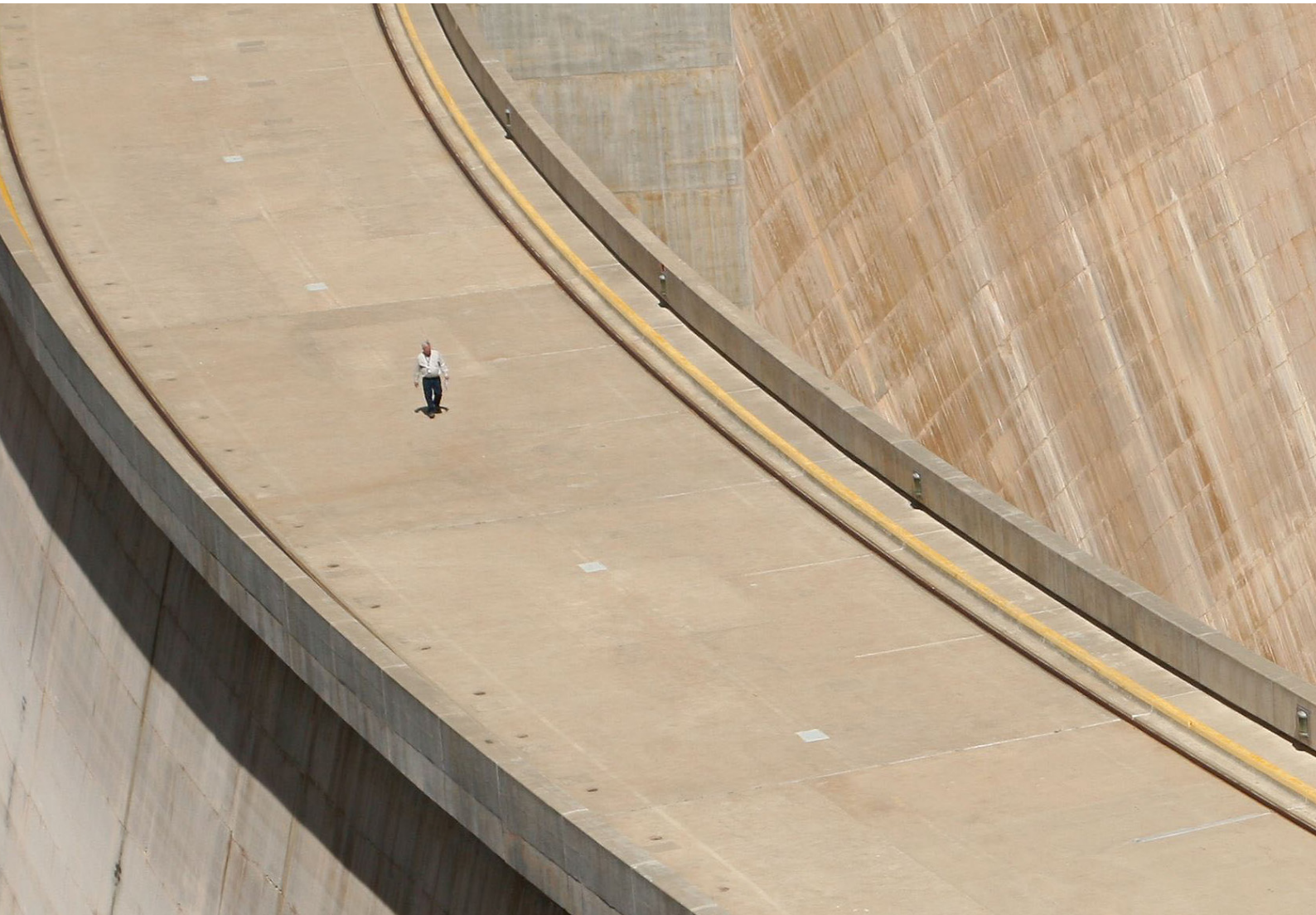


More from less — material resource efficiency in Europe

2015 overview of policies, instruments and targets in 32 countries



Serbia 

May 2016



This country profile is based on information collected from: Cleaner Production Centre of Serbia, Ministry of Agriculture and Environmental Protection, Ministry of Construction, Transport and Infrastructure, Ministry of Economy, Ministry of Mining and Energy, Republic Directorate for Water, Serbian Environmental Protection Agency and Statistical Office of the Republic of Serbia.

Coordination: Maja Krunić-Lazić, EEA/EIONET – NRC for sustainable consumption and production, Serbian Environmental Protection Agency.

The response should not be seen as an official government ministerial priority and is not necessarily an exhaustive list of all national material resource efficiency policies, objectives and activities.

The information is current as of June 2015.

This country profile was prepared as part of the 2015 EEA review of material resource efficiency policies, that aimed to collect, analyse and disseminate information about the development and implementation of material resource efficiency policies in EEA member and cooperating countries. The work resulted in the following outcomes:



32 short country profiles (this document) – self assessments prepared by countries, describing the current status of material resource efficiency policies including key strategies and action plans, policy objectives, instruments, targets and indicators, and the institutional setup. Countries were also invited to share reflections on the future direction of resource efficiency policies.

EEA report *More From Less – material resource efficiency in Europe* – prepared by the EEA and ETC/WMGE, the report analyses trends, similarities and differences in policy responses, showcases selected policy initiatives from the countries, and offers some considerations for the development of future policies.

