

1. *Socio-economic background*

Demographic and economic processes have a measurable impact on the state of the environment. The previous environmental performance review was published in 2009, before the onset of the economic crisis. The economic downturn restrained GDP growth and subdued production, leading to subsistence problems among the population. Hard times eased environmental pressures to some extent: as consumption and production decreased, so did environmental pressures, which, however, have started to increase again as the economy recovers. The challenge is how to satisfy people's consumption needs without placing an excessive burden on the environment, with less waste generation and more sustainable use of resources. Demographic processes, such as urban sprawl, have increased the number of vehicles, and new areas of settlement need new and upgraded infrastructures. Noteworthy progress has been made in the field of energy – a higher take-up of renewable energy has reduced environmental impact quite well. Nevertheless, the current fossil fuel-based energy economy still has a significant impact on the environment and generates large volumes of greenhouse gases. Estonia has the potential for more sustainable use of resources.

1.1 Population

While the world's population is growing rapidly, in Estonia, as in other European countries, the trend is the opposite – population growth is negative.

As of 2013, Estonia was home to 1,286,540 people. Compared to 2009 – the year of publication of the previous environmental performance review – Estonia's population has decreased by 54,395 people. The main reasons for the decline are outward migration and low birth rates. While the birth rate in 2010 was positive for the first time in 20 years, the 14,054 live births and 15,514 deaths registered in Estonia in 2012 mean that the birth rate has turned around again and the downward trend is continuing.

Annual net migration has been negative over the last decade; the loss of population due to outward migration was the smallest in the period 2007–2009. Migration intensified again after 2009 and 2012 saw the highest negative migration rate of the last decade – 6,629 more people left the country than arrived. The outward migration of women has increased and therefore, the number of women in the fertile age groups is falling. The number of births is also decreasing as the generation born in the first years after the restoration of independence, when the birth rate was low, is reaching the child-bearing age. The people most likely to migrate are 20–44 years old, with Finland and UK continuing to be the main target countries. Migrants into Estonia came mainly from Finland and Russia.

The main reason for migration is the slow recovery of the economy – it has yet to reach the pre-crisis level. People are opting for countries that offer better facilities and opportunities. This is also demonstrated by the fact that the number of long-term unemployed has risen. These trends cause changes in the age structure of the Estonian population – the share of dependents is growing year on year. The number of young people entering the labour market is smaller than the number of those leaving – the proportion of young people in the working-age population is decreasing.

Estonia is a sparsely populated country with an average of 31 people per square kilometre (way below the EU average – 117 people per square kilometre). About 30% of the Estonian population live in Tallinn, while 42% live in the region of the capital. According to the 2011 census figures, only Harju and Tartu counties have enjoyed an increase in population. There is a tendency towards greater concentration around large cities. In particular, there has been an increase in the population of the municipalities surrounding Tallinn. Areas already sparsely populated are losing people and have become even less densely populated.

Urban sprawl has led to an increased number of people commuting between home and work, which means that we need thought-through regional planning, environmentally friendly and efficient transport solutions and remote work possibilities.

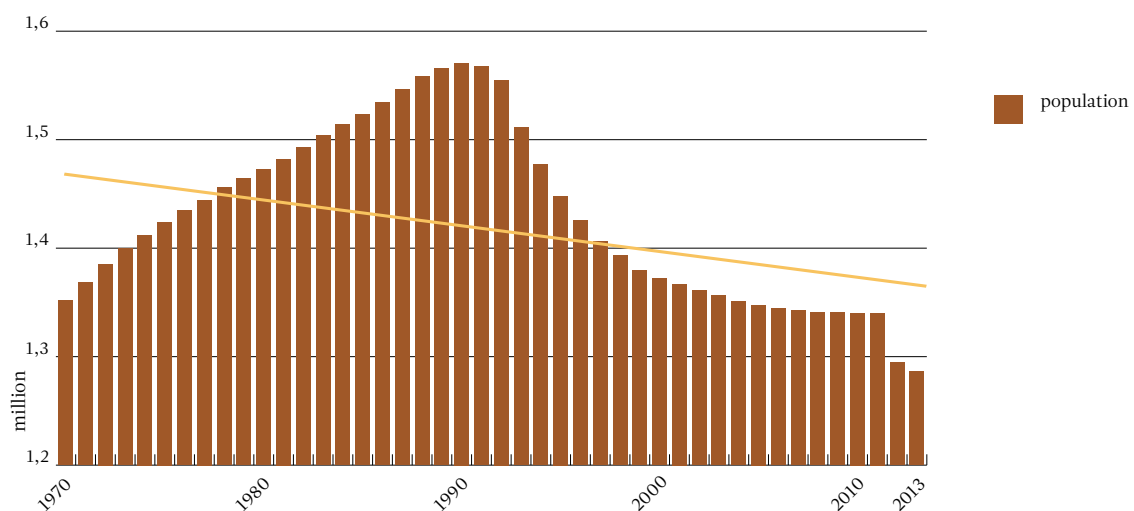


Figure 1.1. Population of Estonia in 1970–2012. Note: Figures for 2000–2012 and 2012*–2013 have been calculated based on different basic data (the 2000 and 2011 censuses) and are, therefore, not entirely comparable. Data for 2000–2013 will be available in the 1st quarter of 2014. Data: Statistics Estonia.

