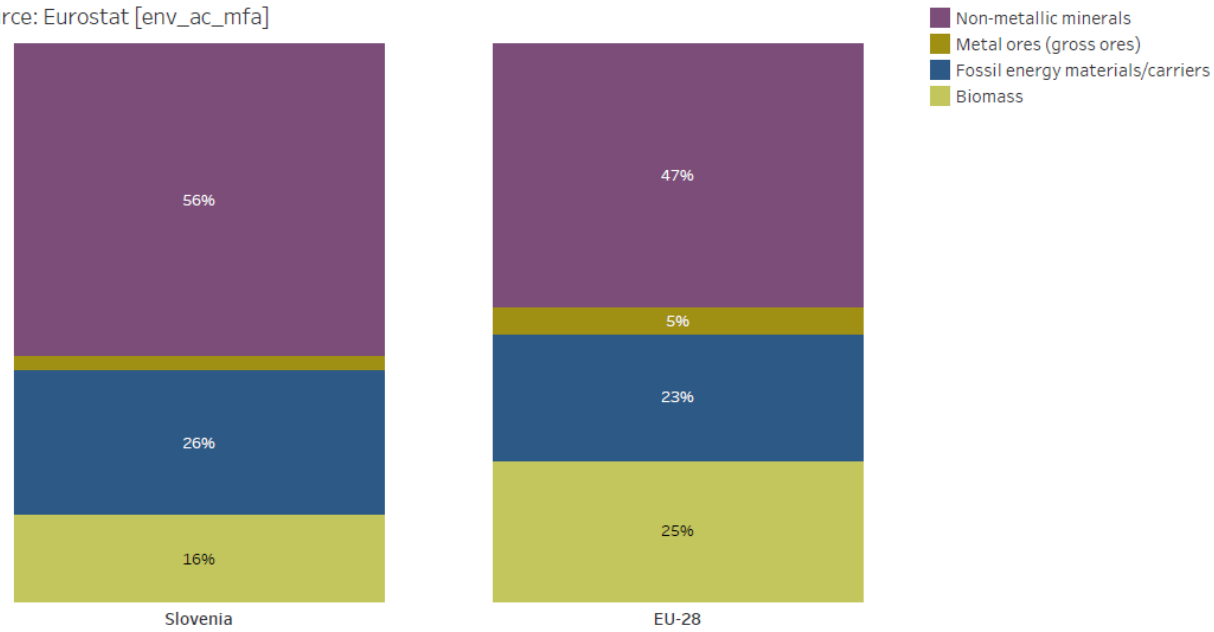
Population: 2.1 million (0.4 % of EU28 total in 2017)

Use of materials (DMC) per person in Europe, 2000, 2007 and 2017, tonnes DMC per capita.
Source: Eurostat [env_ac_mfa]



Slovenia & EU-28. Domestic Material Consumption by material category, 2017.

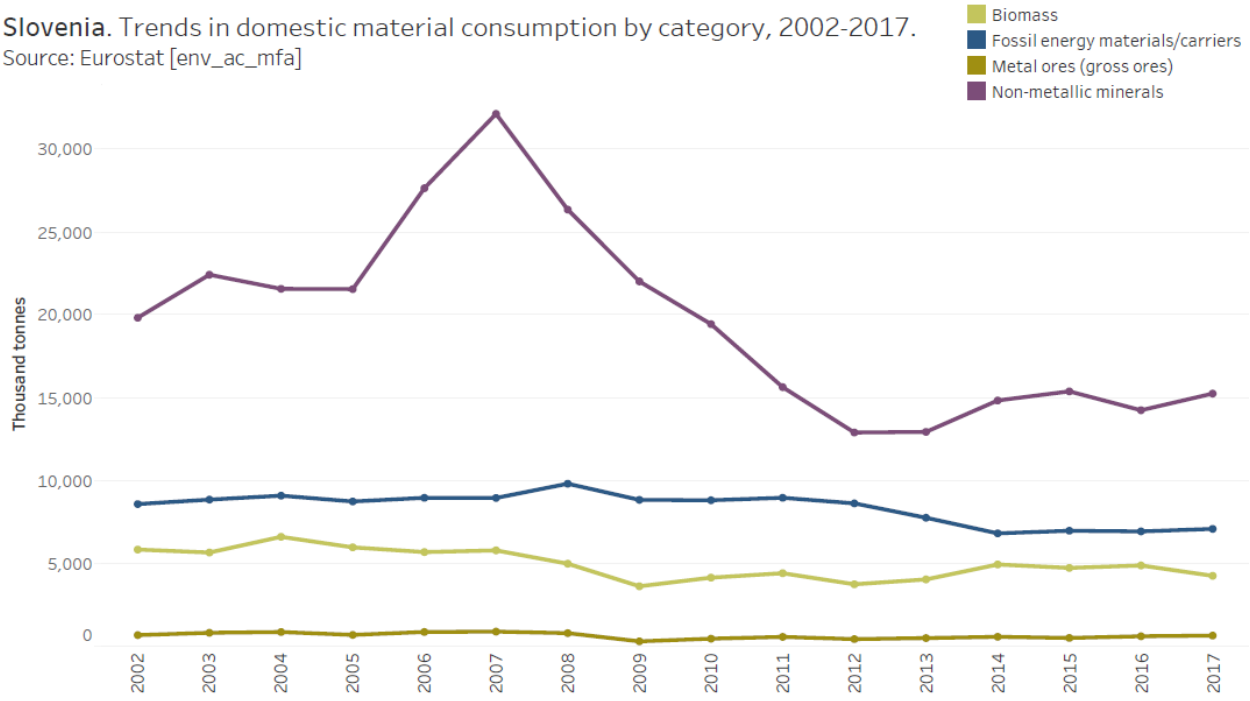
Source: Eurostat [env_ac_mfa]



Note: The domestic material consumption categories 'other products' and 'waste for final treatment and disposal' are excluded from the figure.