The EEA report *More from less – material resource efficiency in Europe* and the 32 country profiles are available at: <http://www.eea.europa.eu/resource-efficiency>



For information about trends and policies on municipal waste management in the participating countries, please visit: <http://www.eea.europa.eu/publications/managing-municipal-solid-waste>

Information about EU Member States' waste prevention programmes can be found at: <http://www.eea.europa.eu/publications/waste-prevention-in-europe-2015>

For information on climate- and energy-related policies, including those on energy efficiency, in the participating countries, please visit: <http://www.eea.europa.eu/themes/climate/ghg-country-profiles>

Serbia, facts and figures

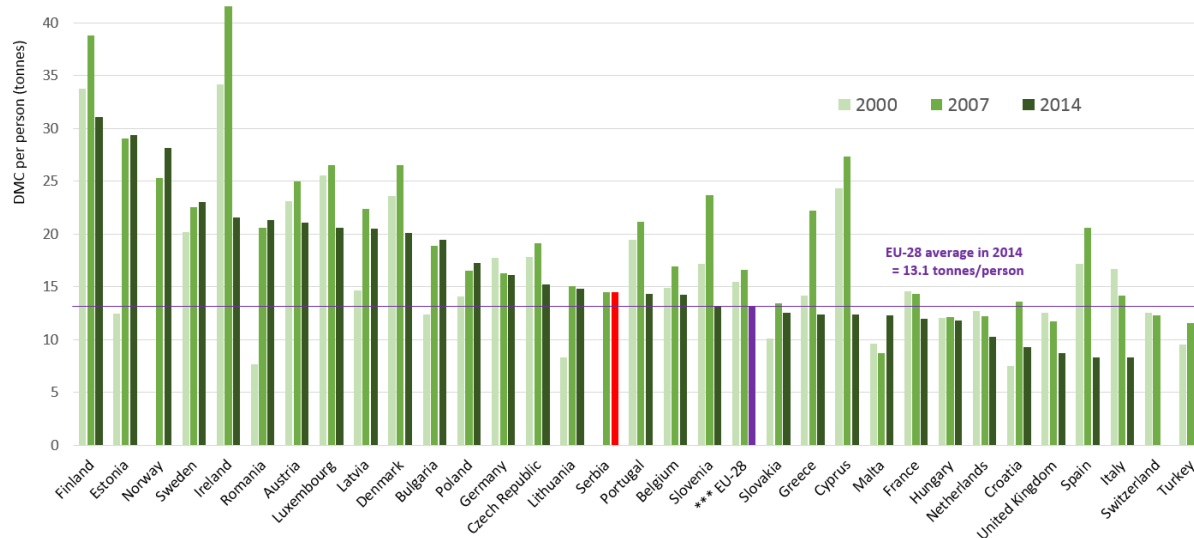
Source: Eurostat

	<p>GDP: EUR 33.3 billion (equivalent to 0.2% of EU-28 total in 2014)</p>
	<p>Per person GDP: EUR 10,100 (in purchasing power standard) (equivalent to 37% of EU-28 average in 2014)</p>
	<p>Use of materials: 103 million tonnes DMC (equivalent to 1.6% of EU-28 total in 2014) 14.5 tonnes DMC/person (111% of EU-28 average in 2014) Resource productivity 0.29 EUR/kg (15 % of EU-28 average in 2014)</p>
	<p>Structure of the economy: agriculture: 8.2 % industry: 36.9 % services: 54.9 % (2014 est.)</p>
	<p>Surface area: 77.5 thousand km² (equivalent to 1.7% of total EU-28)</p>
	<p>Population: 7.1 million (equivalent to 1.4% of EU-28 total)</p>

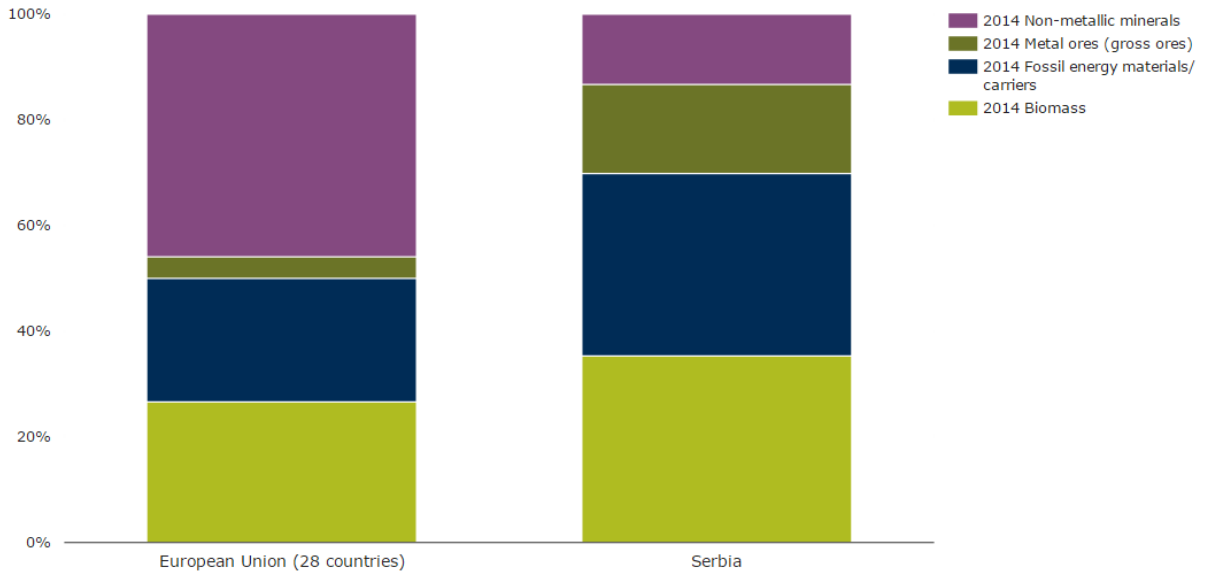
Note: The figures regarding the Republic of Serbia do not contain data on Kosovo*.

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.