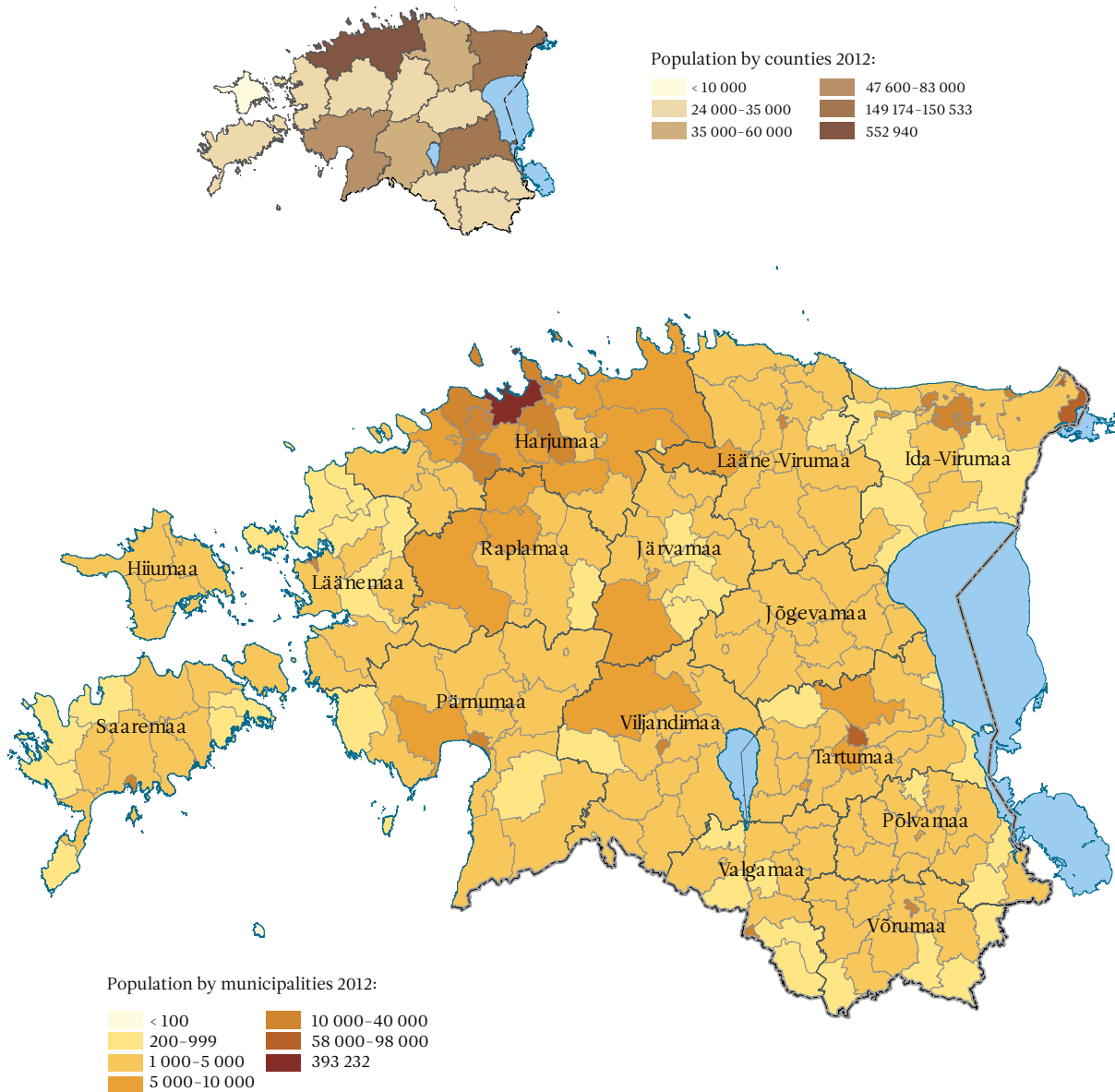


Figure 1.2. Population by municipalities and counties, 2012. Data: Statistics Estonia.

Sources:

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1.2 ECONOMY

1.2.1 Gross Domestic Product

In the winter of 2008–2009, the world was hit by a severe economic crisis that mainly affected the developed countries. In the European Union, gross domestic product (GDP) fell by 4.2% in just a year. In particular, the Baltic countries, including Estonia, were badly hit due to the preceding overheating of the economy, real estate boom and a decline in domestic demand. Estonia experienced a dramatic drop in GDP of 14.1%. Diminished domestic and foreign demand also contributed to the economic slowdown. Domestic demand was affected by a difficult situation in the labour market which led to more cautious consumption behaviour.

In 2010, the economy started to show tentative signs of recovery, with GDP rising by 3.1%. The increase in GDP was largely spurred by the low debt of Estonia as well as by the rapid growth in the added value of the processing industry. The increase in GDP notwithstanding, early 2010 witnessed a dramatic decline in jobs, which had a negative impact on people's livelihoods and consumption patterns.

The global economic recovery continued to gather pace in 2011. Among the EU member states, there are examples of both economic growth and decline. Of the Baltic countries, Estonia's GDP (taking into account changes in prices) grew fastest (7.6%) – way above the EU average. The improved labour market situation was also reflected in consumption. In 2012, economic growth continued in Estonia (3.2%), while in the EU as a whole the economy contracted by 0.3%.

The first quarter of 2013, however, saw growth slow down by 1% as compared to year ago. The added value of the construction sector – a driving force behind the economic growth in 2012 – slumped sharply as the revenues from CO₂ trading, used to improve energy efficiency, were exhausted and construction volumes shrank.

The OECD Economic Outlook projects growth of 1.5% in 2013 and 3.6% in 2014 for Estonia. The current slackening of economic growth is considered to be temporary and 3 to 4% growth is predicted.

However, when taking into account differences in prices, Estonia ranked the seventh-last among the 27 EU member states in 2011, despite the rapid GDP growth. In 2011, Estonia's GDP per capita was 67% of the EU average, which means that the standard of living is low in Estonia.

However, gross domestic product is not the indicator of well-being, as it only includes economic indicators and provides no information about the social sphere or the environment. OECD has developed various multidimensional indicators for measuring well-being. In 2011, the Better Life Index was introduced which allows users to compare well-being across countries based on 11 topics. According to the Better Life Index, Estonia's GDP is growing at a fast rate, yet people's incomes remain considerably lower than in other countries. As regards the indicators of health, social inclusion and healthcare, there is still plenty of room for development.

Moreover, Estonia has not fully ratified the European Social Charter, a Council of Europe treaty that sets out people's social rights and freedoms. Although Estonia ratified the treaty in 2000, certain provisions have not been accepted. One of them is Article 23 which states that all elderly persons have the right to social protection. Another is Article 31 (3), according to which everyone has the right to housing. According to Article 31, states are required to provide housing for people who do not have sufficient means to pay for it.

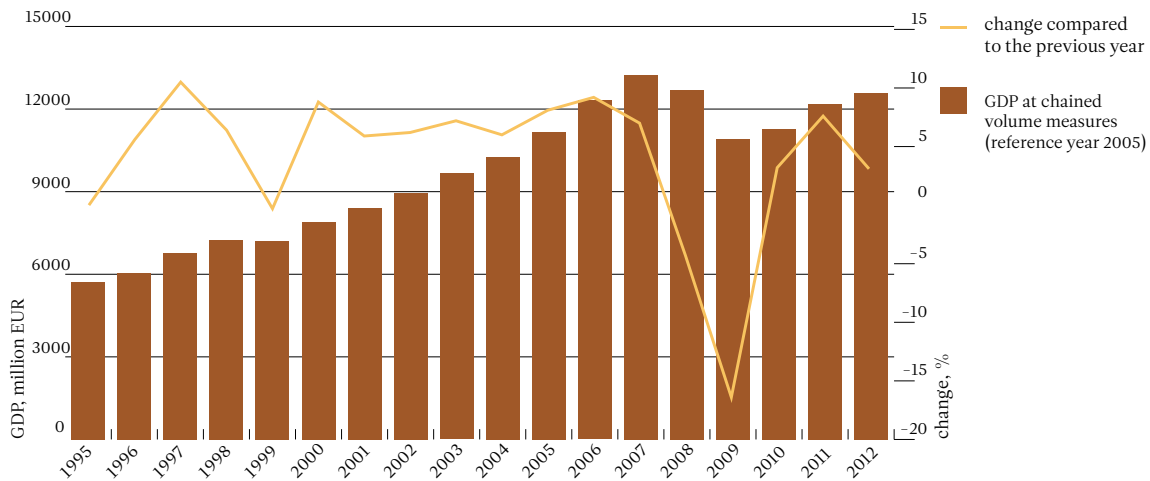


Figure 1.3. Gross domestic product and change compared to previous year. Data: Statistics Estonia.

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1.2.2 Energy production and consumption

In Estonia, energy supply comes from local sources – mainly from oil shale, 90% of which is used for generating electricity. Other local energy sources are peat and wood; natural gas, coal, liquid fuels and coke are imported from other countries. A large portion of electricity generated from oil shale is exported; therefore, any changes in foreign market demand are reflected in the primary energy balance.

The financial crisis reduced the demand for electricity. As the economy began to recover in 2010, demand for electricity started to pick up. Recovery was boosted, besides a growing economy, by the opening of OCT electricity markets and the launch of exchanges for electricity trading. In 2010, energy production was half as much again as in 2009, reaching the level of 2007. The production of all types of fuel and energy increased in 2010. Oil shale production went up as the export of electricity and greater demand from local boiler houses increased. Wood pellets have become an important type of fuel over the last five years. The majority of the pellets produced are exported. The production of peat increased by 10% in 2010 as compared with 2009. However, the production of peat dropped significantly due to the unfavourable weather conditions in 2012. By and large, the production of energy remained stable in recent years.

The extensive use of oil shale has guaranteed the energy independence of Estonia (about one third of energy sources are imported, while the EU average is two thirds), but the current energy economy based on fossil fuels places a heavy burden on the environment. The oil shale industry produces a large amount of waste and greenhouse gases. Major impacts are discussed in chapters 4 “Waste”, 5 “Ambient air” and 2.5 “Natural resources”.

A useful adjunct to oil shale-based power generation is renewable energy, the share of which is increasing year on year (Figure 1.4). The main sources of renewable energy are wind and water as well as biomass. In recent years, the production of hydroelectricity has been stable, if modest compared to wind and bioenergy. The implementation of combined heat and power plants operating on wood chips has given a major boost to the production of renewable energy. Although the production of renewable energy has increased (Figure 1.5), it is still relatively low compared to other EU member states.