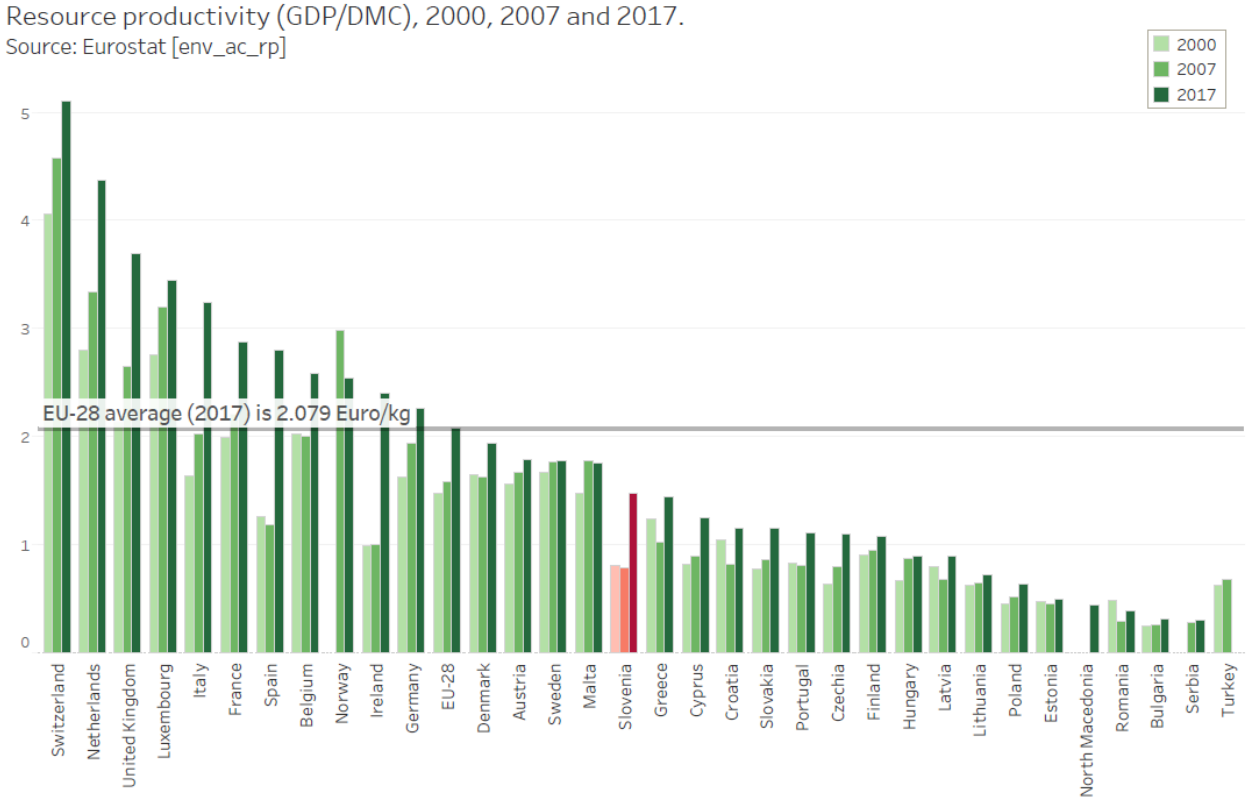
Slovenia. Trends in domestic material consumption by category, 2002-2017.

Source: Eurostat [env_ac_mfa]



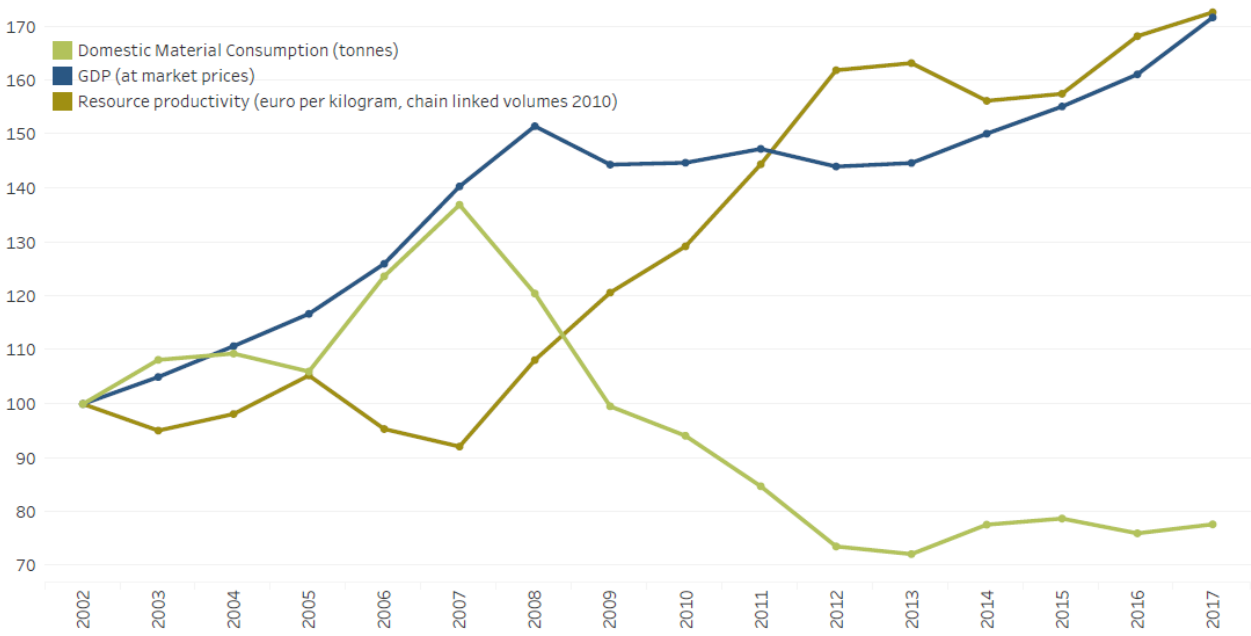
Note: The domestic material consumption categories 'other products' and 'waste for final treatment and disposal' are excluded from the figure.