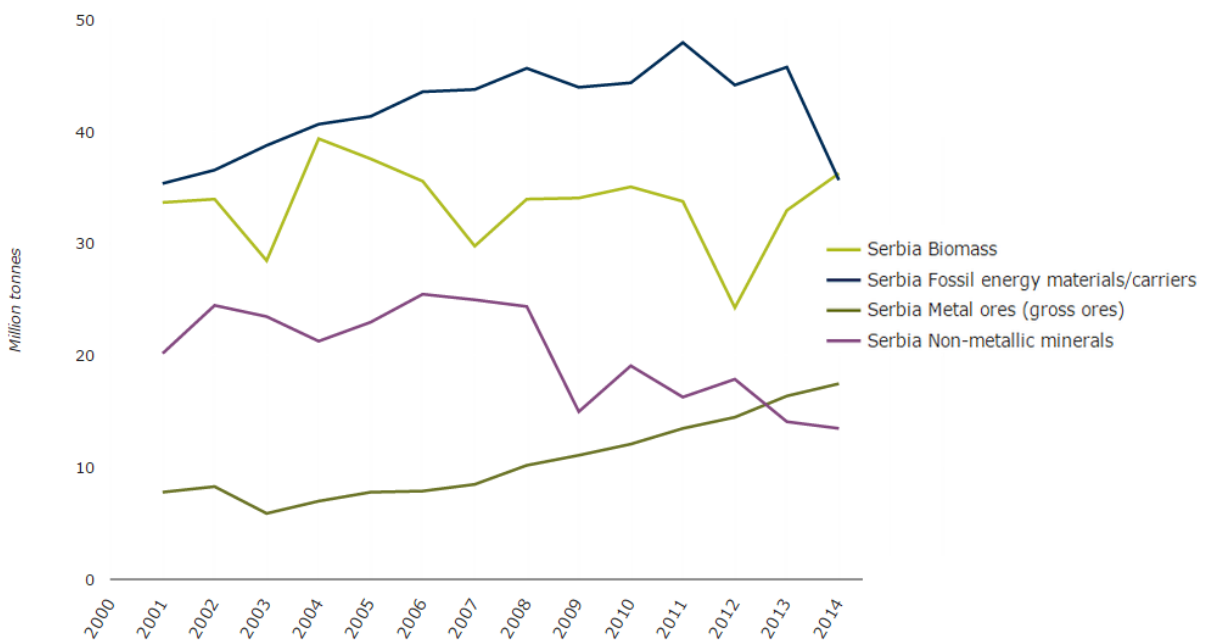
Use of materials (DMC) per person, participating countries and EU-28 (2000, 2007 and 2014)



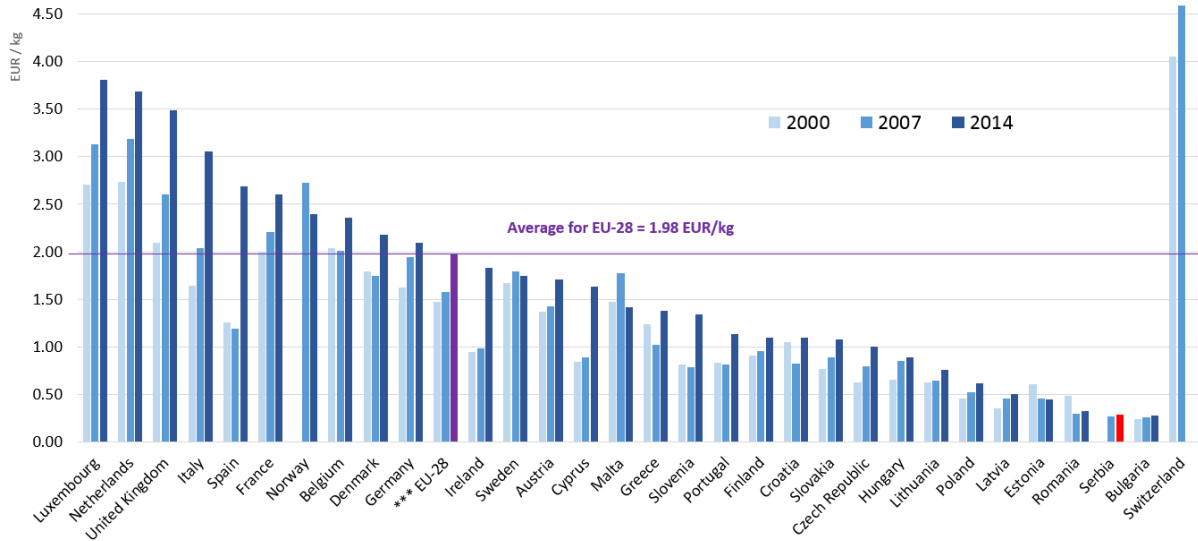
Domestic material consumption by category, EU-28 average and Serbia (2014)



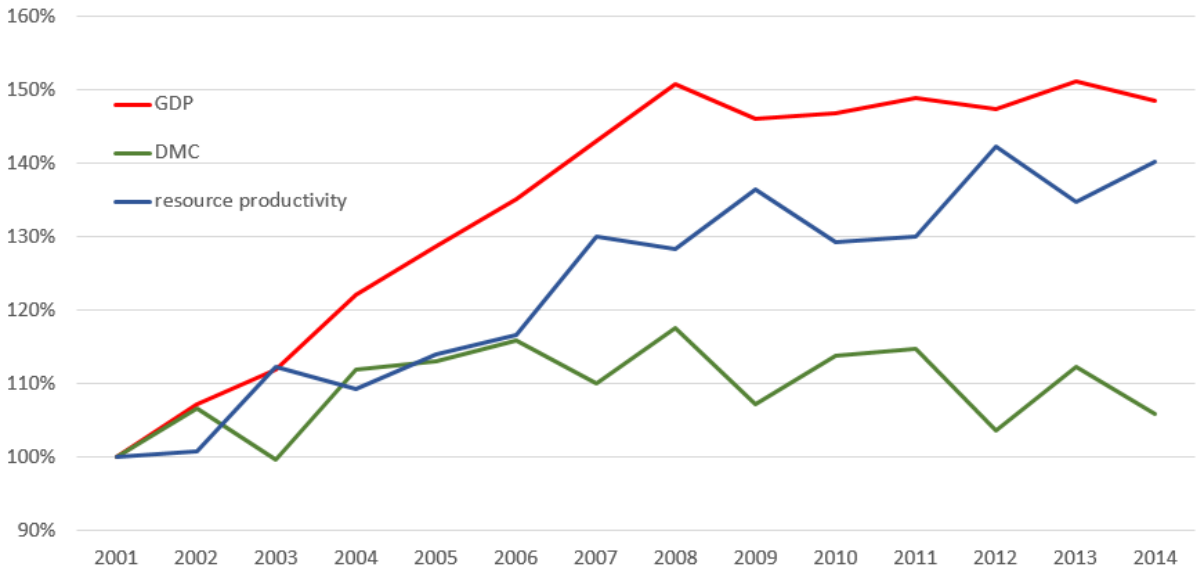
Trends in material consumption, Serbia by category (2000–2014)



