

# GREECO

## Territorial Potentials for a Greener Economy

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Case Study

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# **1 GREECO case study – Southern Estonia**

## **1.1 Executive summary**

### **Background**

Southern Estonia is one out of five NUTS 3 regions in Estonia, which consists of six counties. It covers an area of 15 532 km<sup>2</sup>, which is approximately 34% of the country's territory.

Southern Estonia is geographically peripheral region, located on the crossroads between EU and the Russian Federation. There are good preconditions in the region for agriculture, forestry, tourism and renewable energy development. Today the forested areas and agricultural land constitute the highest share of the region's territory (48% and 34.5% respectively) (Envir 2013; TREA 2011).

The road network covering Southern Estonia is quite dense, but its quality and permeability present a problem. The existing public transport networks in rural areas do not always meet the expectations and needs of the residents, which results in a rising motorization trend (FIN 2006). The importance of rail passenger transport is quite low. The region has a local airport with regularly scheduled international flights to Finland. The IT is well-developed,- more than 70% of the households in the region have access to the Internet at home and the whole region is covered with digital mobile phone networks (Statistics Estonia, 2011).

Despite its small size, Southern Estonia region is quite polarized. On the one hand, it includes a well-developed and fast growing Tartu county, which acts as an economic driver for the region. On the other hand, - the other five peripheral counties which have much lower standard of living and are being deserted economically.

Southern Estonia has a population of small size and low density. It is currently facing severe demographic challenges (9 % decrease in population from 2000 to 2012). Apart from Tartu, the other five counties in the region are experiencing negative natural increase, which is expected to continue in future. Regional differences in welfare levels and business conditions are quite significant and are causing migration of the population into regional centers and their hinterlands. Migration is mainly driven by young people - the working age population. This in turn causes a lack of labour force (both in quantity and in terms of qualifications) in the rural areas (Statistics Estonia 2013). At the same time the region has a good development potential in terms of green economy, which has not been fully exploited until now.

### **Governance system**

Estonia is a parliamentary republic with three levels of governance (national, regional and local). At the regional level, the state administration unit is a county government (maavalitsus), which is subordinated to the central government. Its main role is to guide the overall development and planning matters in the county and setting a strategic direction of the local governments. The units of the local government are cities and parishes. Unlike in the Nordic countries, the administration in the country is centralized and the functions of the local governments in Estonia are quite limited. The local governments have a fairly small budget that gives them little freedom to act and they are mainly dealing with the current development issues.

### **Regional economy and the performance of key sectors**

Today region is experiencing a sharp economic decline of the primary sector and is remaining weak economically in comparison to the Estonian average. At the same time the value added of primary sector in the region is still higher than the country average (12% against 3%). The labour force participation rate in 2011 was ca 60.15% (Estonian average is 67.6%). The unemployment rate in Southern Estonia region was 11.5%, which is slightly below the country average. In 2011, an average monthly gross income in Southern Estonia was about EUR 679, which is below the country average of EUR 839 (Statistics Estonia 2013).

In 2010, **building and construction sector** had the highest value added in Southern Estonia. During the years of recession between 2007 and 2010, the construction volumes and employment decreased by almost a half in Estonia. Today, the sector employs approximately 9.7% of all labour force in Estonia. Despite a recent slowing down in construction activities, restoration of the existing building stock and increasing energy efficiency are very important issues in the discourse of development policy and will stay on the agenda for years to come. About 70% of dwellings in Estonia are apartment buildings originating from the Soviet era and require renovation in order to improve their livability and resource performance. Estonian annual heating energy in the buildings is almost twice higher than the figures in industrial nations with a similar climate. Therefore the energy saving potential of the existing housing stock is high. (KredEx 2012).

Reconstruction works accounted for about 60% of the building related works in Estonia in 2011 (KreEx 2012). The majority of reconstruction measures are aiming at increasing energy efficiency of existing buildings by improving thermal insulation, replacing windows and renovating the heating system. When it comes to the new dwelling houses, stricter thermal standards have been introduced, which results in lower heat consumption. Until 2015 several samples nearly zero-energy buildings are planned to be constructed, as stipulated in the National Development Plan of the Energy Sector until 2020.

**Agriculture** and forestry have traditionally been strong economic activities in Southern Estonia. Although the agricultural sector has shrunk since regaining the independence, it



still accounted for the third largest share of GVA in the region in 2010. The employment in the agriculture sector in Southern Estonia region is above the country average.

The number of organic farming holdings and the size of organically farmed agricultural areas have been experiencing a rapid development in Southern Estonia. Already today Southern Estonia region has the largest number of organic producers than any other region in Estonia (Statistics Estonia 2013). Organic farming as a higher value activity is a profitable niche especially for the small-scale farmers, which constitute the majority in the region. The largest share of organically farmed land is under semi-natural grasslands, which are perfectly suited for organic livestock breeding. Livestock breeding (sheep and goats) accounts for nearly 2/3 of the organic farming enterprises.

In 2011, Estonia achieved and exceeded the target of 120 000 ha organically farmed land set in the Organic Farming Actin Plan 2007-2013. To ensure a sustained development of the organic sector in future, the challenges related to the development of organic processing and marketing, which are lagging behind the development at farms, should be addressed.

Agricultural sector in Estonia relies on the fossil fuels. The renewable energy accounts for less than 1% of the energy consumption. Almost no biomass is produced in the fields in the form of energy crops and there is no biogas production in Southern Estonia at the moment.

Estonia is one of the four European countries, where the share of **forestry sector** in the GDP is higher than 10% (Agri 2010a). Lumber and pellets are among the dominant export products in Southern Estonia region, whereas round wood is utilized domestically (Kiikas, M. 2013). Despite cuttings the resources of forest stands have been increasing in the last decade in Southern Estonia (TREA 2013). The average annual forest increment in the region is about 5.7 m<sup>3</sup>/ha, which is higher than Estonian average values of 5.2 m<sup>3</sup>/ha. Forest biomass (firewood, wood chips and forest waste) is the most important source of renewable energy in the region, accounting for 37% of the total primary energy consumption.

About two thirds of wood residues are left unused today, which in principle could be used for bioenergy production. Ensuring the effective utilization of wood residues is among the important objectives of a greener forestry sector (Kiikas 2013; Aun 2013). In total, about 10% of forest land in Estonia is under strict protection. The state forest (about 40% of all forest reserves in the country) holds the FSC certificate since 2002 and PEFC certificate<sup>1</sup> since 2010. In case of privately owned forests, the certification is not that common (Aun 2013).

**Tourism sector's** contribution to the GVA is relatively small today but a positive GVA change occurred between the years 2000 and 2010, which was the third highest among the green economy sectors analyzed in the study. The most popular development trends are nature and rural tourism, as well as family and active tourism (winter sports and

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<sup>1</sup> PEFC is a national forest certification scheme, which has an overall objective to support the implementation of sustainable forestry in Estonia.

cultural events). Tourism plays a very important role in the regional economy, especially with regard to development in the rural areas. Tourism sector employs fairly few people in the region today, since most of the tourism businesses are micro- or small-sized enterprises.

The sustainability performance of the tourism sector is not monitored in Southern Estonia today and sustainability in tourism as such is not promoted. The main efforts are directed towards marketing and improving the competitiveness of the tourism businesses, as well as tourism infrastructure development. At the same time the elements of sustainable tourism are not excluded from the agenda of tourism enterprises and many of them are behaving sustainably, often unconsciously. Tourism businesses recognize the importance of reducing the impact on the environment since the longevity of their businesses is highly dependent on the availability of pure natural environment (as it is often the main tourism attraction). The number of tourism enterprises that have a strategic approach to sustainability is rather small today. Only a handful of businesses in Southern Estonia applied for an international eco-label Green Key and the popularity of local eco marks and eco labels is quite low.

With a growing interest in eco-tourism and environmentally friendly products and services among the customers, more and more of tourism business in Southern Estonia are starting to offer organic and locally produced food, use natural materials in construction and explore the positive synergies between agriculture and tourism activities.

### **Main drivers in development towards a green economy**

EU structural and cohesion policy funds play a significant, if not the key role, in greening the economy in Southern Estonia. Greening of the agricultural sector relies almost entirely on the EU funding. The support provided in the framework of the CAP and the European Fund for Rural Development has been the strongest development motor in agriculture.

The EU policies influenced the development of the national targets and policies relevant to a green economy, especially in the field of energy efficiency and renewable energy. At the regional or local level the role of the EU policies is marginal. The regional and local policies and initiatives in the field of green economy play a modest role in fostering the greener development of the sectors.

Financial concerns and profitability are among the main drivers for introducing any green initiative at the state, regional and individual level. In case of the building and construction sector, for example, it is the combination of rising prices on energy and the national policies, which had the biggest influence on greening of the sector. The state owned foundation Kredex has played an important role in promoting energy efficiency measures in the building sector by providing support schemes and loans to the refurbishment measures of the apartment buildings and the reconstruction of the public

buildings. In financing these investments the market-based instruments played an important role in Estonia. During the last couple of years the funding came mainly from the revenues from the trade of CO<sub>2</sub> quotas. The Governmental regulations on the minimum energy performance of the new and majorly reconstructed buildings and the use of energy efficiency labels are also among the important drivers facilitating a greener development of the building sector.

The national regulations and funding have been crucial for the development of forestry sector towards green economy. In addition, forest certification has played an important role in promoting of green forestry, especially in case of the state owned forest. Certification has had an important role in increasing the competitiveness of the Estonian forestry industry on the foreign markets, especially in Scandinavia.

### **Main barriers in development towards a green economy**

There is a low level of political and financial support to the transition to a green economy today. In case of bioenergy, for instance, there is no strong political will to increase the production, since the EU 2020 targets for Estonia have already been achieved with regard to the share of renewable energy in gross final energy consumption.

The current administrative structure is a major drawback in development towards a green economy. The low administrative and financial capacity of the local governments in Estonia hinders the adequate use of the Structural Funds and pursuing the sustainability objectives. The local governments are often too small to perform the necessary functions properly. They neither have the capacity to apply for the funds, nor to co-finance the projects (Kalvet 2010). The financial resources at the regional level for the implementation of green economy objectives are also limited.

High costs of alternative 'green' solutions, unconventional character of the measures and a long payback period have also been among the barriers to pursuing a green economy. Green initiatives are often considered of secondary importance, after addressing the fundamental issues. This suggests that there is insufficient understanding of the opportunities within green growth, and combining green and growth has not been considered enough until now. The opportunities to combine green and growth have not been sufficiently exploited.

A major obstacle to a green economy development in Southern Estonia is a low awareness level of the population. In case of forestry, the private forest owners often have low awareness of the environmental issues and lack professional knowledge and experience in forest management. Among other challenges for greening the economy are the demographic problems in the region, an unfavorable socio-economic situation in the rural areas and a lack of competent labor force.