Resource productivity (GDP/DMC), 2000, 2007 and 2017.
Source: Eurostat [env_ac_rp]

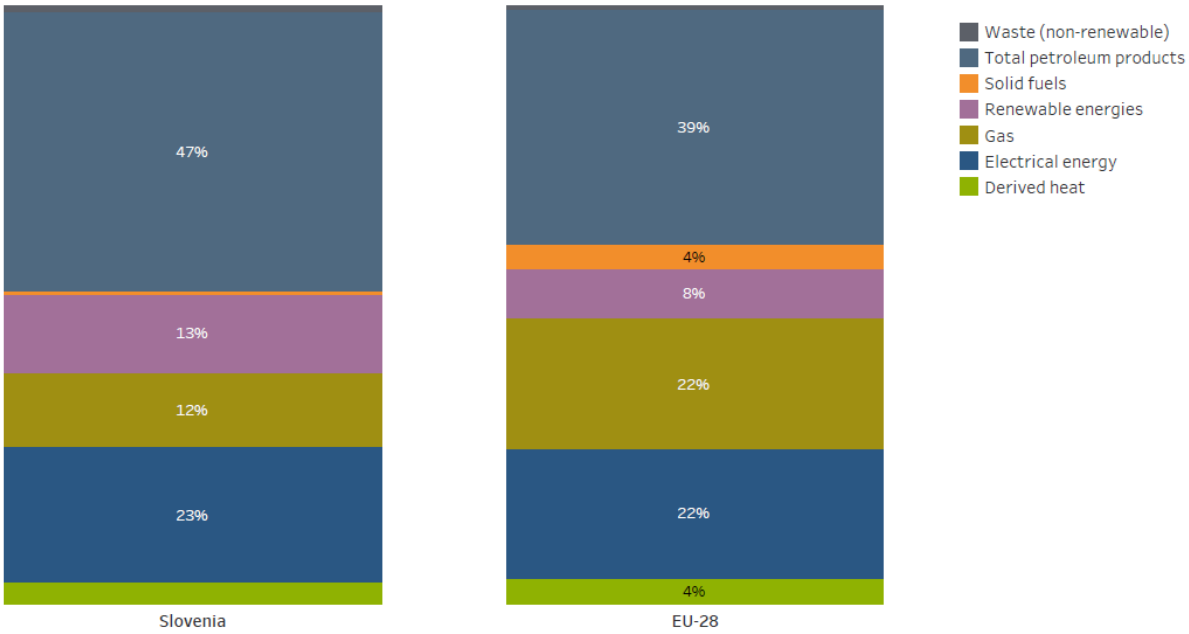


Note: GDP expressed in chain linked volumes 2010.

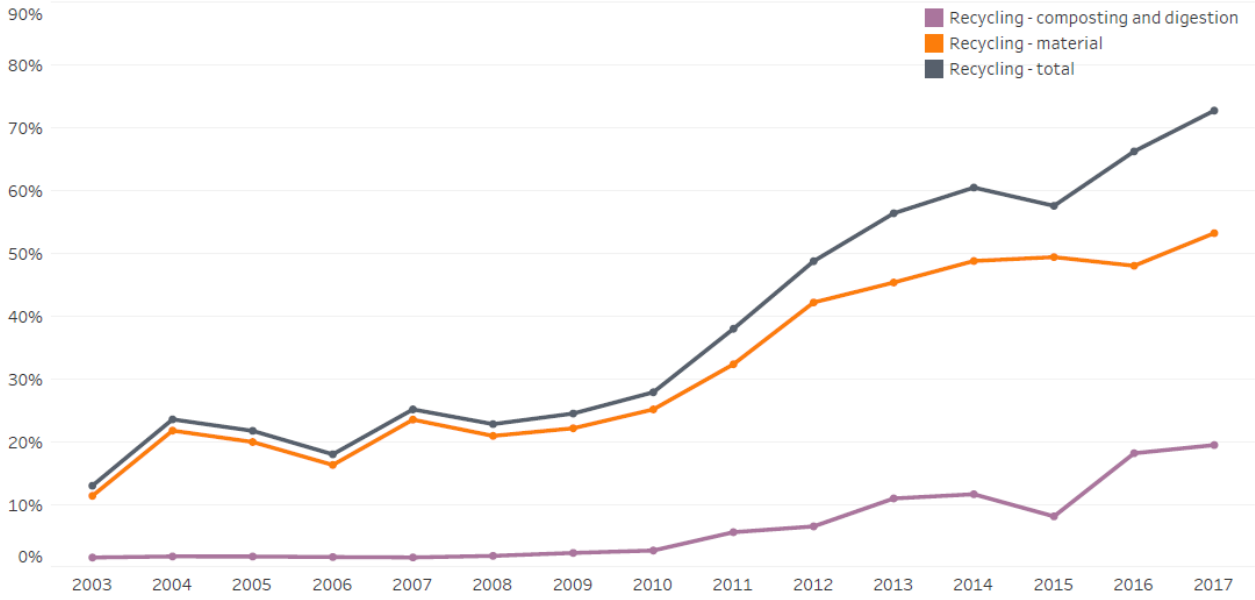
Slovenia. GDP, DMC and resource productivity trends, 2002-2017, index 2002=100.
Source: Eurostat [env_ac_mfa], [env_ac_rp] & [nama_10_gdp]



Slovenia & EU-28. Primary energy consumption by energy product, 2016.
Source: Eurostat [nrg_100a]



Slovenia. Recycling of municipal waste, 2003-2017, as share of total waste treatment.
Source: Eurostat [env_wasmun]



Note: The amount of municipal waste treatment is reported for the treatment operations incineration (with and without energy recovery), recycling, composting and landfilling.