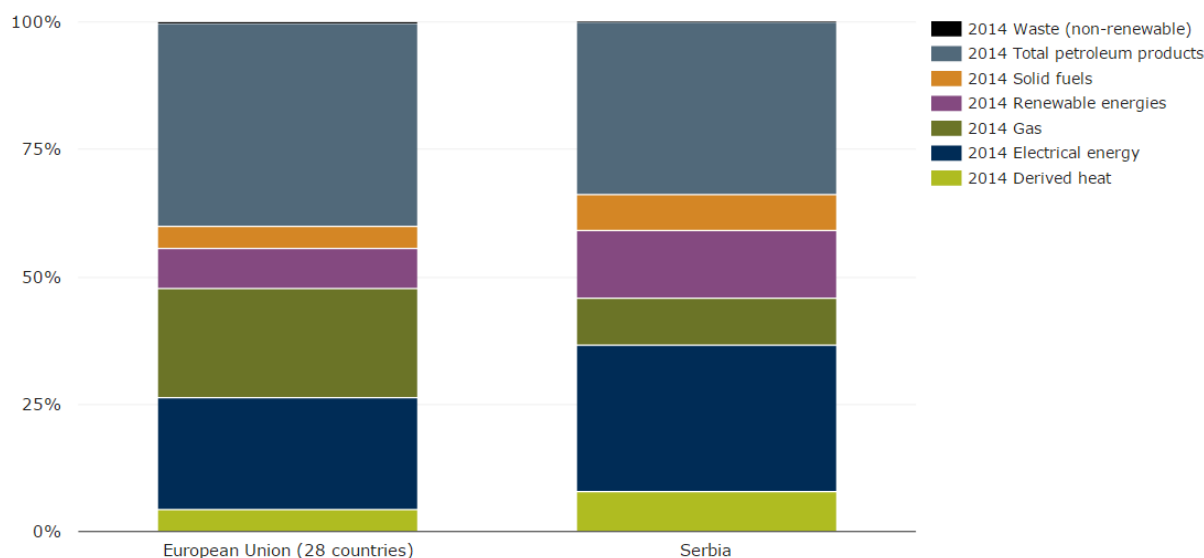
**Resource productivity (GDP/DMC), participating countries and EU-28
 (2000, 2007 and 2014)**



GDP, DMC and resource productivity trends, Serbia (2001–2014)



Share of final energy consumption by fuel type, EU-28 and Serbia (2014)



Introduction

There is no dedicated national resource efficiency strategy or action plan in Serbia.

The topic is considered in several documents, either finished or in preparation. The most relevant is the National Strategy of Sustainable Use of Natural Resources and Goods (see the section on policies for more detail).

Scope of material resource efficiency

The term 'resource efficiency' is not explicitly defined.

In the National Strategy of Sustainable Use of Natural Resources and Goods, the principle on the efficient use of natural resources requires maximum efficiency in the use of resources and a decrease in losses at all phases of the resource life cycle. This strategy focuses on energy efficiency and water efficiency, and waste management with emphasis on increased recycling.

Driving forces of material resource efficiency

Main drivers for the development of resource efficiency policies in Serbia include:

- reducing harmful environmental impacts and climate change;
- responding to issues related to availability, scarcity and depletion of natural resources;
- complying with relevant EU and Serbian policies and legislation.

Resource efficiency and resource productivity are increasingly recognised as necessary for improving the economy's competitiveness and reducing dependence on imports, especially in the energy sector owing to Serbia's significant energy imports.

Priority material resources, sectors and consumption categories

Priority materials

Among a range of initiatives related to material and resource efficiency certain categories of material resource can be considered as priority materials:

- strategic documents of the energy sector, as well as the Spatial Plan of the Republic of Serbia 2010–2020, aim to increase the use of renewable energy sources, especially solid **biomass**, as a significant contribution to reducing the use of fossil raw materials and combating climate change, ensuring energy security, as well as in the context of sustainable use of natural resources and preserving the landscape;
- the National Waste Management Strategy prioritises reducing **waste** generation and increasing recycling and reuse;
- the proposal for the Water Management Strategy focuses on the sustainable management and efficient use of **water resources**, including the rationalisation of water consumption in industrial production.

Priority industries and economic sectors

The Spatial Plan of the Republic of Serbia 2010–2020, and the Law on Planning and Construction (http://195.222.96.93//media/zakoni/Law_on_Planning_and_Construction.pdf) includes a goal to increase energy efficiency in the **construction, industry, transport and public service** sectors, which is in the economic interest of Serbia and of importance for environmental protection, all in the context of sustainable use of natural resources.

In the United Nations Environment Programme's 2013 Green Economy Scoping Study on Serbia (http://www.unep.org/greeneconomy/Portals/88/Research%20Products/Serbia_GESS.pdf) the following sectors were identified for their role and importance to the national economy and became the focus of the analysis:

- energy demand, with an emphasis on energy efficiency in **buildings** (including residential, commercial and services), **industry** and **transport**;
- energy supply, with an emphasis on **power generation**, including the use of renewable energy;
- **agriculture**, with a focus on the potential to move to organic agricultural practices, increasing value added and employment.

As a specialised sector, the **energy sector** (focused on increasing energy efficiency, use of renewable energy, and ensuring energy security) is addressed by:

- the Second Action Plan for Energy Efficiency of the Republic of Serbia 2013–2015;
- the National Renewable Energy Action plan (2013);
- the Energy Sector Development Strategy of Serbia for the period by 2015 (2005);
- the Draft Energy Sector Development Strategy of Serbia for the period by 2025 with projections by 2030, scheduled in 2016.