## **Territorial conflicts**

The territorial conflicts are quite uncommon in Southern Estonia today. There are few examples of conflicts of interest occurring on the individual level, mainly related to clear-cutting close to the settlements and tourist attractions, and the use of lower quality wood as a construction material versus for energy production. A conflict with the local community in Southern Estonia arose when the logging activities took place in the forest with a high cultural and spiritual value for the local population (old burial sites, burial mounds and some meaningful trees).

In future the conflicts may arise if the cultivation of fast growing tree species for energy production becomes more profitable than reforestation with the traditional tree species, which may have a negative environmental impact. In addition, a conflict between timber and non-timber use of forest (recreational use, hunting) may emerge in case of more intensive felling volumes.

## **Road ahead and policy needs**

The public sector should lead the way in the transition to a green economy, both ideologically and financially, and set a positive example in their activities and attitudes (e.g. develop GPP). The public sector should ensure the economic stability and create a favorable economic environment which will steer the investments in green technologies and alternative solutions. Only a long-term commitment at the national level to pursuing green economy objectives provides investors the security to invest in a green economy and the costly activities that might bring profit in the future.

The current governance structure limits initiative and high-quality green development activities of the municipalities. An administrative reform, which would enhance the capacity of the municipalities to implement larger development projects and rationalize their work, is needed.

The regional and local actors stress the importance of financial mechanisms and emphasize the need for increased public support to 'green' measures. Besides that, it is of the uttermost importance to increase the awareness level of the policy-makers and the general public concerning the benefits of a green economy.

It is of crucial importance to address the socio-economic and demographic challenges in Southern Estonia region and the problems concerning the lack of human resources. There is a strong need to attract staff with the requisite skills and technical expertise for an effective and greener development of the economy.

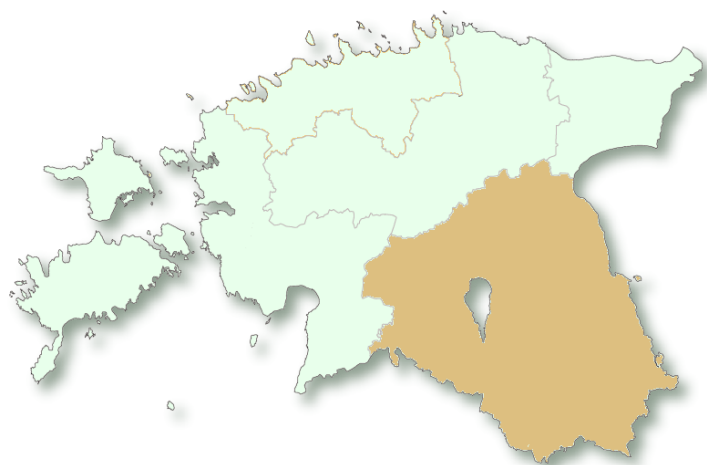


## 2 General description of the region

### 2.1 Geography

Southern Estonia is one out of five NUTS 3 regions in Estonia. It covers a total area of 15 532 km<sup>2</sup>, which makes it about 34% of the country's territory. The region borders with Estonia's mainland neighbor Latvia in the South and Lääne-Viru and Järva counties in the North. To the West of the region lies Pärnu county and to the East goes the border with Russia through lake Peipsi (Map 1). The region also shares a land border with Russia (Pskov oblast) in the Southeast.

The region covers six counties: Jõgeva, Tartu, Viljandi, Põlva, Võru and Valga counties.



**Map 1 Estonia and Southern Estonia region (NUTS 3 region EE008)**

Lake Peipsi. Estonia's largest lake and the fourth largest inland water body in Europe, coupled with Estonina's second largest lake (Võrtsjärv – 271km km<sup>2</sup>) are located in the region. The most important river in Southern Estonia is Emajõgi which flows from Lake Võrtsjärv through Tartu County into Lake Peipsi.

In 2009, **forests** covered about 50.6 % of the total area of Estonia (Envir 2013). Estonia holds the fifth place in Europe after Finland, Sweden, Slovenia and Latvia for the share of forest land of the total territory. Throughout the period 1990 to 2000 the forest territory increased, mainly through afforestation of grasslands. In Southern Estonia forest covers 1580 ha, which is approximately 48% of the regions territory. The most forested counties are Valga and Põlva, whereas the least forested county is Tartu (Table 1). The dominant tree species are birch, spruce and pine.

County	area	forest area	share of forest land	share of agricultural land
	1000 ha	1000 ha	%	%
Jõgeva	260.4	126.9	48.7	36.3
Põlva	216.5	115.7	53.5	34.9
Tartu	308.9	117.1	37.9	38.5
Valga	204.7	119.8	58.5	29.2
Viljandi	358.9	171.9	47.9	29.8
Võru	230.5	108.9	47.2	39
Total in the region	1579.9	760.3	48	34.5

**Table 1 Share of forest land area and agricultural land in Southern Estonia, 2011 (adapted from TREA 2011)**

As part of the East-European Plain, Estonia has a flat **topography**. The landscape of

Southern Estonia differs from the rest of the country. While the largest part of the country's territory lies at an absolute height of 0 to 50 meters, the relief forms of Southern Estonia rise more than 100 meters above sea level (a.s.l.). The highest elevation (318.1 m) of Estonia and the Baltic States – Suur Munamägi (in translation “Big Egg Mountain”), is located in the Haanja Upland, in Võru County. Other accumulative uplands in the region are the Otepää Upland (the highest point 217 m a.s.l.) and the Karula Upland (the highest point: 137 m a.s.l.).

The largest fraction of arable land in the Southern Estonia is located in Võru and Tartu counties. The share of agricultural land in the region is about 34.5%.

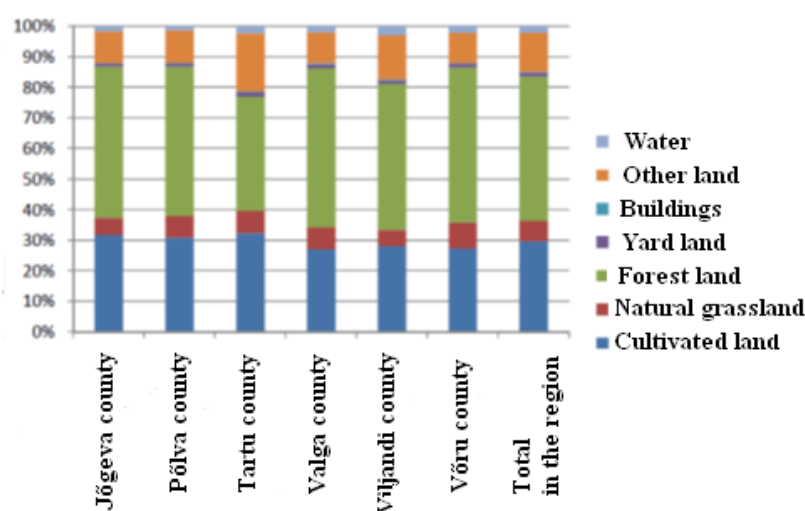


Figure 1 Land use distribution in Southern Estonia region (adapted from TREA 2013).

Figure 1 shows that forested areas and arable land constitute the highest share of the region's territory, whereas the share of water is relatively small.

There are many areas in the region that have been zoned for **protection** in the region. In total, there are 32 nature conservation areas (Endla bog, Alam-Pedja, Vooremaa, Rubina, Aidu, Emajõe-Suursoo, Meelva, etc.), 40 landscape protection areas (Saarjärve, Vooremaa, Kääpa Mustoja, etc.) and 2 national parks (Karula and Soomaa). The terrestrial protected areas cover 204404 ha and aquatic protected areas 27 ha in Southern Estonia and account to approximately 15% of the region's territory (Table 2).

County	Nature Conservation Areas	Landscape Protection Area	National Park	Other type of protection areas	Protected parks	% of the county's territory	Terrestrial protected areas (ha)	Aquatic protected areas (ha)
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Jõgeva	5	3	0	10	50	13	27933	0
Põlva	5	6	0	3	16	9	12925	1
Tartu	8	4	0	23	42	17	47217	26
Valga	3	4	0	11	43	20	35598	0
Viljandi	7	12	1	10	21	15	48887	0
Võru	4	11	1	2	20	16	31844	0
<b>TOTAL in Southern Estonia region</b>	32	40	2	59	192	15	204404	27
<b>TOTAL in Estonia</b>	131	150	5	114	540	18	590264	92183

**Table 2 Number and area (ha) of protected areas in Southern Estonia region, percentage of the county's territory, 2011 (adapted from EELIS 2013).**

Estonia lies in the northern part of the temperate zone and in a transition zone between maritime and continental **climate**. The climate is influenced by the warm North-Atlantic Stream. The climate is maritime, wet, with moderate cold winters and cool summers. The climate in Southern Estonia is more continental and the annual average temperatures are considerably higher.

The annual average temperature in Estonia is between 4.3°C and 6.5°. The highest air temperature in Southern Estonia and in the country as a whole, 35.6°C, was measured on 11 August 1992 in Võru, the lowest, –43.5°C, on 17 January 1940 in Jõgeva.

Estonia is generally a resource-poor country. The main resources extracted in Southern Estonia are peat, building sand, construction gravel, building limes and sand for technology and ceramics (Table 3).

	Jõgeva county	Tartu county	Viljandi county	Põlva county	Võru county	Valga county	Total in Southern Estonia region
<b>Building sand (thousand m<sup>3</sup>)</b>	43,5	53,3	65	38,4	78	60,8	339
<b>Construction gravel (thousand m<sup>3</sup>)</b>		8,4	6	8,7	9,3	5,9	38,3
<b>Peat (thousand tons)</b>	141,2	112,8	100			31,1	385,1
<b>Building limes (thousand m<sup>3</sup>)</b>	25,7						25,7
<b>Sand for technology and ceramics (thousand m<sup>3</sup>)</b>				4,8	4,5		9,3

**Table 3 Extraction of natural resources in the region, 2010 (adapted from Statistics Estonia 2013).**

## 2.2 State of infrastructure

Although the road network covering Southern Estonia is quite dense, the quality of transport network, the safety level and permeability present a problem (Table 4). The existing public transport networks in rural areas do not always meet the expectations and needs of the residents, which results in a rising motorization trend (FIN 2006).

The motorway density in Estonia is very low compared to the EU average. Several European routes are crossing Southern Estonia. E 263 and E 264 are part of the International E-road network, offering good opportunities for transportation with private or public vehicle, as well as cargo.