The share of renewable energy in total energy consumption in Estonia is 25.9% (Figure 1.5). The proportion of renewable energy is growing in accordance with the energy objectives of the EU and Estonia. The EU objective is to achieve a 20% share of renewable energy in the final energy consumption. The Estonian Environmental Strategy 2030 also foresees the more extensive introduction of renewable energy and combined heat and power plants. By 2020, the share of renewable energy should reach 25% of final consumption.

The production of electricity from renewable energy sources is less profitable than from conventional sources. Therefore, the production of renewable energy should be supported in order to achieve the objectives pursued. The support is intended to replace fossil fuels gradually by renewable energy sources and to facilitate the necessary investment in generation capacities.

In 2010, amendments to the Electricity Market Act were enforced, setting the rates of support for renewable energy. The generation of electricity from renewable sources, which started to grow dramatically in 2007, has exceeded all expectations. However, this caused renewable energy fees to go up, which resulted in a significant increase in electricity prices for consumers. Therefore, the government decided to amend the support scheme. That was, however, contrary to the principle of legitimate expectation and detrimental to investors and renewable energy producers. To this day, no agreement that would satisfy all stakeholders has been reached.

Supporting renewable energy is an important issue that has to be solved by taking into account both environmental aspects and the interests of different stakeholders as well as the country’s investment climate. We need to agree on robust principles that need to be observed in this area of the economy.

In Estonia, there is also great potential for saving energy. The energy intensity of the Estonian economy (total energy consumption per unit of GDP) is more than triple the EU average and energy consumption by households is also high. In this context, it would be helpful to increase the energy efficiency of buildings.

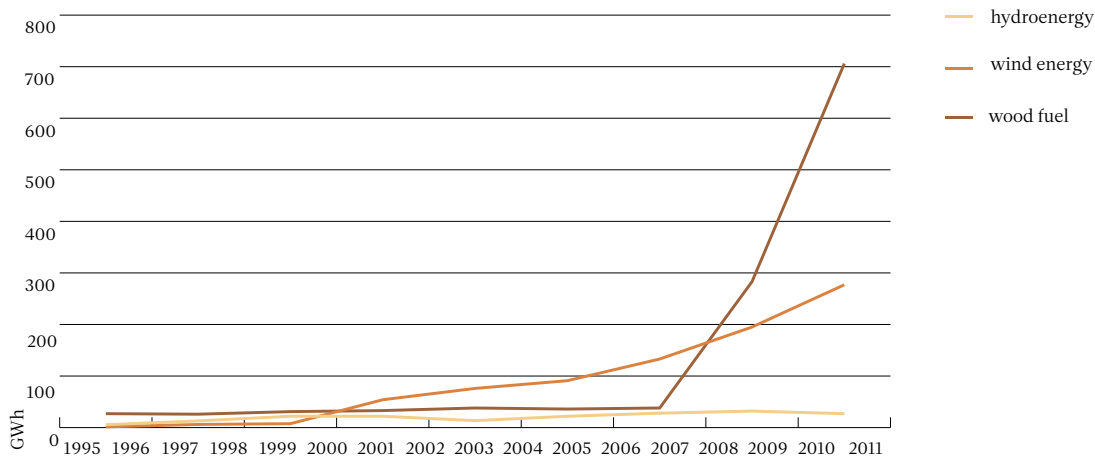


Figure 1.4. Production of electricity from renewable energy sources in 2002–2010. Data: Statistics Estonia.

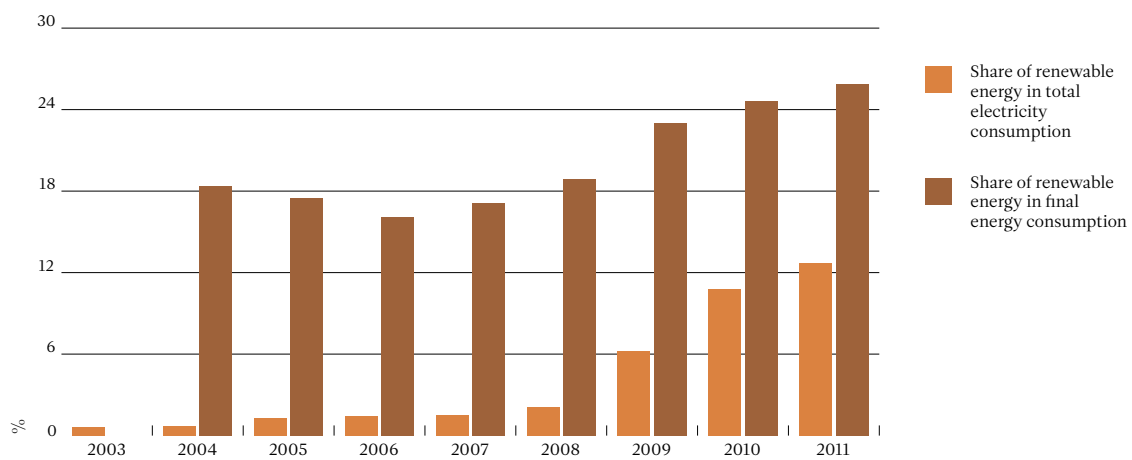


Figure 1.5. Share of renewable energy in total electricity consumption and final consumption in 2003–2011. Data: Statistics Estonia.

Sources:

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1.2.3 Industry

The Estonian industrial sector started to feel the effect of the global downturn in 2008, and by 2009, production volumes had fallen considerably (Figure 1.6). Demand plummeted in both the domestic and foreign markets. The processing industry – the largest industrial sector in Estonia – was worst hit. In that sector the production volumes decreased by nearly one quarter compared to 2008. While production volumes decreased across the EU, nowhere was the drop as abrupt as in Estonia. Stalled construction activities had a major impact on the sale of construction materials in the relevant sector of the processing industry (40%). The sales also dropped in the metal, rubber, plastic and wood industries. Only the food industry was able to maintain stability as food products are essential goods and the industry is mainly supplying the domestic market.

In the wake of the crisis, production volumes were back up and the recovery was the fastest in the EU. The growth was spurred by increased exports while the internal market remained relatively inactive due to increased unemployment rates and dwindling incomes. The nearly triple growth in 2010, as compared to 2009, was most evident in the electronics and optical equipment sectors. Demand also rose in the wood and paper industries as well as in the metal industry. The economic upswing continued in 2011 and industrial output increased by nearly one fifth compared to the previous year. Domestic demand started to recover similarly to foreign demand. In the first three quarters of 2012, the construction sector contributed most to the economic growth. The decreased added value of the real estate sector had a negative effect on economic growth in 2012. The added value of the mining industry and real estate sector continued to fall in the first quarter of 2013. In the first quarter, the main driver of the economic growth was the increasing added value of the information and communications sector as well as the trade and industry sectors.

Industry has a significant impact on the environment. To alleviate that impact, innovative solutions should be considered to improve the efficiency of manufacturing processes, while taking care that natural resources are used in a reasonable manner (see Chapter 1.2.7).