Policy framework

Driving forces for material resource efficiency and circular economy

The main motivations for Slovenia to transit to the circular economy are the following:

- Slovenia lacks some of the natural resources that are fundamental for economic development, making it import dependent for materials and rather vulnerable to the changeability and price volatility of global markets.
- Slovenia's resource productivity is below the EU average. This, in combination with import dependency for natural resources, puts relatively high pressure on the competitiveness of Slovenian business.

The main motivation for Slovenia's waste programmes is to introduce a new approach for dealing with waste as a source of materials, to introduce waste prevention and recovery as a priority and to enable the implementation of systems to support proper waste collection and waste management in order to return as much material as possible to the new production cycles.

Dedicated national strategies or roadmaps for material resource efficiency and a circular economy

Slovenia has not adopted a dedicated national material resource efficiency strategy, an action plan or a roadmap. The study Efficient Use of Resources – Towards an Action Plan in Slovenia from 2014, initiated several broader activities which also introduced resource efficiency.

The Roadmap towards the Circular Economy in Slovenia was published in May 2018[1].

The goals of the Roadmap are to:
a. outline the potential for establishing Slovenia as the leader of the transition into a circular economy in Central and Eastern Europe;
b. involve stakeholders to identify and connect circular practices;
c. create recommendations for the government of the Republic of Slovenia to facilitate a more efficient transition; and
d. identify circular opportunities for the strengthening of international economic competitiveness and quality of life for all.

It introduces four priority fields for Slovenia:

- food system;
- forest-based value chains;
- manufacturing industry;
- mobility.

The first Slovenian Circular Economy Roadmap, authored by Circular Change and other consortia of partners, was published in May 2018. It aims to pave the way towards transitioning from a linear to a circular economy in Slovenia through an inclusive multi-stakeholder process.

The uniqueness of the Slovenian circular transition:
The Roadmap is based on the so-called Circular Triangle. The Triangle unites three inseparable elements – circular economy (business models), circular change (government policies) and circular culture (citizens).

These three aspects are interdependent and are at the core of systemic change. The authors especially emphasise the importance of circular culture, since without reconsidering our values, creating new

[1] http://www.mop.gov.si/fileadmin/mop.gov.si/pageuploads/medijsko_sredisce/2018/05_Maj/04_SJ_Kazipot/18_05_04_SJ_Kazipot_EN.pdf (English)

narratives and changing our behavioural patterns, we cannot hope for a change in the economic models, or corresponding shifts on a governmental level. Circular culture is the aspect that seems to harbour the greatest transformative capital for Slovenia.

Overview of dedicated national or sectoral strategies for raw materials

Slovenia has a State Mining Strategy in place for extraction of mineral resources. Regarding critical raw materials, a geological survey of Slovenia has been published with the aim of providing basic information on the critical raw materials recognised by the European Commission, and to indicate whether deposits of such materials could exist in Slovenian territory[2].

Raw materials are also mentioned in the Roadmap towards the Circular Economy: 'One of the key aspects is self-sufficiency in providing raw materials. Slovenia is at a disadvantage in this regard, since on average, we import 71 per cent of raw materials consumed domestically. Since we use these imported materials for manufacturing our high-tech products, the international competitiveness of our economy also suffers from this import dependency'.

The issue is also recognised in the Slovenian Development Strategy under Goal 8:
'The Slovenian economy depends on imports of raw materials; therefore, more difficult access to them could affect us significantly, as Slovenian companies lag behind the EU average in the implementation of measures for a transition to a circular economy'[3].

Policies which include elements of material resource efficiency

The Slovenian government adopted the **Framework Programme for the Transition to a Green Economy** in October 2015 (with the OPZG Action Plan (ANI OPZG) and the Ministries' and Government Services' Operational Plan (NAMVS) for 2015 and 2016)[4].

Slovenia also has a well-developed strategic approach to embedding a circular economy within the European Structural and Investment Funds as part of the **national Smart Specialisation Strategy**, which identifies three main priority areas – healthy living and working environment, natural and traditional sources for the future, industry – further elaborated in the nine priority sub-areas and their focus areas, which are supported by the Operational Programme for Implementation of European Cohesion Policy 2014–2020[5].

The **Networks for the Transition to Circular Economy** scheme, one of the points within the priority area of Natural and Traditional Resources for the Future, is supported by EU funds. The objective of these activities is to connect stakeholders – business entities, the education and research system, non-governmental organisations (NGOs), the state and individuals – across value chains according to the principle of an economy of closed material cycles, in order to develop new business models for the transition to a circular economy. With the support of the EU funds, the concrete objectives to be met by 2023 are:

1. raise the material efficiency index of 1.07 (2011) to 1.50 (2020);
2. establish five new value chains with closed material cycles.

[2] http://www.geo-zs.si/PDF/PeriodicnePublikacije/Bilten_2011.pdf (Slovenian)
[3] http://www.energetika-portal.si/dokumenti/strateski-razvojni-dokumenti/drzavna-rudarska-strategija/ (Slovenian)
[4] Transition to a Green Economy in Slovenia Summary: http://www.vlada.si/fileadmin/dokumenti/si/projekti/2016/zeleno/Transition_to_a_Green_Economy_in_Slovenia.pdf (English)
[5] http://www.eu-skladi.si/kohezija-do-2013/ostalo/op-final-en (English)

Each of the nine areas of application witnessed the establishment of one partnership by the end of 2016 following a spontaneous, not policy-driven, bottom-up initiative recognising the need for cooperation and integration. The initiative also included an agreement on coordinators of Strategic Research and Innovation Partnerships (SRIPs).

Among these partnerships, the Networks for the Transition to Circular Economy initiative has been set up and is coordinated by Štajerska Chamber of Commerce [6]. This SRIP is focusing on the areas and technologies of biomass processing, development of new, bio-based materials, use of secondary resources and reuse of waste, and generation of energy from alternative sources. To achieve this, the partnership is designed for members of business and research, development and innovation (RDI) bodies to cooperate in the development of products and technologies that enable improved resource efficiency/productivity and entry to EU and global markets. Detailed summary of the Action Plan is available online[7].