County	National highways, 2011 (km)	Main roads, 2011	Support roads, 2011	Secondary roads, 2011	Number of bridges and viaducts, 2011	Telecommu- nications, 2010
<b>Võru</b>	1 255	71	121	1 063	74	8 792
<b>Valga</b>	1 115	88	165	863	56	8 542
<b>Põlva</b>	1 166	31	253	881	57	7 147
<b>Viljandi</b>	1 223	96	207	918	71	14 817

<b>Tartu</b>	1 250	151	175	920	47	51 031
<b>Jõgeva</b>	1 116	79	158	875	53	8 633

**Table 4 Road infrastructure and telecommunications in Southern Estonia (adapted from Statistics Estonia 2013)**

Due to an increase in motorization, the importance of rail passenger transport is quite low. In Estonia, railways are mainly used for international freight rail transport (89% of the total rail transport in 2010). Water transport in the region is poorly developed. The potential of the transport corridors on Emajõgi river and Peipsi lake is underused but the discussions on future development have started.

Southern Estonia hosts a local Tartu Ülenurme Airport. The direct passenger flights are operating between Helsinki (FI), Mariehamn (FI), Norrköping (SE) and Riga (LV) (Tartu Airport 2013).

The Information Technology (IT) network is well developed in the whole country. All Estonian towns and villages are covered by the network of public Internet access points. There are about 1163 wireless Internet zones in Estonia, 410 of which are in Southern Estonia. 77% of the population are Internet users (Statistics Estonia, 2011). 71% of households have access to the Internet at home (Statistics Estonia, 2011). The whole country is covered with digital mobile phone networks (Wifi 2013).

## 2.3 Demographics

As shown in Table 5, 322 065 people live in Southern Estonia, which is approximately 24.4% of the total population (Statistics Estonia 2013). The population in Southern Estonia shrank by 9 % (32 776 people) from 2000 to 2012. The population in the region is decreasing especially in smaller counties due to internal migration. Migration is mainly driven by young people - the working age population aged 15 to 64 - who often move to Tallinn or Tartu. As shown on Map 2, the majority of the population in Southern Estonia lives in the Tartu County (about 45%) and 68% of those people live in the city of Tartu. The proportion of young people aged 20-34 is especially high in Tartu county, foremost due several universities and other higher education institutions located here (Estonian Ministry of the Interior 2009; Statistics Estonia 2013).

After joining the European Union in 2004 and opening up the possibilities to work abroad, a significant increase in emigration from the region can also be observed.

Between 1970 and 2002, the demographic labor pressure index<sup>2</sup> was bigger than one in all counties in Southern Estonia. In 2005-2008 it dropped below one in all counties

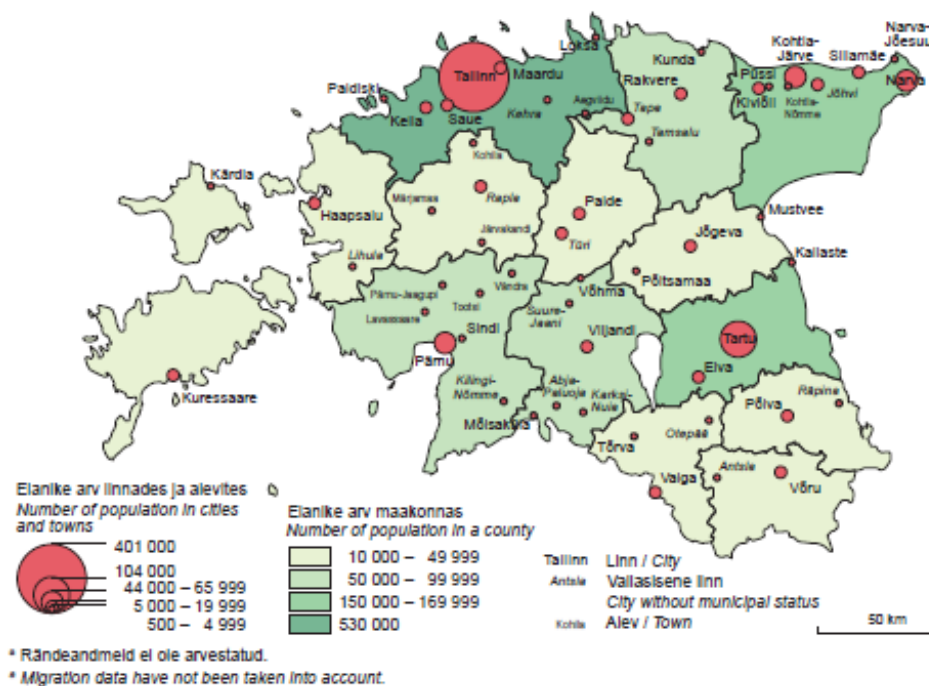
<sup>2</sup> Demographic labor pressure index is the share of the persons (aged 5-14) who will enter the labor market and of the persons (aged 55-64) who will exit the labor market during the next ten years because of ageing. If the index is bigger than one, the number of persons entering the labor market is larger than the number of persons potentially leaving it because of ageing (www.stat.ee)

except Tartu. In 2011 the index was below one even in Tartu. Thus, the number of persons potentially entering the labour market in all counties in Estonia today is smaller than the number of persons leaving it because of ageing. This trend is expected to continue in the following years.

According to the statistics from 2008 and 2011, natural increase was positive only in two counties in Estonia: Harju (Tallinn city) and Tartu counties (from 144 458 in 2008 to 145 233 in 2012). In all other counties of Estonia natural increase was negative (Statistics Estonia 2013).

	Jõgeva	Tartu	Viljandi	Põlva	Võru	Valga	Total Southern Estonia	in
<b>Population 2000</b>	38 372	149 766	58 110	32 746	40 003	35 874	354 871	
<b>Population 2012</b>	32 679	145 233	49 303	28 848	34 764	31 238	322,065	
<b>Demographic labor pressure index 2000</b>	1,33	1,25	1,28	1,34	1,30	1,24		
<b>Demographic labor pressure index 2011</b>	0,75	0,99	0,75	0,74	0,80	0,85		

**Table 5 Population and demographic labor pressure index in Southern Estonia in 2000 and 2012 (adapted from Statistics Estonia 2013).**



Map 2 Population of counties and urban settlements, 1 January 2012 (adapted from Statistics Estonia 2013).

## 2.4 Administrative Structure

Estonia is divided into 15 counties (maakonnad), which are the regional units and the biggest administrative subdivisions (Map 3). Each county is further divided into municipalities, which are the smallest administrative subdivisions in Estonia. In total there are 226 municipalities in Estonia, 33 of which are urban municipalities (cities) and 193 are rural municipalities (parishes). The municipalities vary in their size and ability to fulfill their functions significantly.



**Map 3 Administrative division of Estonia. Southern Estonia region is marked in red (own elaboration).**

As noted previously, the territory of Southern Estonia covers six counties: Jõgeva, Tartu, Viljandi, Põlva, Võru and Valga. In total, there are 13 cities and 77 parishes in the region. For a full list of towns and parishes for each of the counties see Table 6:

Counties	Jõgeva	Tartu	Viljandi	Põlva	Võru	Valga
<b>Cities</b>	Jõgeva Mustvee Põltsamaa	Elva Kallaste Tartu	Mõisaküla Viljandi Võhma Karksi Nuia Suure-Jaani	Põlva	Võru Antsla	Tõrva Valga Otepää
<b>Rural municipalities (parishes)</b>	Jõgeva Kasepää Pajusi Pala Palamuse Puurmani Põltsamaa Saare Tabivere Torma	Alatskivi Haaslava Kambja Konguta Laeva Luunja Meeksi Mäksa Nõo Peipsiääre Piirissaare Puhja Rannu Rõngu Tartu Tähtvere Vara Võnnu Ülenurme	Abja Halliste Karksi Kolga Jaani Kõo Paistu Pärsti Saarepeedi Suure-Jaani Tarvastu Viiratsi	Ahja Kanepi Kõlleste Laheda Mikitamäe Mooste Orava Põlva Räpina Valgjärve Vastse-Kuuste Veriora Värskä	Antsla Haanja Lasva Meremäe Misso Mõniste Rõuge Sõmerpalu Urvaste Varstu Vastseliina Võru	Helme Hummuli Karula Otepää Palupera Puka Põdrala Sangaste Taheva Tõlliste Õru
<b>Area (km<sup>2</sup>)</b>	2 603,83	2 992,74	3 422,49	2 164,77	2 305,44	2 043,53
<b>Population</b>	12,6	48,5	14,4	13,3	15,1	15,3

**Table 6 The full list of cities and rural municipalities in Southern Estonia, area and the population density (adapted from Statistics Estonia 2013).**

## 2.5 Governance

Estonia is a parliamentary republic. The Parliament (Riigikogu) is elected by the citizens and its main task is law-making. The Parliament is responsible for appointment to the office of the Prime Minister and withdrawal of the Government. The Government is made up of the Prime Minister and Ministers. It has the executive power and is accountable to the Parliament. In its turn the Government together with the President has the right to dismiss the Parliament. Currently there are 13 ministers (including the Prime Minister) and 11 ministries (Riigikogu 2013).

The head of state is the President of the Republic, who has mainly the representative function. One important Presidential task is to nominate the Prime Minister who then forms a Government.

At the regional level, the state administration unit is a county government (maavalitsus). In reality the county governments cannot be seen as administrative levels, as they are subordinated to the central government (the Ministry of Internal Affairs). The county governments are handling the development and planning matters concerning the county's future, including the county's overall development strategies, spatial planning, economy, education, social- and health care affairs, public transport issues and infrastructure. Their role is to guide the overall development, motivate and set the overall strategic direction of the local governments (rural municipalities and towns), development agencies, universities and other actors in the county (Estonian Ministry of the Interior 2008).

The administrative-territorial units of the local government are cities and parishes. According to the Constitution of Estonia, adopted in 1992, the local authorities are responsible for resolving and managing the local issues. Although the local governments have their own budget, they are not financially independent from the state.

The provision of upper secondary education, culture, youth work, primary medical care, and partly also secondary care, canalization, waste management, and maintenance of public buildings fall into the responsibilities of the local governments. According to the Local Government Organisation Act, the areas of responsibility of the local authorities are also issues related to the budget, taxes, loans, imposing duties and tax incentives; approval of development plans; drafting spatial development plans and approval of building regulations.

## 3 Regional economy

### 3.1 Overall economy of the region

Despite the small size of the country, the regional differences in Estonia are quite significant—especially comparing the urban regions of Tallinn and, to some extent, Tartu to the peripheral rural areas that are being deserted economically and socially.

Today Southern Estonia region is experiencing a sharp economic decline of the primary sector and is remaining weak economically in comparison to the Estonian average. The region is quite polarized. On the one hand, it includes a well-developed and fast growing Tartu county. On the other hand, - the peripheral counties like Põlva, Võru and Valga, have a lower standard of living and a low competitive ability.

Tartu is the second center of national importance and is the largest city in Southern Estonia. It acts as an economic driver for the region as a whole. It has an important function in the context of development of competitiveness, as well as the provision of employment and services. Further, it has a good prospective for development of knowledge-intensive sectors and a balanced economy.