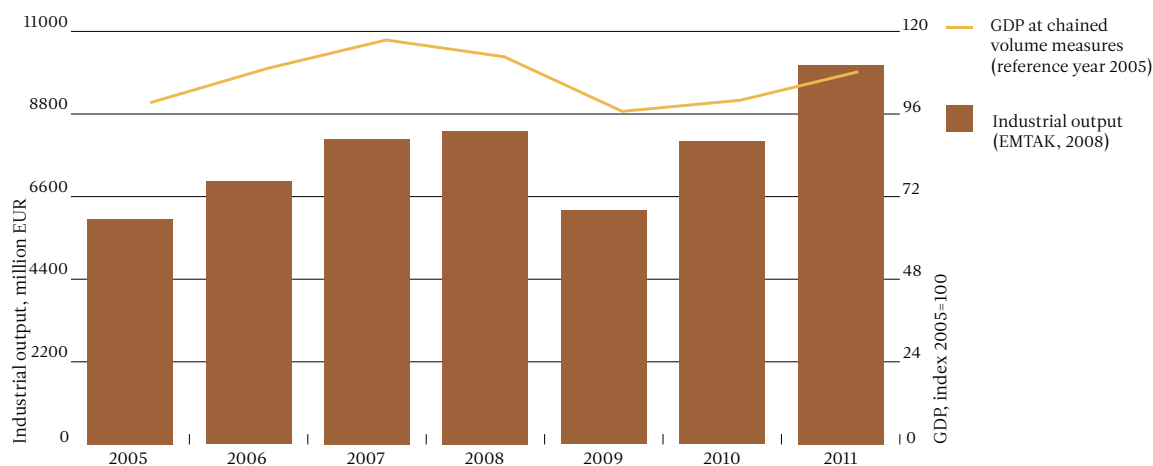


Figure 1.6. Industrial output and GDP in 2005–2011. Data: Statistics Estonia.

Sources:

- Eesti statistika aastaraamat 2010. Statistical Yearbook of Estonia 2010. (2010). /ed. K. Pöder. Tallinn: Statistics Estonia.
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1.2.4 Agriculture

Agriculture has always had an important role in Estonia. The most important agricultural activity in Estonia is livestock farming, of which dairy farming is most prominent. The most important crops grown in Estonia are cereal crops and oil-seed crops, potatoes and vegetables.

Agriculture has traditionally had a leading role in rural development. Rural development is supported by measures of the Estonian Rural Development Plan (RDP) 2007–2013 (Axes 1, 2, 3 and the Leader-axis), implemented in order to improve the competitiveness of agricultural producers, maintain the good status of the environment and diversify rural economy. The following activities have been supported under Axis 2 of RDP: support for grazing animals (GAS), Natura 2000 support for arable land, agri-environment measures (AEM), including environmentally friendly farming support (EFF) (in the last period: clean production (CP)), organic production (OP), support for the management of semi-natural biotic community (MSN), etc. Single area payments (SAP) have been granted since 2004 for maintaining land in good agricultural condition.

Estonia has 19,613 agricultural households which have more than 1 ha of agricultural land or produce agricultural produce mainly for sale. Of them, 8,074 farms are such that they can be considered professional agricultural producers. Estonian agriculture is characterised by the concentration of production at large agricultural holdings and by a big share of rental land. Agricultural holdings are in possession of about 940,000 ha of agricultural land, 55% of which is held by 900 larger holdings. 49% of all households were engaged in livestock farming; 83% of livestock farming was concentrated at large agricultural producers. In 2011, crop production

accounted for 46% and livestock production for 54% of total agricultural production. A land use analysis revealed that the average area per applicant for single area payments (SAP) was 54 ha although there is much variation across counties.

Agricultural use of areas for which area-related aid was granted

According to the evaluation report prepared by the Agricultural Research Centre in 2012 on the RDP Axis 2 measures, the total area for which single area payments (SAP) were granted was 907,804 ha; the area for which agri-environmental support (AEM) was granted was 582,774 ha (including clean production/environmentally friendly farming areas, organic production areas, areas of the management of semi-natural biotic community and areas on which the local rye variety “Sangaste” is grown). In 2012, the area for which agricultural producers had applied for environmental support accounted for about 63% of the total area of single area payments; the areas of organic farming accounted for 14.4% of the area for which single area payments were granted (Figure 1.7).

The proportion of areas for which agri-environmental support was granted in the total SAP area differed significantly from county to county, being the largest in Hiiu County and smallest in Harju County. It should be borne in mind, however, that the AEM support areas do not include the permanent grasslands of producers who had applied for environmentally friendly farming support as these areas are not eligible for EFF support. The largest EFF support areas were in Lääne-Viru, Järva, Tartu and Põlva counties. The proportion of EFF support was relatively smaller in regions of extensive farming (Saare, Lääne, Hiiu and Harju counties), which have large areas for which organic

production support and support for the management of semi-natural biotic communities is granted.

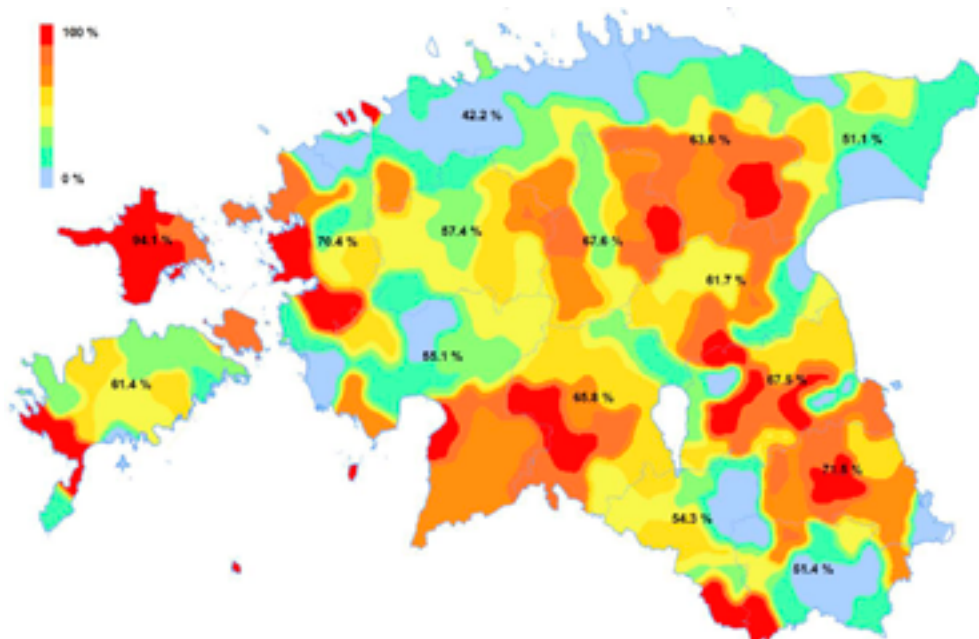


Figure 1.7. Proportion of AEM areas in the total SAP area. By counties and within counties in 2012 (PRIA data of 25 January 2013).

Structure of arable crops

The total area for which single area payments were granted in 2012 included 282,917 ha of permanent grassland and 622,022 ha of arable land. An analysis of land use (permanent grassland, arable crops and temporary grassland) by main types of support indicates that there are significant differences (Figure 1.8). The structure of arable crops grown in SAP and EFF/CP support areas was rather similar, characterised in particular by a bigger share of cereal crops as well as rape and other oil crops (> 40%) and a smaller proportion of permanent grassland (for producers who were granted EFF/CO support, permanent grasslands are included, which, though eligible for support, are managed by producers applying environmentally friendly farming methods) compared to producers who received aid for organic farming. While the shares of arable land and permanent grassland were nearly equal in the case of producers who had received aid for organic farming, the producers who had received EFF support had about 5.5 times larger areas of arable land as compared to permanent grassland areas. The share of cereal crops in crop rotation was slightly more than 50% of the total area of arable crops in the case of EFF support producers; for SAP producers, this indicator was less than 50% and in the case of producers who had received aid for organic farming it was 37%. The shares of rape and other similar crops in crop rotation also differed – less than 5% in the case of aid for organic farming and 14% and 16% in the case of producers who had received single area payments and those who had received aid for environmentally friendly farming, respectively. In the case of producers who had received aid for organic farming legume crops constituted more than 40% in crop rotation; in the case of other types of support the share of legume crops was 25–26%. Smaller groups (e.g. permanent crops, potatoes, vegetables, winter fallow) constituted more than 4% in 2012 in the

case of producers who had received aid for organic farming, 2% in the case of single area payment recipients and about 1% in the case of producers who had been granted aid for environmentally friendly farming.