As **a member of the Ellen MacArthur Foundation** (from October 2016), Slovenia is one of the countries that aims to implement a circular economy and support activities related to resource efficiency.

A Vision for Slovenia in 2050 and the 2030 Slovenian Development Strategy[8] have been adopted. With its new national development framework, Slovenia aims to give a central role to the successful transition to a low-carbon circular economy. To achieve this, the connection between economic development on the one hand, and increasing material and energy consumption and the resulting increased environmental pressures on the other, must be severed. Efficient material and energy consumption are interdependent, as strategies for increasing material efficiency can contribute at least as much as energy efficiency measures to the reduction in energy consumption.

Institutional setup and stakeholder engagement

According to the Framework Programme for Green Economy, three ministries – the Ministry of the Environment and Spatial Planning, Ministry of Economic Development and Technology, and the Environment Office for Development and European Cohesion Policy – are involved in performing tasks and coordinating activities with other ministries and stakeholders.

The Partnership for Green Economy, coordinated by the government, organises meetings and conferences in different regions in Slovenia for different stakeholders.

The Roadmap was co-created as follows:
During the period between September 2017 and April 2018, the project group for the preparation of the Roadmap – Circular Change, Ministries, Institutes and some others, with the contribution of the Office of the Prime Minister of the Republic of Slovenia:

- organized and conducted seven meetings in 12 regions of Slovenia and seven interactive workshops;
- listed almost 100 good practices from all over Slovenia;
- conducted 19 structured interviews with key stakeholders from government departments, the economy, interest groups, and experts from individual fields;
- stimulated 3,000 stakeholders to take part in communication within the framework of the Partnership for Green Economy and the electronic newsletter;
- presented the Roadmap at various events in nine European countries – Austria, Belgium, France, Greece, Netherlands, Serbia, Slovakia, Spain and Switzerland;

[6] https://www.stajerskagz.si/projekti/srip_mreze_za_prehod_v_krozno_gospodarstvo/ (Slovenian)
[7] http://www.svrk.gov.si/en/areas_of_work/slovenian_smart_specialisation_strategy_s4/ (English). More: http://ec.europa.eu/environment/eir/pdf/report_si_sl.pdf (Slovenian) and http://ec.europa.eu/environment/eir/pdf/report_si_en.pdf (English)
[8] http://www.vlada.si/fileadmin/dokumenti/si/projekti/2017/srs2030/en/Slovenia_2030.pdf (English)

- presented the process of drawing up the Roadmap at more than 15 different events in Slovenia; and
- regularly informed the public on the progress of the project on websites, social networks, and the Partnership for Green Economy.

Engaging stakeholders for identifying and connecting best practices

Approaches to resource efficiency and circular economy policy evaluation

Until now, no evaluation on the impacts and effectiveness of policies for a resource-efficient circular economy has been done in Slovenia.

Monitoring and targets

Targets for resource efficiency and circular economy

We could mention the non-binding goal presented in the Slovenian Development Strategy 2030:

INDICATOR	Slovenia (2015)	Goal – Slovenia (2030)	EU (2015)
Material Productivity	1.79 PPP[20] /kg	3.5 PPP/kg	2.19 PPP/kg

PPP = Purchasing Power Parity

The Municipality of Maribor in its Wcycle project expects to recycle up to 200,000 tonnes of waste per year, covering an area with 150,000 inhabitants, more than the population of the Municipality of Maribor.

It is estimated that by 2030, 70 per cent of municipal waste and 80 per cent of packaging waste will be recycled; by 2025 a prohibition on dumping of waste that could be recycled will be implemented; also by 2025, marine litter and food waste will be reduced by 30 per cent, and by 2030 resource productivity will increase by 15 per cent. It is estimated that Wcycle will employ some 100 people, of whom at least 20 per cent will have received higher education.

The **Networks for the Transition to Circular Economy** scheme, one of the points within the priority area of Natural and Traditional Resources for the Future, is supported by EU funds. The objective of these activities is to connect stakeholders. With the support of the EU funds, one of the concrete objectives to be met by 2023 is ***raising the material efficiency index of 1.07 (2011) to 1.50 (2020).***

Indicators to monitor progress towards a resource-efficient circular economy

We use the following indicators[9]:

- direct material input (DMI) and DMC;
- resource productivity;
- waste indicators.

The Roadmap towards the Circular Economy notes that '**the next important step in the monitoring of circularity is appropriately selecting indicators.** Monitoring the introduction of a circular economy and measuring its efficiency in practice is a challenge on all levels – in companies as well as in formulating European Directives. For the purposes of this Roadmap, we have studied various indicators and developmental options based on their implementation and it has become clear that, due to the sheer scope of the circular transition, we will only be able to monitor its development by using a combination of different indicators'.

Monitoring of transition progress is one of the goals of the Action Programme towards Green Economy, including measure No. 5: Monitoring will be based on the upgraded Slovenian Indicator System, by including the selection of relevant existing indicators, DMC, DMI and waste management, as well as developing new indicators for Slovenia on topics such as eco-innovation, research and development (R&D), economic instruments and business opportunities.

Resource efficiency, circular economy and the 2030 Sustainable Development Goals

Slovenia will implement 17 Sustainable Development Goals (SDGs) on a national level by embedding them into Slovenia's new national Development Strategy 2030. The primary goal and strategic directions of the Development Strategy, driven by the Vision of Slovenia 2050, will require drafting national development goals that share the characteristics of the SDGs, such as deep connections and crosscutting elements, tackling and addressing the three pillars of sustainable development – economic, social and environmental – and inclusiveness in aiming to leave no one behind[10].