Apart from Tartu, the other five counties that make up a region are experiencing negative natural increase, which is expected to continue in future. The employment rate in rural areas is quite low. Regional differences in welfare levels and business conditions are quite significant and are causing migration of the population into regional centers and their hinterlands. This in turn causes a lack of labour force (both in quantity and in terms of qualifications) in the rural areas.

In 2011 GDP per capita in the region grew in average by 56.7% compared to 2010. The growth across the region was unevenly distributed, being the highest in Tartu county (90.2%) and the lowest in Jõgeva county (44.4%) (Statistics Estonia 2013).

According to the statistical data from 2011, the number of working people in the region aged 15 – 64 was 145 700, whereas 18 200 people of the working age were unemployed. The labour force participation rate in 2011 was ca 60.15% (Estonian average is 67.6%). The unemployment rate in Southern Estonia region was 11.5%, which is slightly below the country average. The highest unemployment rate was in Valga county (13.3%) and the lowest in Viljandi county (9.1%).

An average monthly gross income in Southern Estonia was about EUR 679 in 2011, which is below the country average of EUR 839. In comparison to the rest of the country, the region has the second highest income per employee, which is higher only in the capital region. This is largely attributable to the Tartu county, where the income is significantly higher than the average in the region (EUR 807). This naturally implies that



settlements in the region, but outside Tartu, have a relatively low income.

County	Number of people employed aged 15-64, 2011	Number of unemployed people aged 15-64, 2011	Labor force participation rate, 2011 (%)	Unemployment rate, 2011 (%)	Gross Average Monthly Wages, 2011 (EUR)	GDP per capita at current prices, 2009 (EUR)	GDP per capita, % of Estonian average. 2010
Jõgeva	13 800	2 000	56,0	12,4	660,00	4 561,5	44,40
Põlva	11 600	1 600	56,1	12,4	667,00	4 996,7	45,70
Tartu	66 900	8 200	66,2	11,0	807,00	9 410,1	90,20
Valga	12 600	1 900	56,6	13,3	650,00	5 094,6	48,60
Viljandi	25 800	2 600	66,8	9,1	641,00	5 411,5	58,30
Võru	15 000	1 900	59,2	11,2	650,00	5 466,3	53,5
Southern Estonia region	145 700	18 200	Ca 60,15	Ca 11,5	Ca 679,00	Ca 5 823,4	Ca 56,7
Total in Estonia	609 100	86 800	67,6	12,5	839,00	10 325,9	

**Table 7 Job market situation in Southern Estonia region, 2011 (adapted from Statistics Estonia 2013).**

The importance of the primary sector has been decreasing throughout the period 1997 to 2006. At the same time the share of the secondary sector has grown, as a consequence of the industrialization process. In 2010, the value added of primary, secondary and tertiary sectors in the region was 12%, 30% and 58% respectively (Figure 2). The average number for the whole country is 3%, 28% and 68% respectively. The share of the value added of primary sector was lowest in Tartu county (2.9%) and highest in Jõgeva county (20%) in 2010. Tartu county also stands out among other counties in Southern Estonia due to a greater importance of the tertiary sector in its economy (71%) (Estonian Ministry of the Interior 2009).

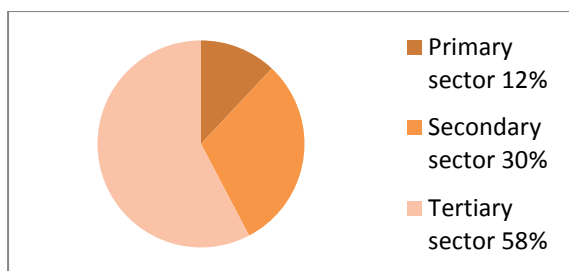


Figure 2 GDP composition in Southern Estonia region, 2010 (adapted from Statistics Estonia 2013).

### Importance of different economic sectors in the region

In order to determine which economic sectors are most relevant for developing a greener economy in the region, two analyses have been carried out in parallel. To give an overall picture of the regional importance of the different sectors, a quantitative assessment of regional performance is based on the gross value added (GVA) pre-defined sectors under analysis in the GRECO project (and based on NACE Rev.2, two-digit sector delineations). Unfortunately, reliable employment data was available only at the NACE one-digit level and therefore was not included in the analysis. Additionally, and perhaps more importantly (from the perspective of what the region has already conceptualized in terms of a place-based approach to the green economy) the counties' development strategies were analyzed in order to understand which issues are high on the agenda for the next five to ten years, and which of the objectives are most relevant to green economy.

From the analysis, three focus sectors were chosen: **building and construction**, **bioeconomy** (agriculture and forestry) and **experience economy** (tourism).

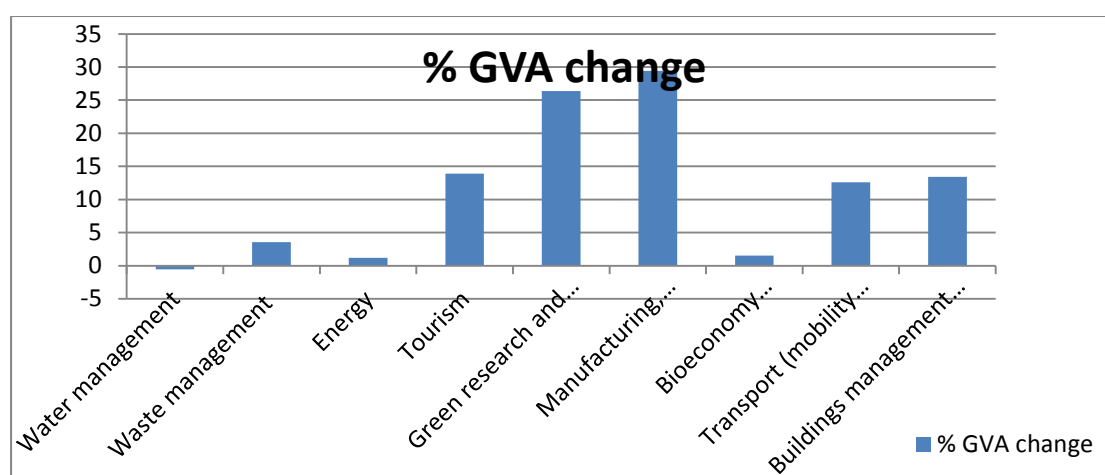


Figure 3 GVA change of the green economy sectors in Southern Estonia between 2000-2010 (own elaboration).

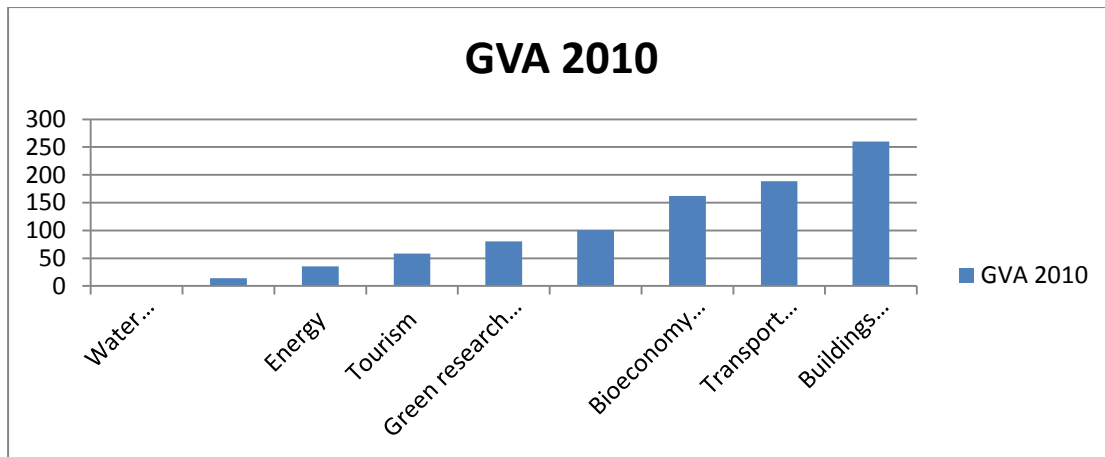


Figure 4 GVA of the green economy sectors in Southern Estonia in 2010 (own elaboration).

When it comes to the GVA of the sectors, **building and construction sector** has the highest value added (Figure 4). Despite a recent slowdown in construction activities, restoration of the existing building stock and increasing energy efficiency are very important issues in the discourse of development policy and will stay on the agenda for years to come. Like many regions in Eastern Europe, a primary driver in this aspect is the fact that most of the houses were built during the Soviet era (i.e. communist style super-blocks) and desperately require restoration activities in order to improve their livability and resource performance. Notably, this applies to both urban and rural areas alike, since many of the buildings in rural areas are Soviet era apartment blocks. Improving energy efficiency and using of natural construction materials in the building sector are among the issues that are high on the agenda of the government.

**Bioeconomy sector** has traditionally been a strong economic activity in Southern Estonia. Although the agricultural activities have experienced a decrease in the last couple of years, the sector accounted for the third largest share of GVA in the region in 2010. Knowledge and experience already exist today and a further development of the sector is especially beneficial for the long-term sustainability of the rural areas. An increase in biomass use from forestry and diversification of traditional agricultural practices (e.g. organic farming) are among the future opportunities which also find support in the strategic development plans at the county level.

The sector definition in this study included only A01 (Crop and animal production, hunting and related service activities), A02 (Forestry and logging) and A03 (Fishing and aquaculture). Unfortunately, we were not able to obtain data with a sufficient classification on the trade of agriculture and forestry products because these activities are generally accounted at the NACE three digit level.

**Tourism sector** contribution to the GVA is relatively small today but a positive GVA change occurred between the years 2000 and 2010, which was the third highest among the sectors analyzed in the study (Figure 3). Tourism development based on natural and cultural heritage is high on the agenda of the county governments and in the region as a

whole. Tourism plays an important role in creating new jobs in the rural areas, diversification of the rural economy and increasing the attractiveness of the region for young people through creating a positive image. In the light of a growing demand for green products and services, the region sees its strength in development of tourism that is based on region's rich natural resources and cultural traditions, promoting of organic food and also natural healing.

**Transport sector's** contribution to the GVA is the second largest in the region, with H49 (land transport and transport via pipelines) and F42 (civil engineering) having a significant share. With a growing number of motorized vehicles, road transport is especially dominant in the region. County governments support this by prioritizing investment in improving road infrastructure in rural areas, which is viewed as an important prerequisite for the economic growth (increasing the efficiency of enterprises, working and mobility opportunities of people, etc.) but does not have a direct link to green economy.

Railway infrastructure has experienced a positive development over the past few years as significant investments in infrastructure development and efficiency have been made. If the positive development continues in future, more passengers and freight carriers will be choosing rail over road transport, which would have a positive effect on carbon reductions and minimization of pollution from the road traffic in the medium to long term.