Legume crops have the ability of fixing nitrogen and are an important source of organic matter. The area of legume crops has increased mainly on account of herbaceous grasses and cereal crops. The proportion of legume crops and winter fallow is largest in the case of producers who received aid for organic farming.

Livestock farming

As of 31 December 2012, the Estonian Agricultural Registers and Information Board (PRIA) register of agricultural animals included 248,470 bovine animals, of them 96,186 dairy cows (kept by 4,423 cattle farmers); 76,994 sheep (kept by 1,963 sheep farmers) and 3,836 goats (kept by 609 farmers). The register also included 10,396 horses. Throughout history, milk has been the most important agricultural produce in Estonia. While dairy cattle farming is prevalent in Järva, Lääne-Viru and Pärnu counties, beef cattle are mainly raised in Lääne and Saare counties. The biggest number of goats (925 animals) were kept in Pärnu county and the biggest number of sheep (13,875 animals) in Saare county.

From the perspective of genetic diversity and cultural heritage it is important to ensure the preservation of local endangered breeds. The endangered breeds in Estonia are the Estonian Native Horse, the Estonian Heavy Draught Horse, the Estonian Native Cattle, the Estonian Quail and the Tori Horse (only the universal type of the Tori horse is considered to be an endangered breed). The farming of these breeds (except for the Estonian Quail) is supported under RDP. In 2012, support was granted for raising 653 Estonian Native Cattle, 236 Estonian Heavy Draught Horses, 1,623 Estonian Native Horses and 472 Tori Horses. We can

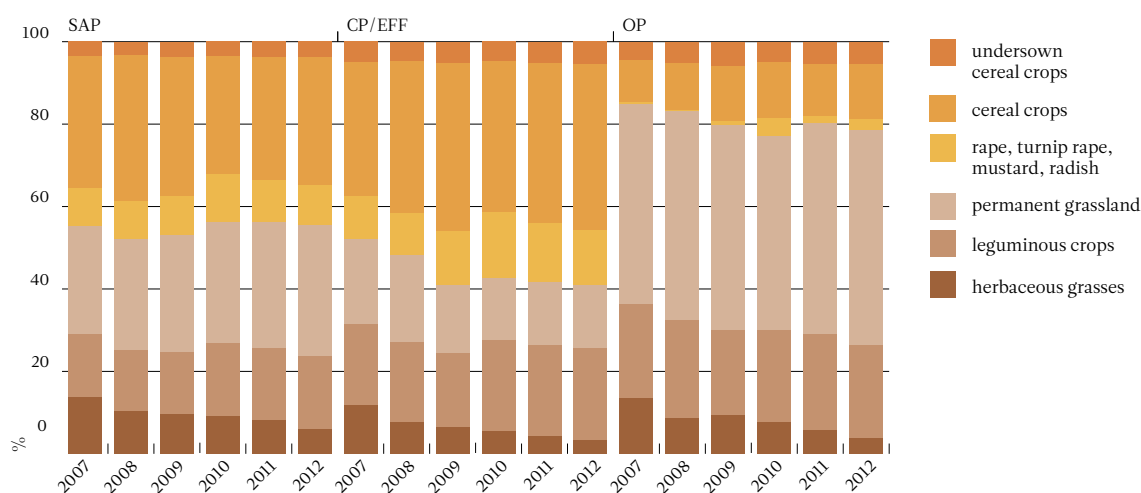


Figure 1.8. Structure of main groups of crop on permanent grassland and arable land by types of support (SAP, EFF/CP and OP) in 2007–2012. Data: PRIA.

conclude that the measure has achieved its purpose and the number of animals of endangered breeds has grown year on year. Although the numbers of supported Estonian Native Cattle and the Tori Horse have dropped compared to the beginning of the period in 2007 (8% and 2% respectively), the numbers of supported Estonian Native Horse and the Estonian Heavy Draught Horse have increased (40% and 71% respectively).

Grazing is important for ensuring animal well-being and maintaining and increasing biodiversity. Therefore, grazing is supported under the RDP measure “Support for grazing animals”. A survey on grazing, carried out by the Agricultural Research Centre in 2011–2012 among livestock farmers of Järva, Pärnu, Lääne-Viru and Lääne counties, showed that slightly more than half (52%) of all bovine animals in the sample were grazing. Grazing is a requirement of organic livestock farming.

Organic farming in Estonia

Organic farming is a form of agriculture – beneficial to both nature and human health – that is growing in popularity across the world, as well as in Europe and Estonia.

In 2012, the Organic Farming Register of the Estonian Agricultural Board included 1,478 organic producers and 144,148 ha organic land. In 2012, about 86% of that area received organic farming support under RDP.

According to Statistics Estonia, organic land constitutes about 15% of the total agricultural land in Estonia. According to the Agricultural Board, in 2012, Võru County boasted the largest number of organic agricultural producers (171 producers), followed by Saare county (159) and Tartu county (148). According to the Organic Farming Register of the Estonian Agricultural Board, most of the total organic farming area was permanent grassland (42%), 23% was temporary grassland and 12% natural grassland. Cereal crops were grown on 16% of the total

organic land in Estonia. The large area of grassland (77%) helps to maintain and increase the humus content in soil as well as improve the soil structure, i.e. maintain and improve the fertility of soil as well as prevent nutrient leaching. The big proportion of grassland in organic farming has a favourable effect on grassland-nesting birds, offering better feeding and nesting conditions. Analysis conducted within the ongoing evaluation of Axis 2 of RDP and concerning the bird-related indicators in Central and South Estonian monitoring regions showed a clear trend: in the case of all but two of the producers who had received organic farming support the indicators related to birdlife were better than in the case of those producers who had received other types of support. The analysis also suggested that organic farmers ensured better and more diverse feeding grounds for bumblebees than ordinary farms. This is a prerequisite for the preservation of bumblebees and other pollinating insects on the agricultural landscape.

In 2012, organic livestock farming was dominated by sheep farming (48,314 animals), followed by bovine animals (31,431) and poultry (30,648). The number of organically raised horses was over 2000 and the number of goats and pigs slightly more than 1000. There were also 864 organic bee colonies. Although the major part of organic land is grassland, the proportion of animals kept organically is small. This means that manure production is insufficient for restoring the nutrient balance of the total organic land. A small number of livestock compared to the total area of organic grassland significantly reduces the share of organic animal products.

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1.2.5 Transport

Transport enables people to move and carry goods over land and water and by air, and is essential for socio-economic development.

The number of vehicles, in particular passenger cars has grown rapidly over recent years (Figure 1.9). Over the past five years, the number of passenger cars registered in the traffic register has increased by 50,000, while the number of buses and lorries has remained stable. While in 1990 there were just 154 cars per 1,000 people and 321 by 2003, that number reached 428 cars per 1,000 people by 2011. The increased use of cars is facilitated by numerous factors: economic growth, consumption boom, urban sprawl, inefficient public transport systems in towns and cities and in rural areas in particular, lack of jobs in rural areas and the resulting commuting between countryside and cities.

The majority (60–70%) of vehicles registered in the traffic register are more than 10 years old. However, the fleet of vehicles is getting newer: the proportion of old cars is decreasing and that of new cars increasing. While in 2005 the share of newer cars (up to 10 years old) was 32%, in 2012 it reached 38%.

Of the total number of motor vehicles, 67% run on petrol and 33% on diesel fuel, while larger vehicles that consume more fuel, such as busses and lorries, run mainly on diesel fuel. Vehicles that run on gas or electricity represent only a marginal part of the total fleet, i.e. about 0.02%.

Passenger and freight transport have steadily increased in the period 2002–2007. While the economic downturn of 2008–2009 put a damper on the growth, the figures have started to pick up again since 2010 (Figure 1.10).

These changes in the Estonian economy are directly reflected in the volume of traffic. While in 1998–2007 the volume of traffic was growing steadily by 6–10% per year on average, the period of economic slowdown 2008–2010 saw the traffic volumes drop. From 2011, the traffic volumes have been on the increase again. According to the Estonian Road Administration, traffic increased in 2011 by 0.5% compared to 2010.