Examples of innovative approaches and good practice

Examples of good practice and innovative approaches

Product-related policies, including on repair and reuse

Econyl

The ECONYL Regeneration System was launched in 2011. Applying the sustainable chemistry principles, it recovers the nylon that is contained in waste such as carpets, fabric scraps, fishing nets and other industrial waste. Through this process, new nylon yarn is being produced from waste without any loss of quality. In addition to obtaining first-class nylon, with the help of a circular economy, this reduces the amount of marine waste, as according to the United Nations Food and Agriculture Organization (FAO), 640,000 tonnes of discarded fishing nets, around 10 per cent of all marine waste, has been recorded. This also saves animals that could become caught up in discarded nets. Waste for the production process is collected globally and is being processed and remanufactured in Slovenia. Another aspect is that excess thermal energy produced by the ECONYL is distributed to the Ljubljana waterpark, meeting 100 per cent of its

[9] http://kazalci.arso.gov.si/?data=home&lang_id=94 (Slovenian)

[10] Voluntary National Review of Slovenia – 2017, dostopno na spletni strani: https://slovenija2050.si/sdg/ (English)

heating requirements. This collaboration, which was possible due to the proximity of the facilities, has significantly reduced the environmental impacts on the city of both companies.

Fair Meter

These new electronic meters are smart and fair. They address all major issues that the electronic industry is facing today – energy intensity, labour standards, use of conflict materials (3TG), material scarcity and waste electrical and electronic equipment (WEEE). The producer Iskraemeco's goal is to tackle the above issues by implementing transparency throughout the supply chain, developing higher standards in the industry and lower exposure to risks in the volatile material markets globally. The company's portfolio includes electricity meters for different applications, communication systems, data management software and supportive services. With one of the largest R&D departments in the industry in Europe, the company strives to provide utilities with quality and next-generation sustainable energy solutions. Iskraemeco was selected as one of the developers and producers of the Fair Meter by the special initiative in the Netherlands and will provide 2.5 million smart meters by 2020.

Producer responsibility/supplier responsibility

Accessible public places for collecting different waste products have been established for WEEE, waste batteries, etc. in many places and have been very well received by the public.

Financial support programmes

The SID bank's mission is to provide financial services primarily for the sustainable development of the Slovenian economy[11].

Eco Fund[12]

The main purpose of the Slovenian Environmental Public Fund (Eco Fund) is to promote development in the field of environmental protection. It is the only specialised institution in Slovenia that provides financial support for environmental projects. The financial assistance is offered mainly through soft loans from revolving funds and also, since 2008, through grants. In comparison with commercial banks, the Eco Fund's principal advantages in the market for environmental financing are that it provides soft loans at lower interest rates than prevailing commercial market rates and is able to lend for significantly longer periods. The Eco Fund is also the financer of the ENSVET project, offering financial support and free professional advice on improving energy efficiency to owners of residential houses and apartments in Slovenia. The Eco Fund's subsidies have had a positive effect on tax revenues, reducing the grey economy, providing new green jobs, sustainable development in construction planning and business, and the development of the use of strategic resources such as wood.

Research and innovation

WINTHERWAX - MSora

The WINTHERWAX project is dedicated to the development and market introduction of high-efficiency timber windows made of thermally modified spruce coated with naturally based wax. High energy efficiency contributes to the reduction of carbon dioxide emissions while the selection of innovative, natural and European materials is raising the potential for the European economy. WINTHERWAX windows as well as façade elements were extensively tested in different natural environments and artificial extreme climatic conditions. Results indicate that WINTHERWAX products could be used all around the world in the future.

Innovative business models

Tourism Cooperation Project – the diffused hotel pilot model[13]

[11] http://www.sid.si/en (English)

[12] https://www.ekosklad.si/information-in-english (English)

[13] https://skupnostobcin.si/wp-content/uploads/2017/07/projekt-sodelovanja-razprseni-hotel.pdf (English) and http://www.delo.si/novice/okolje/nastaja-model-slovenskega-airbnb.html (Slovenian)

The cooperative project for a diffused hotel pilot model is a new tourism product. It follows the principles of the circular economy through sustainable resource management. With the project, we would like to provide new tourist accommodation facilities, increase the economic efficiency of existing capacity and connect local providers with tourist cooperatives or associations. The model is suitable for many local Slovenian environments, and is also a very successful practice abroad. With local partnerships we can develop new services, new offers, and an innovative approach to address specific issues. The project offers opportunities for greater social inclusion while exploiting space (between Snežnik and Nanos), and identifies the existing economic, social or cultural activities that are available for development. As much as possible activities will follow the recommendations of green, circular and smart orientations. The project will bring many positive effects such as improved health, less negative impacts on the climate and more recycled materials, and it will create a short-chain food supply system for tourism providers and more. The goals of the project are to find and recognise the interest of the community, record existing infrastructure, design a diffused hotel model as a sustainable tourism product, achieve support from local communities and state institutions, and also prepare a pilot model of the diffused hotel for Slovenia.

Public procurement

The government is aware that the country can set an important example and lead the change. The forthcoming revision of the Regulation on Green Public Procurement, adopted in December 2011, will make green procurement mandatory for the majority of goods, services and works – so far, criteria have been set for 11 of them; the revision envisages 20. The Regulation lays down the environmental aspects and quantified targets for each purchase made. It also promotes the circular economy and innovation, and, among others, energy efficiency and the use of renewable sources of energy, the efficient use of resources, the reuse of materials and the prevention and reduction of waste generation, waste reuse and recycling, and the longer lifetime of goods or constructions[14].

Change in consumption patterns and consumer behaviour

Slovenian Network – Centres of Reuse

The USE-REUSE network runs centres across the country which took in unwanted but viable products and then selling them on as second-hand goods. The project was launched in 2010 and lasted until 2014. In the framework of the project, a network of Centres was set up at nine locations (Ormož, Ljubljana, Rogaška Slatina, Vojnik, Tepanje, Slovenske Konjice, Trebnje, Miklavž na Dravskem polju and Kočevje). The Centres encourage and promote the reuse of products, up-cycling products and transformed them into a new unique masterpiece. They are members of the international RREUSE network and qualify as social enterprisez.