The new Koidula railway station on the border with Russia (and a border crossing point) was opened for railway traffic, mainly freight, in 2011. It merges the Tartu-Pechory and Valga-Pechory railways just before the border. Further development of services related to transit, especially rail freight, are planned in this area. Valga county is aiming to become one of the distribution centres for the Chinese goods entering Europe by rail (Estonian Ministry of the Interior 2009).

Rail Baltica one of the priority projects of the **EU: TEN-T** and is currently under construction. It will intersect Southern Estonia region (Tartu-Valga- Jõgeva). The first phase of the construction is expected to be completed in 2015. The project is supposed to link Finland, the Baltic States and Poland and also improve the connection between Central and Eastern Europe and Germany.

**Manufacturing** is also quite important in the region. C31 (Manufacture of furniture) accounts for the largest share of GVA, followed by C25 (Manufacture of fabricated metal products, except machinery and equipment) and C22 (Manufacture of rubber and plastic products). This sector experienced the highest GVA change between 2000 and 2010, however this significant growth is attributed specifically to C21 (Manufacture of basic pharmaceutical products and pharmaceutical preparations), which recorded 1459% GVA change in this time period. Since the green component of these activities is not clear, manufacturing sector was not chosen for further analysis in this study.

Although **green research and eco-innovation** is not among the leading sectors when it comes to the share of GVA in the regional economy today, the sector has a significant development potential. GVA change of the sector was the second highest in the region between 2000 and 2010. Such activities as M72 (Scientific research and development), M74 (Other professional, scientific and technical activities) and M70 (Activities of head offices, management consultancy activities) recorded the highest growth in this time period. However, as long as the definition of the sector is quite general, it is hard to judge how green the specific activities are.

The activities and potential related to green research and eco-innovation are unevenly distributed across the region. Knowledge-intensive economy has the best prospective in the larger growth centres, such as the city of Tartu. Hence it is logical to assume that both jobs and knowledge will continue to concentrate in strong urban centres, which may even aggravate the regional inequalities.

Lastly, the **Energy sector's** contribution to the regional GVA is quite modest. Neither mining of coal and lignite, nor extraction of crude petroleum and natural gas takes place in Southern Estonia, and **Water and waste management** also has a very modest contribution to the GVA.

## **3.2 Description of the selected key sectors**

### **3.2.1 Building and construction sector**

When it comes to building and construction sector, this case study focuses mainly on greening of the new and existing building structures, as these practices are currently prioritized at the state level and the concrete initiatives have been taken. Although the impact of construction and related branches – spatial planning, architecture, engineering, and real estate is important to consider, an analysis on green performance of these branches is difficult to perform.

In general, the building and construction sector in Estonia has had its ups and downs in the development, closely linked to the overall state of economy and the purchasing power of the population. From 2003 a significant growth occurred, with a peak in 2007. In addition to the residential buildings (new private houses, semi-detached houses and apartment buildings), a large number of shopping centers and office spaces were built.

In the following years of recession, the construction volumes decreased by almost half and unemployment rose to the record levels. While many construction companies went bankrupt, the tough competition on the market has also significantly improved the performance of the construction enterprises. While the share of export has never been higher than 3-5%, in the beginning of 2011 it rose above 10% (KredEx 2012).

When it comes to the building stock, about 70% of dwellings in Estonia are apartment buildings originating from the Soviet era. According to the Statistics Office in Estonia, in order to maintain the existing housing stock, which has an average life expectancy of 60 years, about 1/60 of existing building units or 670000 m<sup>2</sup> shall be newly built or reconstructed per year (KredEx 2012).

It should be noted that almost 96% of Estonian housing stock is privately owned as there is almost no municipal or social construction in Estonia. The share of reconstruction works is projected to remain high in the following years, since not many can afford building new houses and apartments in the current economic situation. However, when the average income of the population increases in future, favoring building of new houses should be prioritized (MKM 2013).

### **3.2.2 Agriculture**

In Southern Estonia agriculture is most developed in Viljandi and Jõgeva counties. Võru county has the largest number of organic producers in Estonia.

After regaining the independence in 1991 and the following industrialization process in the beginning of 2000s', the role of agriculture in the economy of the country decreased

rapidly.

Most of the state-owned enterprises were privatized and the number of agricultural ancillary enterprises also decreased. From 2001 to 2010 the number of agricultural holdings and the farm labor force have decreased by 65% and 60% respectively. A similar trend occurred in other EU countries during that time (Statistics Estonia 2012).

In 2010 there was 34.9% less agricultural land in use in comparison to 1991. At the same time due to various support provided in the framework of CAP, the use of agricultural land and crop acreage has increased from 2004 to 2010. Unused agricultural land which is maintained in good agricultural and environmental conditions accounts for about 56% of the increase.

Although the value added of agriculture to the country's economy has decreased, it continues to play a significant role in food supply, in the rural economy, and in shaping cultural landscapes. Food industry is the main buyer of domestic agricultural produce.

Although livestock farming fell by 7% between 2001 and 2010, mostly due to the disappearance of cattle breeding in small holdings, it is still the most important branch of the agricultural production in Estonia. The main crops grown in Estonia today are cereals, rape, vegetables and potatoes (Statistics Estonia 2012).

Dairy products account for almost one third of the food processing industry, followed by meat products at 18%. More than a quarter of food industry production goes for export, mainly to the other EU Member States. Estonian milk has a high export potential. About half of all cheese and one third of pork produced in the country are exported.

Most of the holdings (75%) in the country are small, accounting for about 5% of the standard output. There are relatively few large holdings in Estonia but they produce about three quarters of the total standard output. In recent years the number of large holdings has been growing. The predominance of large-scale farmers can be explained by the fact that this form of production is more profitable in respect to the current prices and the level of subsidies in Estonia today (Statistics Estonia 2012).

In contrast, small-scale farmers are having hard time to survive on the market. Very few of them apply for grants and subsidies on investment. Many small farmers start to develop activities in specific fields, such as organic farming. Therefore, despite a rapid decrease in a number of holdings, the number of organic farming holdings and the size of organically farmed agricultural areas are increasing.

### **3.2.3 Forestry**

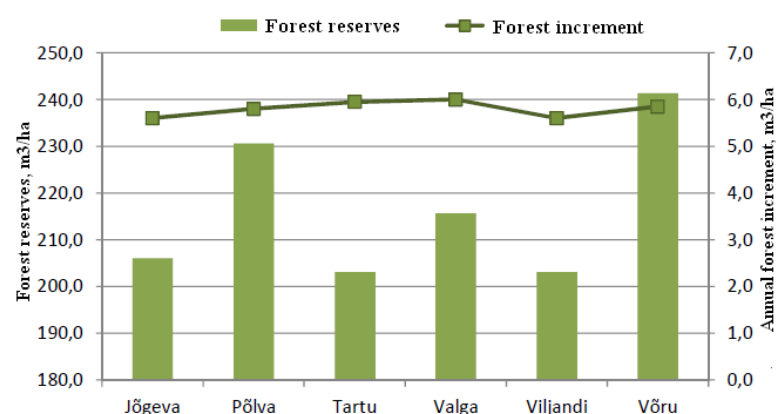
Besides agriculture forestry plays an important role in assurance of the sustainability of

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rural regions. Forest has cultural, socio-economic and ecological value and is therefore an important sector of green economy.

About 36% of forest in Estonia is managed by State Forest Management Centre (RMK), 35% by private forest owners and 17% is unreformed land and out of active management (Envir 2008). Today there are approximately 80,000 private forest owners (natural and legal persons) in Estonia.

The average private- and state forest reserves in Southern Estonia is 219.6 m<sup>3</sup>/ha and the average annual forest increment is 5.7 m<sup>3</sup>/ha, which is significantly higher than Estonian average values of 207.3 m<sup>3</sup>/ha and 5.2 m<sup>3</sup>/ha (Figure 5). About 2762496 m<sup>3</sup> of forests are being cut in Southern Estonia region annually. Despite cuttings, the resources of forest stands have been increasing over the past decade due to reforestation (TREA 2013).



**Figure 5 Forest reserves and annual increment in Southern Estonia by county in 2010 (adapted from TREA 2013).**

In the country as a whole, forest sector makes up one fourth of the turnover of the Estonian industry. Timber is among the dominant export industries in the region. It is mainly the lumber and pellets that are exported whereas round wood is utilized domestically (Kiikas, M. 2013).

In addition to the use of timber in construction and furniture industry, forest is an important source of renewable energy in the region. Firewood, wood waste (including wood chips) and pellets are the three main wood-based energy products produced in Estonia. One of the largest pellets manufacturers is located in Southern Estonia in Tõrva.

### 3.2.4 Tourism

The multitude of natural and nearly natural ecosystems, the rich cultural heritage and traditional know-how form an essential strength of the region, especially considering the development opportunities related to the growth of tourism. The most popular



development trends are nature and rural tourism, as well as family and active tourism (sports and cultural events).

The two main tourist attractions in Southern Estonia today are the city of Tartu and Otepää sport facilities. Otepää is sometimes called the winter capital of Estonia, as it hosts one of the best-known winter sports centers in the Baltic region.

Ethnic and cultural identity in Southern Estonia can also be considered as important tourism resources. The best examples can be found in the area south of Lake Peipsi, Setomaa. The Estonian part of Setomaa consists of lands in Põlva and Võru counties (Mikitamäe, Meremäe, and Värska rural municipalities). Another specialty of the region is the community of Russian Old Believers on the west banks of Lake Peipsi.

There are a number of churches, manors and ancient building which are interesting from the architectural point of view. Many of them require restoration and renovation. Numerous former military, industrial and agricultural facilities left from the Soviet times can be found both in urban and rural areas. People are moving away from the rural areas and leaving their farms behind. On the one hand they are 'littering' the natural environment, but on the other hand they could also become tourist attractions once taken care of and renovated.

There are more domestic tourists than foreign ones in the region today (Table 8). The majority of foreign tourists come from Latvia, Russian Federation, Finland and Germany.

The highest accommodation figures are in the city of Tartu, whereas the lowest are in Jõgeva and Viljandi counties.

Accommodation in rural tourism accounts for approximately 66% of the tourist accommodation in Estonia. Although the number of accommodation establishments, rooms and beds almost doubled in Southern Estonia throughout 2004 to 2011, the growth is still described as slow. Southern Estonia has more than 125 hiking and fitness trails. The largest number of the trails is in Tartu and Põlva counties. Hiking in the forest is the most popular nature tourism service offered in the region today (74%), followed by bog hiking (47%), landscape observations and canoe hikes (LE-T 2009).