Priority consumption categories

Strategic documents of the energy sector, in which the creation of conditions for the improvement of energy efficiency in all energy sectors, as well as in final consumption is identified as a strategic objective.

The draft Waste Management Strategy 2015–2030, as well as a draft strategic document on the green economy anticipates a reduction in biodegradable waste, including food waste.

Policy framework

National strategies or action plans for material resource efficiency

In the Republic of Serbia resource efficiency is generally considered in several key policies, the most relevant is **National Strategy of Sustainable Use of Natural Resources and Goods** adopted in 2012.

The National Strategy for Sustainable Use of Natural Resources and Goods, which follows the classification of natural resources according to EC COM (2003) 572, presents a framework for sustainable use and protection of natural resources and natural goods. Natural resources are the renewable or non-renewable geological, hydrological and biological resources that can be directly or indirectly used and utilised. Natural goods are protected natural goods and public natural goods.

The focus of the Strategy includes increasing the efficiency of resource use (therefore decreasing the intensity of their utilisation) and reducing the environmental impact of the economic use of resources. In short, its aim is to discover options for practical policies to decouple economic development, and even wider development in general, from current trends in resource use and environmental impact.

http://www.srbija.gov.rs/extfile/sr/170160/nacionalna_strategija_odrzivog_koriscenja_prirodnih_re_sursa_dobara00636_cyr.zip

Other documents, either finished or in preparation, that include elements of material resource efficiency:

- In the **National Programme for Environmental Protection 2010-2019** (2010) the principles relevant to material resource efficiency are: the principle of sustainable development, the principle of sustainable use of natural values, and the principle of harmonisation of the national legislation with EU legislation (*acquis communautaire*)

<http://www.kombeg.org.rs/Slike/CeTranIRazvojTehnologija/2010Mart/Nacionalni%20program.pdf>;

- **National Waste Management Strategy 2010–2019** (2010) and **Proposal for the Waste Management Strategy 2015-2030** (planned for 2016) establish the framework for final waste reduction and sustainable waste management.

http://www.srbija.gov.rs/extfile/sr/130353/strategija_upravljanja_otpadom0246_cyr.zip;

- **Spatial Plan of the Republic of Serbia 2010–2020** (2010), in the context of sustainable use of natural resources, focuses on increasing energy efficiency in construction, industry, transport and public services.

<http://www.rapp.gov.rs/en-GB/content/cid310/spatial-plan-for-the-republic-of-serbia>;

- **National Strategy for Agriculture and Rural Development 2014-2024** (2014). The Strategy gives an up-dated overview of the main objectives for the most relevant agricultural sectors and rural development. Additionally, main measures were identified that will support further development of the sectors concerned in the coming period.

<http://uap.gov.rs/wp-content/themes/uap/STRATEGIJA%202014-2020%20.pdf>

- **Strategy and policy of industrial development of the Republic of Serbia 2011–2020** establishes the framework for industrial development, includes elements of material resource efficiency: improving energy efficiency and encouraging cleaner production.
http://www.media.srbija.gov.rs/medsrp/dokumenti/strategija_industrija0466_cyr.zip;
- **Strategy for Support of Small and Medium-Sized Enterprises, Entrepreneurship and Competitiveness 2015-2020** (2015) promotes support for highly innovative SMEs, eco-innovation, improvement of energy efficiency and efficient use of resources.
http://www.privreda.gov.rs/UserFiles/File/1_PRIVREDA/Strategija%20mala%20i%20srednja%20preduzeca.pdf
- **Second Action Plan for Energy Efficiency of the Republic of Serbia 2013–2015** (2013) contains specific targets for energy savings as well as a proposal for measures to increase energy efficiency, including measures to reduce final energy consumption.
http://www.mre.gov.rs/doc/efikasnost-izvori/efikasnost/B_01_Drugi_akcioni_plan_za_energetsku_efikasnost_za_Republiku_Srbiju_za_period_od_2013_do_2015_godine.pdf?uri=CELEX:32009L0028;
- **National Renewable Energy Action Plan by 2020** (2013) determines a national target for the share of renewable energy in gross final energy consumption.
(English): http://www.mre.gov.rs/doc/efikasnost-izvori/NREAP%20OF%20REPUBLIC%20OF%20SERBIA%2028_June_2013.pdf?uri=CELEX:32009L0028.
- **Energy Sector Development Strategy of Serbia for the period by 2015** (2005) focuses on increasing energy efficiency (in the sectors of energy production and consumption), intensive use of new renewable energy sources and reducing emissions from energy sector.
<http://www.mre.gov.rs/doc/efikasnost-izvori/01%20Strategija%20razvoja%20energetike%20Republike%20Srbije%20do%202015%20godine.pdf>• **Draft Energy Sector Development Strategy of Serbia for the period by 2025 with projections by 2030**, scheduled in 2016, imposes provision of energy security, energy market development and overall transition towards sustainable energy sector as key priorities of energy sector development in the Republic of Serbia, i.e. principles on which the energy sector policy by 2030 should be developed.
(English): <http://www.mre.gov.rs/doc/efikasnost-izvori/4%20%20Draft%20ENERGY%20SECTOR%20DEVELOPMENT%20STRATEGY%20UP%20TO%202025%20WITH%20THE%20PROJECTI.pdf>);
- **Proposal for The Water Management Strategy in the Republic of Serbia** (planned for 2016) promotes sustainable, rational and efficient use of water and water management;
- **Proposal for a strategic document on the green economy** (planned for 2016) is mainly focused on waste management (waste prevention, recycling and reuse, and energy use from waste).

The circular economy and closing material loops

Resource efficiency and waste policies are linked in the draft Waste Management Strategy 2015–2030 as well as the draft strategic document on the green economy, which focuses more on waste prevention, recycling and reuse, and energy use from waste. These drafts include specific targets for recycling and reuse.