In all their activities the nine reuse Centres promote social and economic solidarity, environmental protection and recycling and up-cycling. They also cooperate with educational institutions for increasing awareness about waste management.

Rental Library of Things

The Rental Library of Things works like libraries but instead of books lends different tools, domestic appliances and other things which are not in frequent use. Beside borrowing, it also accepts things that people have not used for some time and would like to share with others.

Sharing economy, buying services instead of purchasing products, etc.

Avant2Go

In February 2017, the Ministry of Public Administration and the Ministry of Infrastructure signed a one-year contract with the Avant Car company on sharing only electric vehicles. This service is based on Slovenian knowledge; at the same time, it presents an active part of the initiative Slovenia – Green Reference Country in a Digital Europe. In May 2017, the Government Office for Development and

[14] http://djn.mju.gov.si/sistem-javnega-narocanja/predpisi/Predpisi_v_obravnavi (Slovenian) and http://djn.mju.gov.si/resources/files/Sistem_javnega_narocanja/ZeJN2/UredbaZeJN2_v10g.pdf (Slovenian)

European Cohesion Policy joined the pilot project, with 20 employees currently participating (http://www.mju.gov.si/en/media_room/news/8092/).

Education

Outdoor learning courses

The *naturesclassroom.si* web multimedia portal is the central presentation hub for the project **Establishing Implementation Conditions for Experiential Education for Sustainable Development**[15]. The project is being carried out in selected areas of Slovenia and is content-wise embedded into the broader European area. For many young people in Slovenia such education is very valuable. They can get practical experience and learn about new approaches to solving current environmental problems.

Project Eco-village Dole is an example of good practice in the field of development of rural areas, which are important for the production of healthy food and care for the land, water, plants and animals.

Faculty B&B for sustainable development Kranj

The Faculty, within the programme of environmental protection, offers subjects on environmental instruments and tools and environmental policy, within which the concept of circular economy is broadly presented and discussed.

Seeking synergies with other policy areas

Examples from Slovenia of policy initiatives that deliberately seek to create synergies and co-benefits between resource efficiency/circular economy and other policy areas are:

Partnership for Green Economy

Establishment of the Partnership for Green Economy is one of the key measures of the Framework Programme for the Transition to a Green Economy. The Partnership is coordinated by the government, composed of an inter-ministerial government group and stakeholder representatives from all areas. The interdepartmental working group meets in its framework several times a year for the coordination of sectoral policies and measures[16].

Transition to a circular economy

The Government Office for Development and European Cohesion Policy is a partner in two Interreg Europe projects, RETRACE[17] and SYMBI[18], both dealing with the transition to a circular economy. The RETRACE project aims at promoting systemic design as a method to allow local and regional policies to move towards a circular economy when waste from one production process becomes an input for another, preventing waste from being released into the environment. The SYMBI project's aim is to contribute to improving the implementation of regional development policies and programmes related to the promotion and dissemination of industrial symbiosis and circular economy in seven participating countries that are addressing policy alignment with the Circular Economy Strategy of the European Commission to transform Europe into a more competitive, resource-efficient economy.

Both projects aim to influence implementation of the Operational Programme for European Cohesion Policy 2014–2020, and will also try to take part in the preparation of programming documents for the next programming period.

An example from Slovenia of a policy initiative which seeks to make imports of materials and products more sustainable is that this issue is addressed in the Roadmap as an argument for the necessity for the transition to a circular economy, since Slovenia imports 71 per cent of the raw materials consumed domestically.

[15] http://www.naturesclassroom.si/2011/ecovillage-dole-planting-the-first-trees/ (English)

[16] https://www.circularchange.com/events (English)

[17] https://www.interregeurope.eu/RETRACE/ (English)

[18] https://www.interregeurope.eu/SYMBI/ (English)

Resource efficiency and circular economy policy initiatives from subnational to local level

Wcycle[19]

Wcycle is a project that is going to transform Maribor, the second largest city in the country, into a circular economy municipality.

The idea is that public utilities working in public services communicate with each other, since waste from one sector can be used as a material in another. Wcycle is going to transform waste into new useful materials and consequently lower the amount of all kinds of waste including municipal waste, construction waste and biological materials, and also recycle soil and produce energy.

It is estimated that Wcycle will recycle up to 200,000 tonnes of waste per year over an area with 150,000 inhabitants, more than the population of the Municipality of Maribor. It is estimated that Wcycle will employ some 100 people, of whom at least 20 per cent will have received higher education.

The estimated cost of the project is USD 50 million from own funds, bank loans and investment. Phase 1 of the project is expected to conclude in 2017–2018 and Phase 2 by 2020. The buildings of the project will stand on 20 hectares of degraded land.

The Municipality of Maribor plans to market experience gained from planning, building, managing and development of the project as a trademark for a transfer of technologies and patent rights. The EU representatives recognised the project Wcycle as a case of excellent practice and invited the Municipality of Maribor to introduce it to other EU Member States.

The project partners are Snaga Maribor, which will collect and recycle waste, and Nigrad and Energetika, which will use the resources as an energy source.

SOS

The Association of Municipalities and Towns of Slovenia (SOS) is partner in the Interreg Europe project CircE[20]. In particular the project aims at helping the partners involved to increase the capability of their policy instruments to steer the economy towards a circular model. The project carries out this task by aiming to modify or reassess the selected policy instruments through an exchange of knowledge/experiences among partners, the continuous involvement of stakeholders and a deeper analysis of the economic system.

MacArthur Circular Cities Network

In 2016, Ljubljana Municipality became a member of the Ellen MacArthur Circular Cities Network[21], a global network of city leaders who are pioneering the application of circular economy approaches to address today's urban challenges.