County		2005	2011
<b>Jõgeva</b>	Total number of tourists	21035	32156
	domestic tourists	18618	28667
<b>Põlva</b>	Total number of tourists	74510	86254
	domestic tourists	66923	69751

<b>Tartu</b>	Total number of tourists	199537	321638
	domestic tourists	82683	175608
<b>...Tartu city</b>	Total number of tourists	191754	276533
	domestic tourists	77783	141957
<b>Valga</b>	Total number of tourists	152345	146448
	domestic tourists	115265	100689
<b>Viljandi</b>	Total number of tourists	41900	60655
	domestic tourists	27710	47778
<b>Võru</b>	Total number of tourists	49407	76451
	domestic tourists	38213	64778

**Table 8 Total number of tourists in Southern Estonia by county in 2005 and 2011 (adapted from LE-T 2009).**

In 2010 about 18% of the territory was protected within the EU Natura 2000 network in Estonia. On the one hand, the economic activities in the conservation areas are limited; on the other hand, these areas have a good potential for ecotourism development (SEIT 2011).

### **3.3 Main policy documents with an impact on green development of the sectors**

There is a large number of strategies, communications, directives and regulations, which steer a greener development of the sectors looked upon in this case study. The tables below highlight the most important ones.

**Table 9 EU legislation and policy**

<b>Type of policy</b>	<b>Policy (and short description)</b>
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<b>EU Roadmaps</b>	<p><b>Europe 2020</b></p> <p>Released in 2010, EU 2020 Strategy is a long-term growth strategy for the EU, which aims to create the conditions for a more competitive economy in Europe with a higher employment. It steers the transition to a greener economy through promoting growth that is smart, sustainable and inclusive; by promoting a more resource efficient, green and a more competitive economy.</p> <p>The Strategy has targets related to increasing the energy efficiency, modernization the building sector and increasing the green investments.</p> <p>The 20/20/20 target has a relationship to buildings and construction through investment in renewables and modernizing the transport, energy and building sectors.</p> <p><b>The Roadmap to a Resource Efficient Europe &amp; the Roadmap for moving to a low carbon economy in 2050</b></p> <p>The two roadmaps are parts of the Resource Efficiency Flagship of the Europe 2020 Strategy. The Resource Efficiency Flagship outlines how Europe's economy can be transformed into a more sustainable one by 2050. It supports the shift to a low carbon economy, promotes the use of renewables and increasing energy efficiency.</p> <p>The Roadmap to a Resource Efficient Europe supports reducing fossil fuels use via better energy efficiency and renewable energy use in the buildings; building zero energy buildings and increasing the renovation rate of existing buildings.</p> <p>The Roadmap for moving to a low carbon economy in 2050 promotes the reduction of the GHG emissions through improvement of energy performance in buildings and especially supporting the refurbishment of the existing buildings; as well as by applying the agricultural and forestry practices that can improve the preservation and sequestration of carbon.</p>
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<p><b>Other important communications</b></p>	<p><b>Communication from the Commission to the Council and the European Parliament of 10 June 2004 - "European Action Plan for Organic Food and Farming" (<a href="#">COM(2004) 415</a>)</b></p> <p>The Commission sets out its general guidelines on organic farming.</p> <p>The Commission supports market development by providing information about the principles, objectives and benefits of organic farming to the consumers.</p> <p>The Commission urges Member States to make full use of all the Community instruments and measures, such as national and regional action plans, available within their rural development programmes.</p> <p>The Commission urges to preserve the integrity of organic farming to reduce obstacles to trade caused by the existence of too many different standards.</p> <p><b>Commission Communication of 27 March 2001 to the Council and the European Parliament: Biodiversity Action Plan for Agriculture (Volume III) [<a href="#">COM(2001) 162</a> final - not published in the Official Journal].</b></p> <p><b>Communication of 7 December 2005 "Biomass Action Plan" (COM (2005) 628)</b></p> <p>The Communication points out measures to encourage the production of energy and materials from wood, waste and agricultural crops. The Action Plan aims to reduce the insecurity of investors by evaluating the physical and economic availability of different biomass types and by setting priorities regarding the biomass types in use and ways of developing them.</p> <p><b>Communication on Sustainable Buildings (2013)</b> is an indicative roadmap, which is put forward to contribute to achieving the targets of the Roadmap to a Resource Efficient Europe. It aims to improve the resource efficiency of the building sector and, thus, boost its competitiveness while improving the environmental and climate performance of the sector.</p>
<p><b>EU Directives</b></p>	<p><b>Directive 2006/32/EC</b></p> <p>Directive on Energy End-Use Efficiency and Energy Services calls the Member States to develop high quality and efficient energy audit schemes in buildings. It sets the target of saving 9% of final energy consumption during the period of 2008-2016.</p> <p>The 2016 target for Estonia is to achieve 9.9 PJ savings as a result of the energy conservation measures implemented in the period 2008–2016.</p> <p><b>Directive 2010/31/EU</b></p> <p>Directive on Energy Performance of the Buildings sets the following requirements:</p> <ul style="list-style-type: none"> <li>- all new buildings should be nearly-zero energy buildings by 31 December 2020;</li> </ul>

	<ul style="list-style-type: none"> <li>- after 31 December 2018, new buildings occupied and owned by public authorities are nearly zero-energy building;</li> <li>- Member States are required to draw up national plans for increasing the number of nearly zero-energy buildings;</li> <li>- large existing buildings that are to be renovated should meet minimum energy performance requirements;</li> <li>-energy certification of buildings should be applied;</li> <li>- the general framework for a methodology of calculation of the integrated energy performance of buildings should be developed.</li> </ul>
<i><b>EU regulations</b></i>	<p><b>Council Regulation (EC) No <a href="#">1698/2005</a> of 20 September 2005 on support for rural development by the European Agricultural Fund for Rural Development (EAFRD).</b></p> <p>This Regulation lays down the general rules governing Community support for rural development, financed by the EAFRD. It also defines the aims of rural development and the framework governing it.</p> <p>The Fund contributes to improving:</p> <ul style="list-style-type: none"> <li>• the competitiveness of agriculture and forestry;</li> <li>• the environment and the countryside;</li> <li>• the quality of life and the management of economic activity in rural areas.</li> </ul> <p>The Fund complements national, regional and local actions, which contribute to Community priorities.</p> <p>Implementing the national strategic plans of the EAFRD is carried out through rural development programmes containing a package of measures grouped around 4 axes.</p> <p><b>EU Organic Farming Regulations (EC) No 834/2007 and (EC) No 889/2008</b> provides detailed rules for production, processing, marketing, control and labelling.</p>

Table 10 National and regional policies

Type of policy	Policy (and short description)
<b>National strategies</b>	<p><b>The Estonian National Strategy on Sustainable Development – Sustainable Estonia 21 (2005)</b></p> <p>The Strategy focuses on long term sustainable development of the Estonian state and society until the year 2030, integrating the economic factors with the principles of sustainable development and preservation of the traditional values of Estonia. Four development goals outlined in the Strategy are:</p> <ol style="list-style-type: none"> <li>1. Viability of the Estonian cultural space</li> <li>2. Growth of welfare</li> <li>3. Coherent society</li> <li>4. Ecological balance</li> </ol> <p>Within the third goal, the Sustainable Estonia 21 covers the societal aspect of green economy. The aim is to achieve social inclusion and increase in regional balance, develop a strong civil society and overcome the large in-country differences in Estonia by 2030.</p> <p>The fourth goal of the strategy promotes a more sustainable use of natural resources, reduction of pollution and preservation of biodiversity and natural areas. The strategy promotes the development of sustainable tourism products.</p> <p><b>Estonian Environmental Strategy 2030</b></p> <p>The main aim of the Estonian Environmental Strategy is to ensure a good status of natural environment while taking into account the connections between economic and social spheres.</p> <p>Improving the indoor climate is among the objectives. The Strategy supports the increasing development of ecological buildings and technologies and the replacement of construction materials that contain asbestos with healthier materials.</p> <p>In the field of forestry the strategy promotes the development of forestry sector that satisfies ecological, social, cultural and economic needs in a longer than 25 years perspective.</p> <p>The vision is that agriculture will be dominated by organic farming and farm tourism, as well as hobby farms. The pressure of economy on nature will be decreased. Resources will be used much more efficiently and the application of environment-friendly technologies will increase. Local products and the use of local renewable resources will be preferred. Estonia is notable in the EU for low energy consumption per production unit.</p> <p>The Strategy is implemented through the National Environmental Action Plan of</p>

	<p>Estonia for 2007-2013, which is based on the current EU programming period 2007-2013.</p> <p><b>National Strategic Reference Framework (NSRF)</b> for the EU Structural Funds for 2007-2013 is drawn up as part of the "State Budget Strategy 2007-2010". The aim of the activities envisaged under the NSRF is to direct the development in the long-term towards fulfillment the objectives set out in the Sustainable Estonia 21 Strategy with the contribution from the EU structural funds.</p> <p>Increasing of the efficiency of energy consumption and energy conservation by energy consumers is among the objectives. Support is foremost provided for the auditing and reconstructing of apartment buildings.</p> <p><b>Estonia 2020 Strategy</b></p> <p>Estonia 2020 Strategy and its <b>Action Plan 2011-2015</b> were developed in response to the need to fulfill the obligations expressed in the Europe 2020 Strategy.</p> <p>The targets set out in the Europe 2020 Strategy are translated into national targets expressed in Estonia 2020 Strategy. Estonia 2020 Strategy outlines the main political incentives and measures for increasing the competitiveness of Estonia.</p> <p>The Strategy aims to reduce the general resource-intensity of the economy through increasing energy efficiency. The Strategy sets a goal of keeping the <b>final energy consumption in 2020 at a level of 2010 (reducing the final energy consumption by 11% in comparison to the forecasts for 2020) and 25% share of renewable energy in gross final energy consumption by 2020.</b></p> <p><b>Estonia 2020 Action Plan 2011-2015</b> includes measures relevant for the building sector:</p> <ul style="list-style-type: none"> <li>• <b>Implementing stricter energy efficiency requirements for new and reconstructed buildings starting from 2013. The state will lead by example, constructing new public sector buildings energy-efficiently;</b></li> <li>• <b>Continuing investments in energy saving measures in public and municipal buildings;</b></li> <li>• <b>Continuing to provide the energy efficiency support schemes for the reconstruction of apartment buildings;</b></li> <li>• <b>Developing a support scheme for energy-efficient renovation of private dwellings, which includes reconstruction of dwellings and application of renewable energy solutions.</b></li> </ul> <p><b>Regional Development Strategy of Estonia 2005-2015</b></p> <p>The overall objective of the Strategy is to support the development of all regions (not only problematic ones) in order to make all regions in Estonia attractive places to live and work.</p> <p>The strategy takes into account the particular characteristics of different regions. About 80% of the activities are financed through the European Regional</p>
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	<p>Development Fund (ERDF). In the field of environment, the support is provided to the nature protection and environmental education infrastructure, the development of supervision and monitoring and renewable energy.</p> <p><b>The Estonian Rural Development Strategy 2007-2013</b> as a strategic document and the Estonian Rural Development Plan 2007-2013 as its implementation document are prepared to support the regionally balanced development of rural areas, mainly through the European Agricultural Fund for Rural Development.</p> <p><b>Estonia's Rural Development Plan (ERDP) for 2007-2013</b></p> <p>The ERDP aims at improving the competitiveness of the agricultural and forestry sector, the environment and the countryside, improving the quality of life in rural areas and diversifying the rural economy (incl. non-agricultural production, rural tourism, crafts).</p>
	<p><b>Building Act</b></p> <p>The Building Act entered into force in 2003. It provides the requirements for construction works, building materials, construction products, building design documentation, and the basis and procedure for the design, building and use of construction works.</p> <p><b>The National Energy Efficiency Programme 2007-2013</b> was approved in 2007. It is a key strategic document aimed at improving energy efficiency and fuel savings in Estonia. It calls for applying <b>stricter energy performance standards in new and renovated buildings from 2013. The government should set an example by constructing new public buildings with maximum energy efficiency.</b></p> <p>In the <b>Second Energy Efficiency Target Programme for 2007-2013</b> more than 100 measures for increasing energy efficiency in various sectors are presented. The savings of fuels and energy have to make approximately 5.1 PJ from 2008 to 2013.</p> <p><b>The Action Plan also sets out more strict criteria for public procurement. In the field of building sector it sets the following objectives:</b></p> <ul style="list-style-type: none"> <li>• <b>continuing the support programmes for energy conservation activities in multi-storey residential houses;</b></li> <li>• <b>implementing the new measures for energy saving in private small houses;</b></li> <li>• <b>support for renovation of public sector buildings</b></li> </ul> <p><b>The National Development Plan for Housing Sector 2008-2013</b> sets out the targets for improvement of energy conservation in apartment buildings and for raising awareness in order to improve the housing fund in Estonia.</p> <p><b>National Development Plan of the Energy Sector until 2020</b></p> <ul style="list-style-type: none"> <li>• to achieve 9.9 PJ savings as a result of the energy conservation measures implemented in the period 2008–2016 ( 6.6 PJ in the</li> </ul>