General policy objectives for material resource efficiency

The main goals in the **National Strategy for Sustainable Use of Natural Resources and Goods** are: securing the conditions for the sustainable use of the natural resources and goods; reducing the negative impact of the use of resources on the economy and environment; and a contribution to guiding development towards sustainable production (through reduced and more efficient use of resources) and consumption (by changing the usual ways of consumption), as well as greening of public procurement.

The general objectives of the **National Programme for Environmental Protection** are the protection and improvement of the environment and sustainable use of natural resources. Objectives are related to the expansion and improvement of infrastructure for environmental protection, as well as the preservation of nature and biodiversity. Priority objectives that are related to resource efficiency include waste management, increasing energy efficiency and use of renewable energy and introduction of cleaner production.

In the **National Waste Management Strategy** objectives refer to the rational use of raw materials and energy and the use of alternate fuels from waste, and reduction, reuse and recycling of waste.

The basic goal of the **Spatial Plan of the Republic of Serbia** is sustainably used natural resources and protected and improved environment based on rational use of natural resources and greater energy efficiency, along with the use of renewable energy sources and introduction of cleaner technological solutions (especially regarding energy and transport). The operational goal is to improve energy efficiency and use renewable energy sources.

In the **Strategy and policy of industrial development of the Republic of Serbia**, the objectives of environmental policy in terms of industrial development aim to encourage cleaner production. Improving energy efficiency is one of the preconditions for industrial development because it directly affects the competitiveness of the economy.

The **Second Action Plan for Energy Efficiency 2013–2015** contains specific targets for energy savings, and indicative targets for the decrease of final energy consumption for the reporting period 2013–2015, as well as for the period 2010–2018.

- **National Renewable Energy Action Plan by 2020** (2013) determines a national target of 27% for the share of renewable energy in gross final energy consumption.
- In the **Energy Sector Development Strategy of Serbia for the period by 2015** objectives refer to the increasing energy efficiency (in the sectors of energy production and consumption), increasing use of renewable energy and reducing emissions from energy production and consumption.

- **Draft Energy Sector Development Strategy of Serbia for the period by 2025 with projections by 2030** - Basic goals of energy sector development of the Republic of Serbia are energy security, establishment of energy market and functioning of the sector in accordance with the principles of sustainable development.

The proposal for the **Water Management Strategy** promotes sustainable, rational and efficient use of water and water management through a series of individual targets (for example reuse or recycling of water and reduction of losses in the water supply network).

Institutional set-up and stakeholder involvement

Institutional set-up for material resource efficiency policies

Resource efficiency measures are mainly co-ordinated by the Ministry of Agriculture and Environmental Protection and the Ministry of Mining and Energy. The Serbian Environmental Protection Agency, the Cleaner Production Centre of Serbia (CPCS) and the Network of Energy Managers Serbia (MEMS) were set up to support the development and implementation of policies.

The Ministry of Agriculture and Environmental Protection co-ordinates and implements policies in the field of environmental and nature protection, which includes waste and forest management, cleaner production, use of renewable energy and green industries. The Ministry of Mining and Energy co-ordinates and implements policies in the field of rational use of energy and energy efficiency, renewable energy, environmental protection and climate change in the energy sector.

An example of the co-ordination between the Ministry of Agriculture and Environmental Protection and the other ministries, institutions, and NGOs is the establishment of a **Working group on green economy** (December 2014), with the main objective being to prepare a strategic document on the green economy. The green economy can generate economic growth, create new jobs and eradicate poverty, ensure sustainable use of natural resources and the overcoming of the consequences of climate change, as well as ensure the competitiveness of Serbian economy. Green Economy in Serbia has potential which can be seen in the practice of private enterprises. The transition to a green economy will require the establishment of a comprehensive public-private partnership.

The **Serbian Environmental Protection Agency** performs public administration tasks relating to the development and management of the national information system for environmental protection, collection and compilation of environmental data and preparation of reports on the state of the environment. It also ensures the right of access to relevant environmental data and information at national and international levels, and improves communication and dissemination of information to decision makers and the public.

One of the main organisations that deal exclusively with resource efficiency is the **CPCS**. The CPCS was established in 2007 within a project funded by the United Nations Industrial Development

Organization (UNIDO). The aim of the CPCS is to provide services to the private and public sectors and to co-ordinate different national cleaner production efforts. Improvements in organisation and technology will help to reduce or suggest better choices for the use of materials and energy, and help to avoid waste, wastewater and gaseous emissions.

Under the **MEMS**, energy managers of cities and municipalities, industries and public utility companies are charged with increasing energy efficiency in production, transmission, distribution and resource use efficiency.

Process to ensure stakeholder participation

Improving resource efficiency is a continuous process that requires an organised, systematic and systemic approach to relevant state institutions and social organisations, local governments, businesses and individuals. To support these measures a broad institutional set-up at different levels, from the local to the national, is in the process of development.

The key stakeholders in Serbia are the ministries that create policies relating to the management of natural resources and raw materials. Responsibility is divided among the Ministry of Agriculture and Environmental Protection, the Ministry of Mining and Energy, the Ministry of Economy and the Ministry of Construction, Transport and Infrastructure, depending on the resource. The relevant ministry prepares a draft strategy or policy and makes a proposal to the government, which then directs them to the Serbian parliament for adoption. At the same time, informing and involving the general public – through public and non-governmental organisations and councils such as the Serbian Chamber of Commerce, Standing Conference of Towns and Municipalities, universities and institutes – plays a big role in this process by taking into account their opinions and suggestions on the proposed policies.

The Serbian Environmental Protection Agency (SEPA) in its annual report on the state of the environment (SoER) gives indicators relating to the use of natural resources (Serbian: <http://www.sepa.gov.rs/index.php?menu=5000&id=13&akcija=showExternal>); English only: Environment in Serbia: an indicator-based review 2007, http://www.sepa.gov.rs/download/Environment_in_Serbia_Full.pdf).

While organising procedures for environmental data collection, SEPA established many contacts with scientific, professional and governmental organisations. Universities, institutes and organisations representing all levels of public administration from the local to regional, provincial and national levels were recognised as a base for preparing SoER reports.