Enough for Anyone

A group of NGOs, Umanotera, PIC and Focus, has obtained a grant from Eko Sklad for the Enough for Anyone project[22], which aims to inform, train and empower local communities to manage natural resources in their environments sustainably, and support them in/accelerate the transition to a low-carbon, resource-efficient, sustainable society. In the framework of the project, the group recently launched a map of good practice identified in the area of communal management of resources throughout Slovenia (http://dovoljzavse.si/)

[19] https://www.circularchange.com/news/the-strategy-for-the-transition-of-the-city-of-maribor-to-the-circular-economy?rq=Wcycle (English)

[20] https://www.interregeurope.eu/Circe/ (English)

[21] https://www.ellenmacarthurfoundation.org/news/circular-cities-network (English)

[22] http://dovoljzavse.si/ (Slovenian)

Zero waste Slovenia – Recycle store as a good example of zero waste in Slovenia
At the end of January 2014, the Ecologist Without Borders (Ekologi brez meja) Association became a member of the Zero Waste Europe network and with this the national organisation for Slovenia through the Zero Waste Slovenia programme. So far 11 municipalities from Slovenia have joined the programme.

The SIJ group
The SIJ Group, Slovenian Steel Group d.d., is the largest Slovenian steel producer and one of our main exporters. Production is entirely based on principles of circular economy. Steel scrap as a basic raw material is collected in SIJ collection warehouses in Bosnia and Herzegovina, Croatia, Serbia and Slovenia. With secondary raw materials collected in this manner, Slovenia produces superior niche steels. All metal by-products are separated and reused in the production of steel. Slag stands out among the by-products that are processed and used in asphalt mixtures. On average the carbon dioxide emissions of the SIJ Group total 408 kilograms per tonne (kg/tonne) which is considerably lower compared to integral ironworks (1,700 kg/tonne) and comparable steelworks (700 kg/tonne); it is also worth noting that the SIJ company uses less industrial water than other comparable steelworks. SIJ is intensely committed to projects to take advantage of useful (waste) heat for district heating. In 2016, the partners SIJ Metal Ravne, Petrol energetika, the Jožef Stefan Institute and the Ravne na Koroškem Institute presented an integrated energy solution with an innovative and award-winning example of a transition to a circular economy. It is based on the exploitation of waste heat generated during metallurgical processes for district heating and hot water preparation in the area of Ravne na Koroškem. In 2016, approximately 21 per cent of all the heat required to heat the city was generated in this way, and the amount of greenhouse gases was reduced by 1,500 tonnes per year; with this model the on-site consumption of electricity was also reduced.

Other resources

Examples of policies which go beyond "material resources"

Among the most important natural resources in Slovenia are forest cover, water and the conservation of watercourses, karst features and phenomena, biodiversity and landscape diversity. Measures under the Framework Programme for the Transition to a Green Economy therefore include the following measures[23]:

1. For forest and wood
   - Financial measures for forest protection and support for the implementation of the public forestry service.
   - Action plan to increase the competitiveness of the forest-wood chain with some favourable loans for wood-processing activities.
2. Water management
   - Through the Rural Development Programme (RDP) 2014–2020, support will be provided for the technological modernisation of large irrigation systems, with the aim of decreasing water losses and increasing the efficiency of irrigation and utilisation of irrigation systems.
3. Biodiversity
   - Nature conservation projects in protected areas on the basis of the management programme of Natura 2000 sites.
   - Preparation of projects of national importance under the management programme of Natura 2000 sites, looking for synergies between nature conservation, tourism and cultural heritage protection.
4. Land
   - Establishment of a register of degraded urban areas. Identifying degraded urban areas and their management are important because these areas represent the physical capital for the economy. On the other hand, these are problematic areas that affect the entire

[23] http://www.vlada.si/teme_in_projekti/prehod_v_zeleno_gospodarstvo/ukrepi/trajnostno_upravljanje_z_viri/ (Slovenian)

development potential of an urban area and should therefore take priority when looking for investments.

The way forward

Reflections on future directions of policies on resource efficiency and circular economy

From the broader perspective we could say that the main challenge is to reach absolute decoupling in the context of the growing number of middle-class consumers globally. A fundamental shift needs to occur in the global consumption and production system, and the EU with its Member States should lead the way. Implementation of the activities outlined in the EU Action Plan Closing the loop – an EU action plan for the Circular Economy from December 2015 and elsewhere must lead towards this objective.

The transition to a circular economy can give an answer to how this decoupling could be achieved; however, we also need to keep in mind the possible difficulties that may arise in the transition process. For example, global value chains are becoming more and more important, but the suppliers, which are at the bottom of the supply chain, can be losers in the transition process if timely action is not provided by policymakers.

Additionally, the new business models that are considered as enablers for the circular economy transition can, in the long run, potentially lead to the monopolisation of resources in big multinational companies. The rebound effect also represents one of the biggest challenges of the transition. Additionally, product obsolescence is one of the major barriers to a faster transition. Likewise, appropriate taxation is necessary. If virgin natural resources continue to be cheaper, then secondary raw materials will not be competitive. Also, circular economy in some sectors is labour-intensive, therefore the need to reconsider the green budget reform is one of the essential elements that could facilitate the more efficient use of resources. In general, the internalisation of external costs needs to happen.

At the more concrete level, the challenge is how to establish an appropriate environment for businesses, especially small and medium-sized enterprises, that will support them in the transition. In particular, they would need to have tailored services provided for them on the issues relevant to them such as eco-design, and eco-innovation, etc. This kind of supportive environment is lacking in Slovenia.
An additional challenge is how to train/educate civil servants to profoundly understand the concept of circular economy and help them to start working across the sectors.

The legislation that is governing the transformation of waste into secondary raw materials (suitable for use as a resource) varies from Member State to Member State. That sometimes makes it difficult to provide a level playing field and sometimes necessitates the export of certain waste to a Member State where it can be considered a resource.

Therefore, in spite of many bottom-up good practices, the implementation of resource efficiency, circular economy and raw materials policies might remain very slow. To accelerate the implementation, state co-financing is needed, as well as direct work with stakeholders, in particular local communities and industry. A governmental expert group, not only the Partnership working on circular economy could be a great help as well.

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