	<p>period 2008–2013);</p> <ul style="list-style-type: none"> <li>• to keep the final energy consumption in Estonia at the same level in 2020 as it was in 2010. This means that energy consumption must stay at 121.3 PJ;</li> <li>• to construct at least 10 publicly accessible nearly zero-energy buildings of various types with total usable area not less than 5000 m<sup>2</sup> in Estonia by 2015.</li> </ul> <p>Organic Farming Act</p> <p>Organic Farming Act was adopted in 2006. It provides for the requirements for operating in the area of organic farming in the part not covered by regulations of the EU; specifies control and labeling.</p> <p><b>Estonian Organic Farming Action Plan 2007–2013</b></p> <p>The action plan promotes the expansion of the organic sector in Estonia, making it more easily available to consumers. Organic Farming Action Plan has the following goals:</p> <ul style="list-style-type: none"> <li>• to increase the organic agricultural area from 72 800 hectares (2006) to 120 000 hectares by 2013;</li> <li>• to increase the number of active organic farms from 1173 (2006) to 2000 by 2013;</li> <li>• to enlarge the number of organic processing facilities from 14 (2006) to 75 (2013);</li> <li>• to increase the share of domestic organic products to from 0.15% (2006) to 3% by 2013.</li> </ul> <p><b>Estonian Forest Development Plan 2011–2020</b></p> <p>The objective of the Forest Development Plan is to maximize the contribution of the forest sector to national economy and the welfare of society in a sustainable way. It aims to ensure the viability and productivity, diverse and efficient use of forests, including the recreational and leisure activities. The plan regulates the forestry development in such matters as forest renewal, biodiversity and forest protection</p> <p>Forest Development Plan encourages in the long run the <b>enhanced use of wood in timber and energy in order to increase local consumption, as well as to increase the international competitiveness of the forest and wood industry</b>. The plan calls for a maximum utilization of wood produced in the process of forest management. According to the Development Plan, in order to ensure a sustainable use of forest areas, 12-15 million m<sup>3</sup> of forest material should be used annually in the country.</p> <p><b>Estonian Forest Policy</b></p> <p>Estonian Forest Policy was adopted in 1997. It acknowledges a high environmental and ecological value of forests. The two important objectives of the Estonian Forest Policy are supporting sustainability of forestry and efficiency in forest management, which secures an efficient production and effective use of forestry products and services. The policy also sets the goals related to holiday and recreational opportunities that forests provide. The policy also specifies the role and responsibilities of</p>
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	<p>private forest owners.</p> <p><b>Forest Act</b></p> <p>The fourth version of the Act entered into force in 2007. The purpose of this Act is to ensure the protection and sustainable management of the forest as an ecosystem. The sustainable forest management should satisfy the ecological, economic, social and cultural needs. It should guarantee the biodiversity, productivity and the regenerative capacity of forests.</p> <p><b>National Waste Management Plan 2007–2013</b> promotes the use of wood waste as biomass. One of the objectives is to stop direct depositing of wood waste in landfills. It encourages the following treatment of wood waste: composting together with waste water sediment and other biodegradable waste; and burning for energy production (also in the form of briquette).</p> <p><b>National Long-term Development Plan for the Fuel and Energy Sector</b> promotes wood as an environment-friendly source of heating and encourages the greater use of logging waste. The strategic objectives are: to ensure that by 2020 electricity produced in CHPs forms 20% of the gross consumption; until 2010, maintain the volume of primary energy consumption at the level of the year 2003.</p> <p><b>Development Plan 2007-2013 for Enhancing the Use of Biomass and Bioenergy</b></p> <p>Among other issues, the plan promotes the increased use of biomass (mainly cutting waste and unconventional biomass), setting a target of 3% biomass used for energy production of national gross consumption by 2013. It is stressed in the development plan that public procurement should be used to motivate biomass and bioenergy consumption.</p> <p>Other targets 2013 include:</p> <p>GHG emissions from agriculture: 702 CO<sub>2</sub> eq Gg</p> <p>Area under energy crops: 100 000 ha</p> <p>Share of district heat produced from renewables in total district heat: 33%</p> <p><b>Estonian National Tourism Development Plan 2007-2013</b></p> <p>The overall objective of the Development Plan 2007-2013 is to ensure a competitive and sustainable development of tourism sector.</p> <p>The focus is on promoting Estonia as a travel destination, increasing the number of foreign and domestic tourists in Estonia, tourism infrastructure improvements, supporting the development of tourism products and services based on national traditions and typical features, as well as nature and countryside tourism products. Among the overarching goals is to ensure that the tourism services and attractions are of high quality and in accordance with the principles of sustainable development.</p>
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	<p>Measure 2.5 supports the promotion of sustainable tourism and include the following activities:</p> <ul style="list-style-type: none"><li>• Promoting the implementation of sustainable development principles;</li><li>• Promoting the development of ecological tourism products;</li><li>• Promoting the implementation of environmental management systems and certification.</li></ul>									
<b>Regional strategies</b>	<p><b>Tourism Development Plan in Southern Estonia until 2020</b> was developed in 2009.</p> <p>The Development Plan aims to improve the economic performance and value added of the tourism sector – to increase the revenues, create new jobs and promote the regional development in general. The Development Plan also aims to contribute to building a visible and attractive image of the region, utilizing the regional strength, which are the rich cultural heritage, beautiful natural environment and purity. The Development Plan primarily supports the activities in the field of marketing and product development, improving the quality of service and strengthening the regional cooperation.</p>									
<b>National legislation transposing the directives</b>	<p><b>The Regulation of the Government Minimum Requirements for Energy Performance of Buildings</b> (No. 258 of 20 December 2007)</p> <p><i>Integrated energy performance indicators (kWh/m2 a year)</i></p> <table><tr><td>Building type</td><td>New buildings</td><td>Buildings undergoing major renovation</td></tr><tr><td>Family houses (incl. semi-detached houses)</td><td>180</td><td>250</td></tr><tr><td>Apartment houses</td><td>150</td><td>200</td></tr></table> <p>The specific heat transmission of the rooms’ envelope cannot exceed the value of 0.5 W/(m2·K). The specific heat transmission through the outer shell (envelope) of the building must be 1.0 W/(m2·K) or lower. For small houses the maximum heat transfer values of building shell are fixed, for other types of buildings the influence of internal indirect sources of heat may play an important role. The requirements are fully in force since July 2009.</p>	Building type	New buildings	Buildings undergoing major renovation	Family houses (incl. semi-detached houses)	180	250	Apartment houses	150	200
Building type	New buildings	Buildings undergoing major renovation								
Family houses (incl. semi-detached houses)	180	250								
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### 3.4 Description of interrelation between the sectors

Close linkages between the sectors can be observed. Development of tourism is highly dependent on the accessibility to tourism attractions. Thus, better access to remote

areas, as well as canalization, electricity and network coverage contribute to the attractiveness of the tourist destinations. At the same time the development of infrastructure puts a pressure on the environment, which is undesirable from the sustainability perspective. Promoting of alternative means of transportation, such as biking, could have a positive impact on tourism development.

Tourism is also interrelated with the agriculture sector, as it sustains the local agricultural producers and the service sector. Tourists assign a great importance to the local food, natural products and handcraft, which brings additional income to the local agricultural producers. Organic food can become one of the trademarks for Southern Estonia in future, which would also have a positive influence on food industry and tourism development.

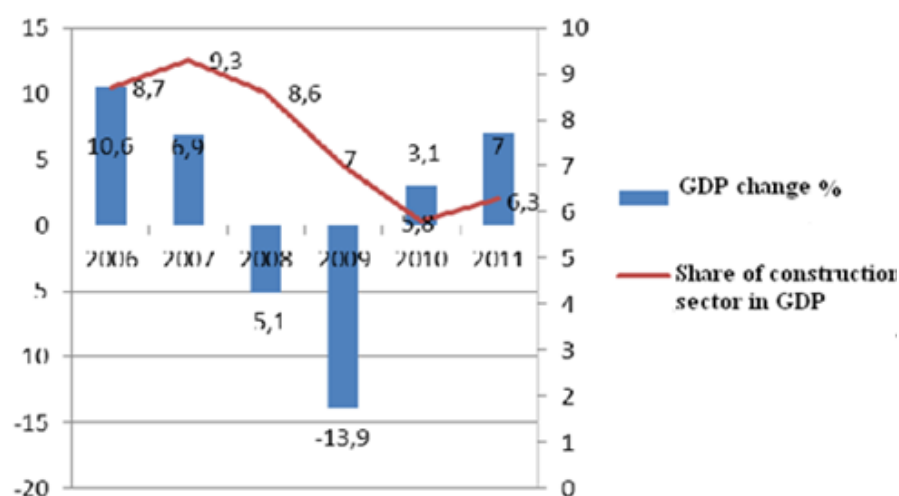
Forests provide a variety of wildlife and recreation activities to the tourists, which are highly valued in Southern Estonia. In addition, tourism development is naturally linked to the consumption of natural resources in other sectors, also in terms of buildings, transport, water and waste management. There are a number of abandoned buildings from the Soviet era, as well as old farms in the rural areas. Once renovated, they could become popular tourist attractions and could be taken into use for tourism purposes.