Road transport pollutes the air and soil, creates noise and disrupts ecosystems. Road construction can destroy or fragment habitats. Road transport is one of the biggest sources of air pollution, besides the energy sector. Although the number of vehicles has grown, improved fuel quality, use of catalytic converters and more efficient motor vehicles have helped to reduce the amounts of emissions (CO, CO₂, NO_x) and heavy metals (lead in particular).

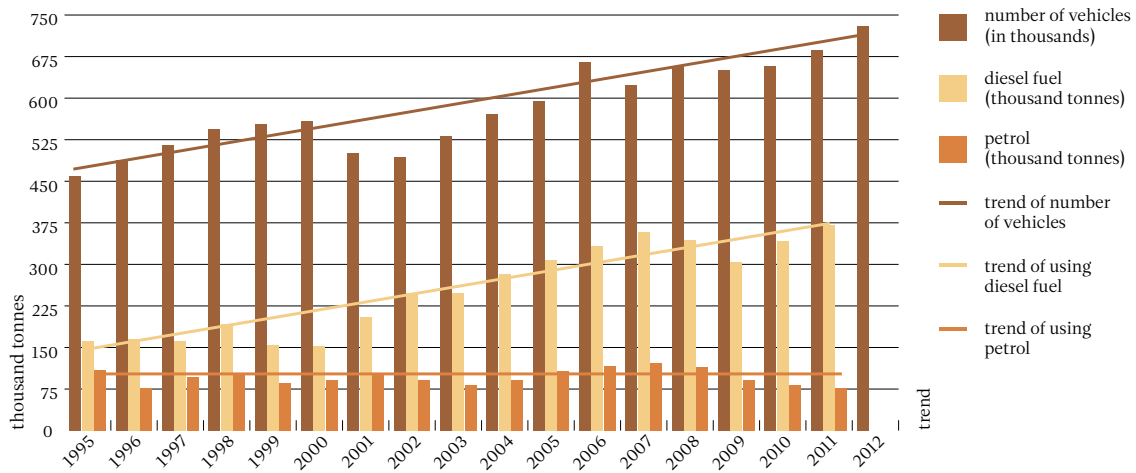


Figure 1.9. Number of registered motor vehicles, use of petrol and diesel fuel in road transport. Note: The number of vehicles decreased in 2001 as all vehicles not re-registered by 1 July 2001 were omitted from calculations in the course of the reorganisation of the Motor Vehicle Registry database. Data: Road Administration; Statistics Estonia.

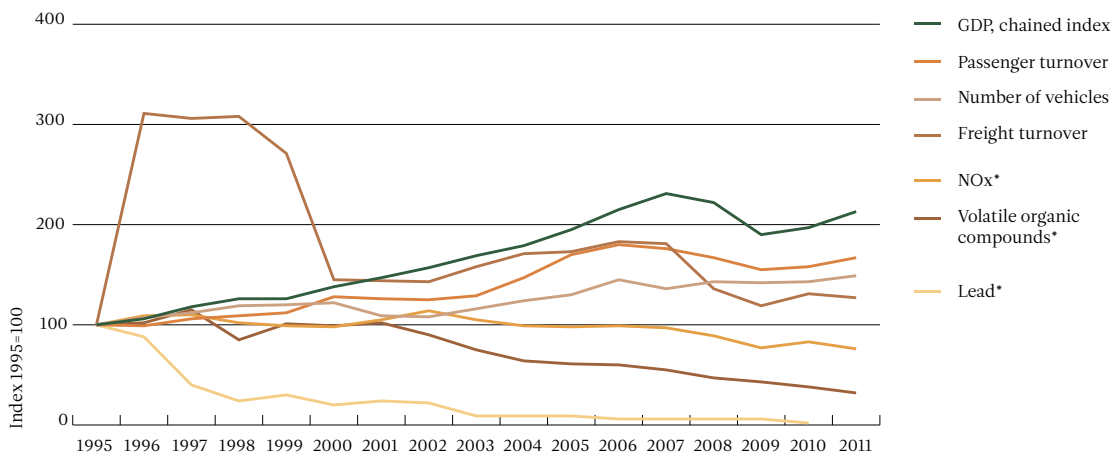


Figure 1.10. Transport and the environment. Note: *from mobile sources of pollution. Data: Statistics Estonia; ESTEA (the Estonian Environmental Agency).

1.2.6 Tourism

Tourism as an industry is growing rapidly throughout the world as the world population is increasing and living standards are improving. Tourism is closely linked to other industries, such as transport, accommodation, rural life, nature conservation, trade and regional development. The main attractions in Estonia are its cultural heritage, traditional lifestyle and hospitality.

The financial crisis had a widespread impact on the tourism sector across the world. In 2009, the number of overnight trips to foreign countries fell worldwide by 4.2% and in Europe by 5.6%.

The impact of the crisis was felt most in domestic tourism. In 2009, the number of domestic overnight stays decreased by 13.7% as compared to 2008 (Figure 1.11).

According to the World Tourism Organization, the recovery of international tourism in 2010 was also reflected in Estonia – local hotels and similar businesses accommodated 2.4 million domestic and foreign tourists in 2010 or 12% more than a year ago. This growth was partially due to the low levels of 2009.

The recovery of the tourism sector continued in subsequent years. The increase in the number of foreign tourists in 2011 was related to the overall improvement of the economic situation and the growth of tourism throughout the world, the launch of new flight services from Tallinn Airport, the active marketing activities of both the public and private sectors, the introduction of novel recreational opportunities and sights as well as the events organised in Tallinn as the European cultural capital and the related media coverage. While the number of domestic and foreign tourists at Estonian hotels and other accommodation was 2.7 million in 2011, the number was 2.8 million customers in 2012.

The development objectives in the tourism sector are set out in the National Development Plan for Tourism. The National Development Plan for Tourism 2014–2020 is based, as was the previous development plan for 2007–2013, on the principles of sustainable development, designed to ensure the preservation of cultural heritage and natural environment. National priorities are the following: ensuring accessibility, increasing awareness of Estonia as a travel destination, developing regional attraction centres and cooperation networks, improving the quality of products and services. A prerequisite for sustainable development of the tourism sector is the implementation of the principles of sustainable tourism. Sustainable tourism is considered to be a developing industry – people are willing to pay more for sustainable services and consider sustainable options.

Nature tourism is a way to enjoy the local flora and fauna without harming the natural environment. According to the World Tourism Organization, nature tourism is growing six times faster than any other tourism sector. Nature tourism is about observing and appreciating wildlife and nature. In a narrower sense, nature tourism re-

fers to tours to specific locations in order to observe and/or take photographs of certain objects of nature/wildlife (e.g. birds, plants, protection areas, etc.). Nature tourism in a broader sense, also known as nature-based tourism, refers to any activity or travel experience with a focus on nature (observation of nature, sailing, horseback riding, orienteering, etc.). Ecotourism – a special type of sustainable tourism – is defined as responsible travel to natural areas in a manner that supports the preservation of natural and cultural heritage and improves the well-being of the local people.

Estonia has great potential for nature tourism. We have diverse landscapes with marshes and bogs, forests and meadows. Estonia has more than 1,500 islands and islets – excellent for watching migratory birds. Not unlike the Estonian tourism sector as a whole, the nature tourism market is in its infancy, as compared to Western Europe. The market is relatively fragmented, while demand and supply have not yet fully developed. Nature tourism providers are typically small businesses that provide the services seasonally or persons for whom the activity is a hobby rather than a business.

A way to promote sustainable tourism is the award of environmental labels, such as Green Key, PAN Parks or the EHE-label, to service providers. Green Key is a global eco-label awarded to accommodation facilities. The Green Key Programme is for businesses that care about the environment, seek to reduce the environmental impact of their activities and to be recognised as representing the highest quality in sustainable practices. The EHE-label is an Estonian ecotourism quality label and the PAN Parks certificate is a label targeted to European national parks and tourism service providers operating in those parks.