Suggestions for international support mechanisms to exchange experience

- Creation of a platform to share best practices between countries and organise expert meetings. We consider the regularly organised Eionet webinars on the topic of waste prevention and resource efficiency very useful.
- The CPCS is a member of the global network for Resource Efficient and Cleaner Production (RECPNet, www.recpnet.org). In addition, there is regional exchange of information through the Balkan network of RECP Centres (Macedonia, Albania, Montenegro, Croatia, Moldova and Serbia).

Policy instruments

Policy instruments commonly used for material resource efficiency

Regulatory instruments and economic/financial instruments are the type mainly applied in Serbia.

The framework of **economic instruments** to improve material resource efficiency include (<http://indicator.sepa.gov.rs/>):

- fees and taxes for:
 - the use of fishing areas,
 - ozone-depleting substances, emission of sulphur dioxide, nitrogen dioxide and particulate matter,
 - produced or disposed waste,
 - products that after use become special waste streams,
 - placing packaging on the market,
 - use of water,;
- subsidies for:
 - recycling industry (incentive funds are granted to enterprises who are dealing with recycling and the amount of funding depends on the quantity of waste the company has recycled or reused),
 - energy efficiency,
 - protection and improvement of forests.

Regulatory obligations

In the energy efficiency sector the main drivers are regulatory instruments, bearing in mind that they are not yet completely set up.

- The Law on Environmental Protection (http://www.paragraf.rs/propisi_download/zakon_o_zastiti_zivotne_sredine.pdf) sets out an integrated system of environmental protection comprising action plans, conditions and instruments for sustainable management and preservation of natural balance, integrity, diversity and quality, and conditions for the survival of living beings; aims to upgrade knowledge and raise awareness; and to promote access to information and public participation in decision-making.
- The Law on Packaging and Packaging Waste (http://www.paragraf.rs/propisi_download/zakon_o_ambalazi_i_ambalaznom_otpadu.pdf) has been adopted with some by-laws on specific types of waste. To provide an incentive to enterprises to reduce and or recycle industrial waste (hazardous and non-hazardous), in 2005 the government introduced a tax on the production of such waste by installations subject to the Law on Integrated Pollution Prevention and Control (IPPC).
- The Law on Integrated Prevention and Pollution Control (http://www.paragraf.rs/propisi/zakon_o_integrisanom_sprecavanju_i_kontroli_zagadjivanj_a_zivotne_sredine.html) stipulates that companies obliged to work under integrated permit, in the work process need to apply appropriate preventive measures.

Examples of good practice

Resource Efficiency Projects in Food Processing Industry

The CPCS in consortium with Cleaner Production Centres from Croatia and Ukraine and the Austrian consultancy company Stenum Ltd. won support for five resource and energy efficiency projects for the World Bank – International Finance Corporation, covering a Water Efficiency Audit in Frikom Serbia and production of frozen vegetables and ice cream products in Serbia.

The purpose of the projects was to develop mass and energy balances, to identify major areas of inefficient use of energy, raw materials, water, packaging materials and chemicals; to identify major areas of waste generation and other areas with potential to improve material and energy efficiency. As a final outcome, low-cost measures and cost-effective investment projects for improvements were identified.

Implementation of cleaner production in 10 IPPC production facilities within the electric power industry of Serbia

Measures include identification of possible changes in flows of raw materials, water, energy and waste and in production processes and any other factors that may contribute to reducing

environmental pollution, while increasing the plant's productivity and operational efficiency; and harmonising the operation of existing plants with the requirements of the IPPC directive and Serbian legislation and preparation of relevant action plans. Consultancy services provided by the Cleaner Production Centre of Serbia also include plans and measures for energy savings and carbon dioxide emission reduction and project monitoring.

Eco-profit projects in the towns of Pančevo and Čačak

These projects involve co-operation with local authorities on implementing cleaner production methodology in 15 companies from Pančevo (state petrochemical producer HIP Petrohemija, eight public utility companies and six private companies from different sectors) and seven companies from Čačak. Activities include visits to the selected companies for information gathering, review of existing data and preparation of resource and energy efficiency options; training of company representatives, local authority representatives and local consultants on cleaner production; controlling and benchmarking; material and energy flow analysis and energy efficiency and environmental legislation.

Implementation of cleaner production in 20 Serbian companies from different sectors

Implementation of cleaner production in 20 Serbian companies involves in-plant assessments; analysis of present practice; material and energy balance; definition of cleaner production options (technical, economic and environmental evaluation); and reporting and action planning for implementation of the identified options.

Sustainable tourism for rural development in Serbia

Twelve energy efficiency and alternative energy workshops have reached 300 individuals representing at least 100 different organisations, architecture and engineering firms, construction firms and public officials, providing training on energy efficiency and alternative energy technical matters and funding opportunities. In addition, 300 individuals representing at least 100 different tourism stakeholders have been trained in sustainable resource management through 12 workshops on sustainable resource management.

Targets and indicators

Targets for material resource efficiency

The National Energy Efficiency Action Plan defines a goal to reduce final energy consumption by 9% by 2018 compared to 2010.

In accordance with the Decision of the Ministerial Council of the Energy Community (EnC) of 18 October 2012 (D/2012/04/MC – EnC) about the implementation of Directive 2009/28/EC and amending Article 20 of the Treaty for establishing the Energy Community, there is a very demanding binding target for the Republic of Serbia of a 27% share of renewable energy sources in the country's gross final energy consumption in 2020, while in the transport sector, renewable energy sources should be 10%.

The Proposal for the Waste Management Strategy 2015-2030 suggest the following goals:

- reduction of biodegradable waste disposal to landfills by 25% by 2022, 50% by 2026 and by 65% by 2030;
- achieving at least 60% of reuse and recycling at least 55% of packaging waste by 2025;
- achieving at least 50% recycling of municipal waste by 2030 ;
- improvement of the system of management of specific waste streams (waste tires, used batteries and accumulators, waste oils, waste vehicles, WEEE) in order to achieve 4 kg per capita of separately collected WEEE by the end of 2019 and at least 45% of batteries and accumulators by the end of 2016.