In Estonia, nature tourism is organised by the State Forest Management Centre (RMK). RMK offers active leisure opportunities, by managing a national forest recreation infrastructure that includes 13 recreational areas. Since February 2009, RMK also manages visitors to the five Estonian national parks and 40 other conservation areas. There are 18 forest cabins, 22 forest huts, 309 sheltered campfire grounds and a total of 2000 km of nature trails in Estonia.

Outdoor activities are increasing in popularity (Figure 1.12). A survey conducted in 2012 by Turu-uuringute AS showed that 85% of the population found that opportunities for recreation and exercise in state forests are necessary; 93% of those who had visited recreational areas were very satisfied or satisfied with the services and facilities, whereas satisfaction with services has increased as compared to 2009.

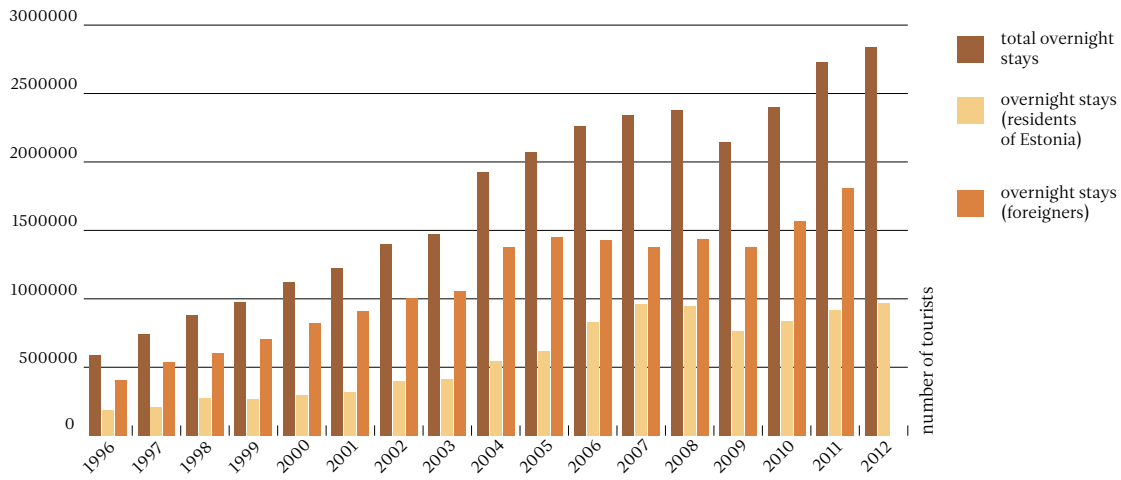


Figure 1.11. Percentage of internal and external tourists out of all tourists accommodated in 1996–2012. Data: Statistics Estonia.

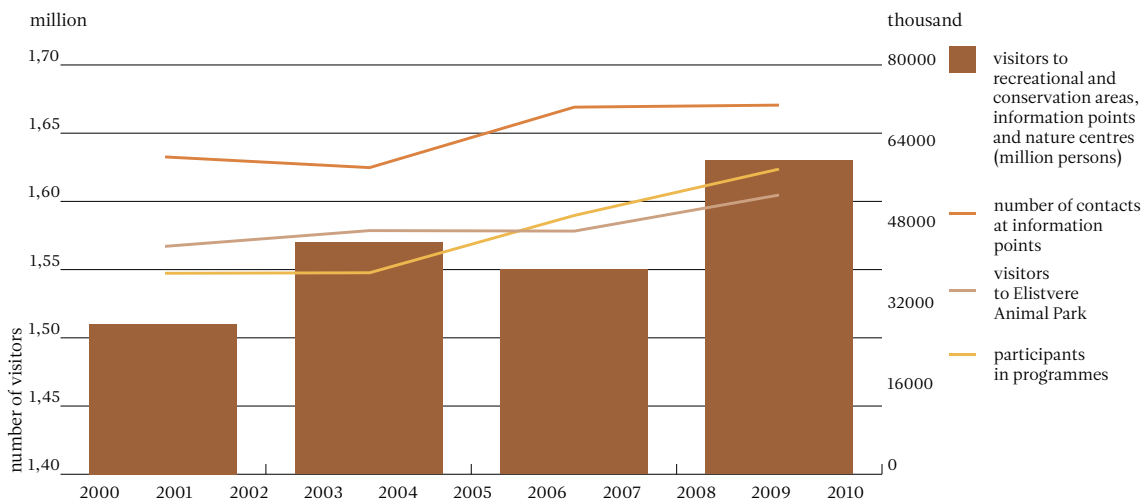


Figure 1.12. Total visitors to recreational and conservation areas; total visitors to Elistvere Animal Park; number of contacts at information points; number of participants in programmes offered by nature centres. Data: State Forest Management Centre (RMK).

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1.2.7 Estonia can be a green economy

The United Nations Environment Programme (UNEP, 2011) has defined green economy as follows: “A green economy is a system of economic activities related to the production, distribution and consumption of goods and services that results in improved human well-being over the long term, whilst not exposing future generations to significant environmental risks and ecological scarcities.”

A survey on Estonia’s potential for green jobs, commissioned by the Estonian Commission on Sustainable Development, summarises, for clarity, definitions from various sources and defines the following products and services as ‘green’:

- Energy used for manufacturing a product or providing a service is generated from renewable sources. ‘Energy’ refers to electricity, heat or fuel. Types of renewable energy are wind, solar, biomass, geothermal, wave, water, landfill gas and solid municipal waste energies;
- The manufacturing of a product or provision of a service is energy efficient: these are products and services that improve energy efficiency, including energy efficient equipment, applications, structures, vehicles; this includes products and services that improve the energy efficiency of buildings and store or distribute energy efficiently, such as smart grids, etc.
- The manufacturing of a product or provision of a service generates less emissions while the produced waste is recycled or reused: these are products and services that reduce or prevent pollution with toxic substances or are used to remove pollutants or dangerous waste from the environment. Reduction of greenhouse gases by methods other than renewable energy production and energy efficiency. Products and services that are used to remove or reduce waste; to collect, reuse or recycle or compost waste or to treat wastewater;
- Products and services that contribute to the preservation of natural resources and values: these are products and services related to organic farming and sustainable forest management, land use, preservation of soil, water or other natural values and water management;
- Products and services that contribute to environmental education and training and to increasing people’s awareness about sustainable development: these are products and services that facilitate the observance of environmental requirements; enable, through education and training, the implementation of green technologies and improve society’s awareness of environmental aspects.

The concept of green economy emerged in the late 1980s when David Pearce, Anil Markandya and Edward Barbier published a report entitled “Blueprint for a Green Economy” (1989). A need for more efficient production and consumption was created when sustainable development was first declared to be a global policy paradigm at the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992. Analyses of the causes of the economic crises of the last decade have only confirmed that necessity. The concept is based on understanding that the Earth’s natural resources that are vital to the survival and development of the human population are limited. Therefore, we should drastically reduce the use of non-renewable natural resources and stop the needless squandering. We can ensure that the economies of countries and regions continue to grow, people’s well-being will improve and the consequences of economic bubbles and natural disasters (as well as the resulting social and humanitarian crises) are alleviated only if the current model of economy is replaced by one that preserves natural capital, maintains the quality of ecosystem services and is based on resource-efficient production and consumption.

Therefore, only a country that has a resource- and energy-efficient economy, generates the smallest volumes of greenhouse gases and increases the environmental capital (or at least maintains it at the current level) can be considered a country that is promoting green economy. Estonia has plenty of room for development with regard to all four key indicators and has great potential to become a green(er) economy. According to Eurostat data of 2009 and 2010, Estonia ranks 25th out of 27 EU Member States (EU27) when it comes to resource efficiency (Figure 1.13). Estonia is the second most energy-intensive economy (Figure 1.14) and also one of the most carbon-intensive economies in the EU, i.e. in terms of nearly all indicators we are one of the also-rans of the green economy.