Indicators to monitor use of materials and resource efficiency:

Serbian Environmental Protection Agency (SEPA) is responsible for the preparation of annual reports on the state of environment in the Republic of Serbia. Reports are based on the National List of Indicators (Rulebook on the national list of indicators of environmental protection (OG 37/11), <http://indicator.sepa.gov.rs/nacionalna-lista-indikatora>) and accessible to the public on SEPA's website (www.sepa.gov.rs). The National List of Indicators is a good basis to monitor the use of materials and resource efficiency:

- Regarding energy, indicators of monitoring progress towards increasing the share of energy from renewable sources and increasing energy efficiency are:
 - renewable energy in gross inland energy consumption;
 - renewable electricity;
 - energy intensity.
 - total primary energy consumption by fuel
 - final energy consumption by sector
- The indicator for monitoring the use of forests is:
 - forest management and consumption of timber (cubic metres).

- The indicator that shows whether there has been a change in land use due to the production of biomass for energy purposes is:
 - land take (unit is ha under cultivation).
- The indicators relate to water management:
 - the water exploitation index (WEI)
 - serbian water quality index (SWQI)
 - water losses (in transport)
- The indicators below relate to waste management:
 - the total amount of waste produced;
 - production waste (municipal, industrial, hazardous);
 - quantity of packaging and packaging waste;
 - quantities of specific waste streams;
 - the amount of waste from facilities that provide healthcare services, including pharmaceutical waste;
 - authorised waste management companies;
 - the amount of waste collected, reused/recycled/recovered and sent to landfill.

Indicators in the Spatial Plan of the Republic of Serbia 2010–2020 (Official Letter of RS, No. 88/10) include:

- energy efficiency in industry;
- renewable energy in total energy production.

The Cleaner Production Centre of Serbia uses enterprise-level indicators for resource productivity and pollution Intensity

(https://www.unido.org/fileadmin/user_media/Services/Green_Industry/Enterprise_Level_Indicators_for_Resource_Productivity_and%20Pollution_Intensity.pdf).

In line with EU regulation on environmental accounts (No 691/2011), the Statistical Office of the Republic of Serbia (SORS) compiles data on economy-wide material flow accounts (EW-MFA). As of 2014 SORS annually publishes, in the form of a statistical release, nationally aggregated EW-MFA calculated by using Eurostat methodology. Data is presented on the following link:

<http://webrzs.stat.gov.rs/WebSite/Public/PageView.aspx?pKey=63>.

In addition, a SORS publication – Material flow indicators of the Republic of Serbia, 2001–2011 (October 2013) – provides methodology explanations

(http://webrzs.stat.gov.rs/WebSite/repository/documents/00/01/15/95/Indikatori_materijalnih_tokova_u_RS_2001-2011.pdf). EW-MFA is the basis for the calculation of material flows.

The Serbian headline indicators on material resources use are domestic material consumption (DMC), its breakdown by resource type (biomass, fossil fuels, non-metallic minerals and ore metals), in absolute terms and per person, and resource productivity (GDP/DMC).

Optional questions

Recent policy developments concerning natural resources in the broader sense of the term

Sustainable development of the Republic of Serbia prescribes certain objectives for resources under the European Landscape Convention (ELC).

- Conservation of biological and landscape diversity, which implies rational management and protection of natural values; planning economic activities in a manner to ensure the rational use of non-renewable natural resources and the sustainable use of renewable natural resources.
- Balanced and stable economic growth which would have as little impact as possible on environmental degradation and waste generation. Growth must be accompanied by a change in unsustainable behaviour patterns in households and in the public and private sectors.
- Stable energy supply, with the necessary reduction of adverse effects on the environment by increasing the share of renewable energy and implementation of energy efficiency measures in all sectors.
- Sustainable management of the Danube and Sava, and conservation of freshwater ecosystems, implying reduced input of waste material and foreign micro-organisms and pathogens into drinking water from all pollution sources.

Which way should resource efficiency go in the future?

Resource efficiency must be mainstreamed in national policies and regulations. As a voluntary initiative, it has so far failed to decouple economic growth and the well-being of people from resource use. In addition, the pricing of energy, water and other raw materials must include real cost, calculated, for example, using life-cycle assessment.

The main focus should be on promoting sustainable consumption patterns using:

- regulatory instruments;
- economic instruments (including the special category of green public procurement);
- communication-based instruments (including the special category of labelling);
- voluntary and procedural instruments.

Reflections on the country's trends in the use of materials and resource efficiency

The development of Serbian DMC per person does not follow the European pattern, it is already on the rise until 2004, and since 2004 slightly vary in individual years, hovering around 14.5 tonnes and 15.2 tonnes. In 2014 in Serbia the level is 11% above the EU average.

Resource productivity increased by 40% between 2001 and 2014, from EUR 0.21 per kilogram in 2001 to EUR 0.29 in 2014. Although there is an upward trend in resource productivity in Serbia, it is still much below the EU-28 average of EUR 1.98 per kilogram in 2014.

This development seems to be the consequence of several underlying trends:

- The economic development is characterized by a slowed growth in the previous decades, so GDP is still low even today;
- Fossil energy materials and biomass represent the majority of materials extracted in Serbia. The use of biomass and fossil energy sources slightly vary. Average shares 39.4% and 31,5% respectively.
- Total petroleum products are dominant in primary energy consumption, with share of 34% in 2014 compared to the EU-28 average of 39.8%. Electrical energy follow with share of 28.7%, and renewable energies with 13.2% which is larger share in primary energy than in the EU-28 where is 7.7%. Gas contributes with 9.2%. For energy production waste (non-renewable) is not used.

There is considerable potential for reducing resource consumption. Such potential has already been identified to increase the use of renewable energy and energy efficiency, as well as recycling and reuse of waste. Opportunities exist in changing the economic structure, the more intensive development of hi-tech manufacturing, services sector, food industry, and the construction activity.