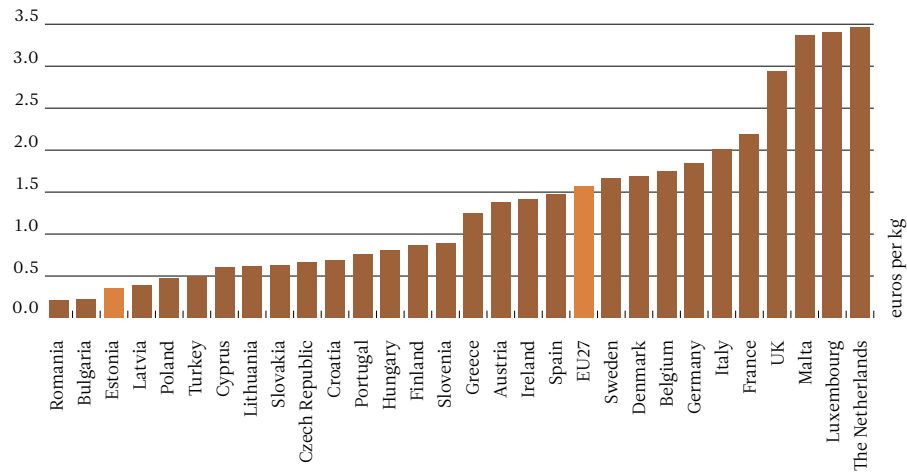


Figure 1.13. Resource productivity of European countries in 2009. Data: Eurostat.

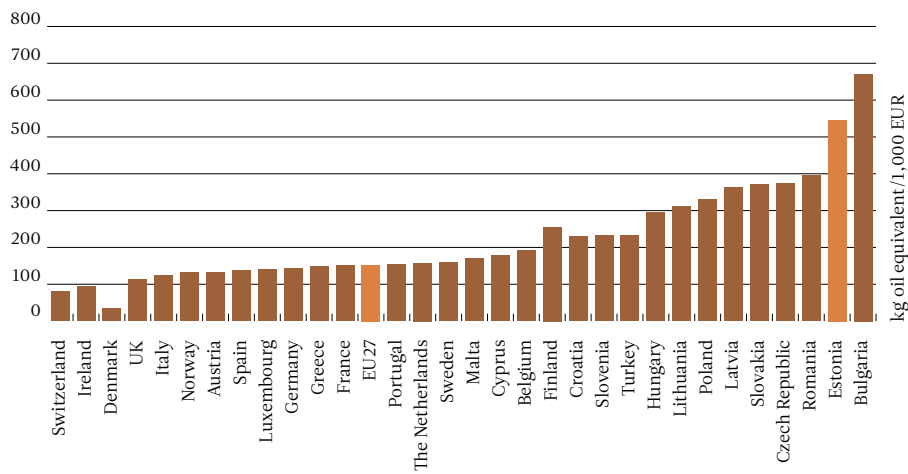


Figure 1.14. Energy-intensity of European economies in 2010. Data: Eurostat.

Unfortunately, the total value of Estonia's natural capital is also negative due to the continuous, and faster than the EU's average, economic growth over the last decade. When comparing the use of natural capital in Estonia and in neighbouring countries, it appears that it is clearly unsustainable in the case of Estonia, which means that we are providing current welfare at a cost to future generations.

The fact that in terms of green economy indicators Estonia ranks low among the EU Member States confirms that our understanding of the necessity to introduce green economy and of the opportunities offered by the new type of economy is still in infancy. More often than not, it is stated during public debates and discussions that the demands by any interest groups for the introduction of more resource efficient or energy efficient technologies or for the implementation of national measures to increase the efficiency of the use of resources, such as higher environmental fees and energy excise duties, more stringent special emissions limits or energy efficiency requirements for buildings and equipment, etc., have an adverse impact on growth and reduce the competitiveness of companies. Those opposing the change do not seem to realise that the competitiveness rankings are topped by countries that have been, for quite some time now, implementing such measures to promote resource productivity and have achieved new levels of offering efficient products/ services and of work productivity. Common sense says that a product or service that is produced or rendered by using less material, energy and time should be cheaper. Cheaper goods have a competitive advantage on any market, be it in a small Estonian town or a global metropolis.

What should be done for transition to green economy? Taking into account that the biggest resource users and generators of greenhouse gases in Estonia are the producers of oil-shale based electricity and oil (Figure 1.15) and that the biggest (and growing) energy consumers are household, the issue can only be addressed through transition to electricity and heat production based on renewable energy sources. Also, the energy consumption of buildings should be reduced by more energy efficient building and renovation, using more efficient heating systems and implementing systems of producing own electricity and heat. As the systems and technology (heat pumps, solar panels, heat recovery ventilation systems, power-generating facade elements, etc.) and innovative insulation materials currently available on the market are not affordable to all, the state can lend a hand by providing incentives for the inclusion of private capital. A growing demand for products and services that ensure energy efficiency is a key driver towards starting the production of such products/services in Estonia, targeted to both the domestic and foreign markets.

The pioneers of Estonian green economy are plants manufacturing wind generators and other components required for producing wind energy; the construction of the nationwide infrastructure of wireless broadband internet access in order to create more opportunities for remote working and thereby reduce forced commuting between work and home and the related time and energy consumption as well as costs; and providers of information and communication services who, besides operating in Estonia, also expand to other countries. Positive examples of the implementation of green economy principles in the transport sector are the development of short-time car rental services, green lease and the production of local biogas and methane as well as the construction of a nationwide fast-charging network for electric cars and the development of cycling culture in Estonian towns. One of the most positive recent signs of transition to green economy is the extensive renovation of buildings to reduce energy losses. What brought the Estonian construction sector to the pre-crisis level by 2012 was the renovation of buildings to make them more energy efficient. Spurred by increased support from the state budget, in 2010, renovation works were undertaken by both apartment associations and Riigi Kinnisvara AS (RKAS). This confirms that green economy is not so far away and not only the privilege of rich countries; it is everyday efforts to reduce the environmental impact of production and consumption and to lower the costs of using the environment.

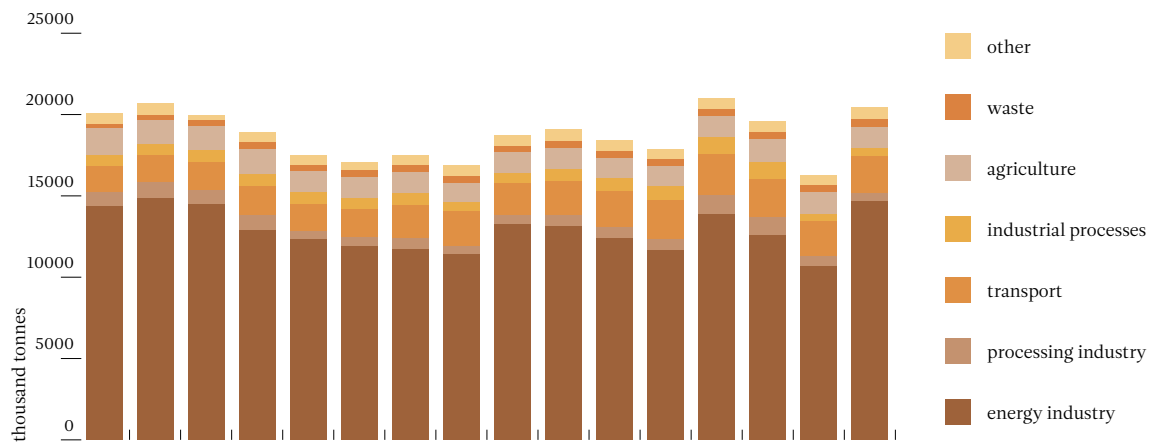


Figure 1.15. Emissions of greenhouse gases in Estonia in 1995–2010. Source: Eurostat and the European Environment Agency.

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