Agriculture as we know it today is much more than just food production. Other functions, such as environmental protection, tourism, tackling climate change, recreation and preservation of cultural heritage are becoming increasingly important.

## 4 Performance of the key sectors of green economy – How green is the economy in the region?

### 4.1 Building and construction

The value added of building and construction sector to the country's economy was the highest in 2007-2008 and then dropped significantly due to the economic crisis (Table 11). In 2011 the construction sector accounted for about 6% of the GDP. According to projections, the value added of the sector will rise in future coupled to the overall economic recovery in Estonia but is unlikely to rise to the levels of 2007.



**Table 11** GDP in Estonia and the share of construction sector in GDP during 2006-2011 (adapted from KreEx 2012).

The employment in the sector has been decreasing over the last couple of years. If in 2007 there were about 82 000 people employed in the construction sector in Estonia, then by the beginning of 2010 this number dropped to 48 000. In 2011, a slight increase in employment rate was observed, which is primarily attributed to increased reconstruction of buildings with the revenues received from the CO<sub>2</sub> quota trade. Reconstruction works accounted for about 60% of the building related works in Estonia in 2011 (Table 12).

	2006	2007	2008	2009	2010	2011
<b>Total number of employed</b>	646 300	655 300	656 500	595 800	570 900	609 100
<b>Employed in the construction sector</b>	63 600	82 100	81 000	58 300	47 900	59 000
<b>their share in total employment</b>	9,8%	12,5%	12,3%	9,8%	8,4%	9,7%

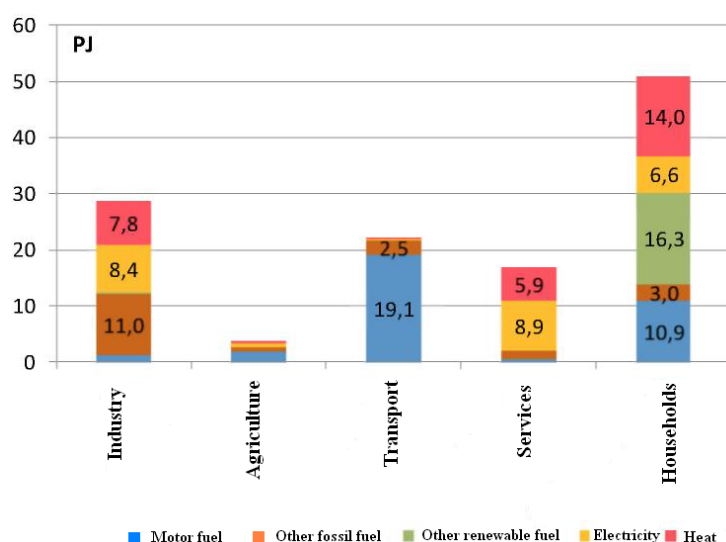
**Table 12** The number of employed in the construction sector and their share in total employment in Estonia (adapted from KredEx 2012).

In Estonian energy conservation policy, the main attention is on energy conservation in buildings, as households are the largest energy consumers (Figure 6).

When it comes to the quality of housing stock in Estonia, it can be noted that most buildings are energy inefficient and require renovation. Estonian annual heating energy in the buildings is about 200-400 kWh/m<sup>2</sup>, which is considerably higher than the figure in industrial nations with a similar climate – 150-230 kWh/m<sup>2</sup>. This indicates that there is a high energy saving potential in the existing housing stock (KredEx 2012).

The interim target of 3.3 PJ of energy savings set in the Energy Efficiency Plan 2007–2013 for 2010 was achieved as a result of the energy conservation measures. However, the mid-term overview of implementation of Energy Efficiency Plan 2007–2013 showed that so far there are not enough data to perform a thorough analysis of the effectiveness of the energy conservation policy.

There are no specific policy targets in the building and construction sector in Southern Estonia region. The stricter requirements when it comes to energy performance of the new buildings apply across the whole country.



**Figure 6 Estonian energy consumption structure by energy sources and sectors in 2008**

Until 2015 several samples nearly zero-energy buildings will be constructed, as stipulated in the National Development Plan of the Energy Sector until 2020.

The saving potential in residential sector is especially high in houses built before 1990. Unfortunately there is no statistics available about the implemented refurbishment measures and their contribution to energy saving. It is estimated that about one third of heat can be saved, depending on the level of investment for refurbishment measures (Table 13).

Indicator	Unit	Value
Average specific heat consumption		
... before refurbishment	kWh/m <sup>2</sup> a year	250
... after refurbishment	kWh/m <sup>2</sup> a year	200
Reduction of energy demand		
... final energy	GWh	360
... primary energy	GWh	566
Reduction of emissions		
... CO <sub>2</sub>	10 <sup>3</sup> ton	115
... SO <sub>2</sub>	ton	560
... NO <sub>x</sub>	ton	230

**Table 13 Estimated results of refurbishment measures during 2003 – 2006 (adapted from TTU 2007).**

The majority of reconstruction measures today are aiming at increasing energy efficiency of existing buildings by improving thermal insulation, replacing windows, renovating the heating system etc.

Other important pillars of greener construction are the choice of environmentally friendly materials, minimizing the use of resources while maximizing the reuse. Since 1 July 2013 the Regulation No 305/2011 of the European Parliament and the Council entered into force in Estonia, which promotes sustainable use of natural resources, notably taking into account the recycling and/or reuse of construction works or materials and the use of environmentally-friendly construction materials. Since the regulation has been recently introduced, it is quite difficult to judge its implementation in Estonia today.

An important factor which contributed to energy efficiency improvement in households has been the introduction of heat metering (incl. hot water meters in apartments) between 2000 and 2010 which gave incentive to take efficiency measures.

Although improving the indoor climate affected by building and design errors and the extensive use of artificial materials in building and furnishing is among the objectives of the Estonian Environmental Strategy 2030, these measures are given considerably less attention in Estonia today.

The first passive house in Estonia, as well as in the Baltic States, was built in Valga in June 2009. It is a kindergarten 'Kaseke' and its construction was initiated by Valga Town Council with the financial support from the EU. The heating costs declined by 50% while the electricity bill increased by 30%. The monthly total energy bill is about 30% lower than before the reconstruction of the building.

Estonians have traditionally used round logs for construction of farm houses. Manufacturing of wooden houses is quite well developed today and it is a highly competitive industry. There are about 140 enterprises involved in production across the country and significant share of them comes from Southern Estonia. About 85-90% of wooden houses produced in Estonia are exported. Estonia is the 4th largest exporter of wooden houses in the EU (Puitmajaliit 2013).

The use of alternative construction techniques is growing in Southern Estonia (Text Box below).

Small wind turbines are installed mainly in rural areas and the total number in Estonia is about 50. The solar collectors for heating up the water are becoming more popular over the years. They are being installed both on multi-storey and private houses, as well as commercial buildings. The total number of solar collectors across Estonia is estimated to be around 100. The number of photovoltaic panels in Estonia is smaller.

The traditional construction ways and local construction materials are becoming more popular in Southern Estonia. The original log-constructing traditions are being popularized, as well as the renovation of traditional clay buildings. NGO Vanaaja maja arranges series of practical renovating trainings on clay-construction and raises awareness of clay construction traditions in Võru county.

There are no reliable data available about the number of renovations and the overall performance of building and construction sector in Southern Estonia regional. In general, the situation in the region is similar to the rest of the country. The renovation activity is higher in Tartu than in the peripheral areas.

## 4.2 Agriculture

Coupled to increased investments in agriculture in the beginning of the century, the gross value added of agricultural producers in Estonia increased more than three times from 1999 to 2012 (from 101.6 million euros to 345 874 thousand euros). Animal husbandry makes up the biggest part of production value (51,3% in 2005).

Only 15 years ago a substantial part of labor force in rural areas of Southern Estonia was occupied in agriculture, but this number is much smaller today. As shown in Table 14, from 2001 to 2010 the number of people employed in the agricultural holdings in the region dropped from 66 310 to 27 914. In 2010 the employment in agriculture, forestry and fishery sectors together accounted for 4.2% of all jobs in Estonia, whereas in 1990 it was 19.5% (EMU 2011).

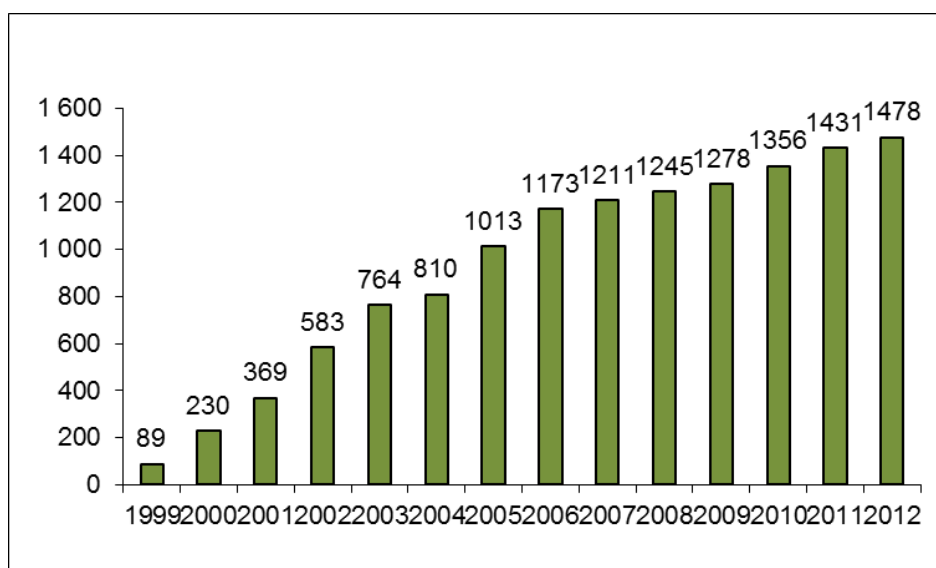
Between 1995 and 2010, the share of agriculture in the employment has decreased by about 60% in the whole country.



	Direct labor force of holdings	
	2001	2010
Jõgeva county	11 346	4 608
Põlva county	10 136	4 200
Tartu county	14 123	5 398
Valga county	6 560	3 186
Viljandi county	12 228	4 840
Võru county	11 917	5 682
<b>Total in Southern Estonia</b>	<b>66 310</b>	<b>27 914</b>

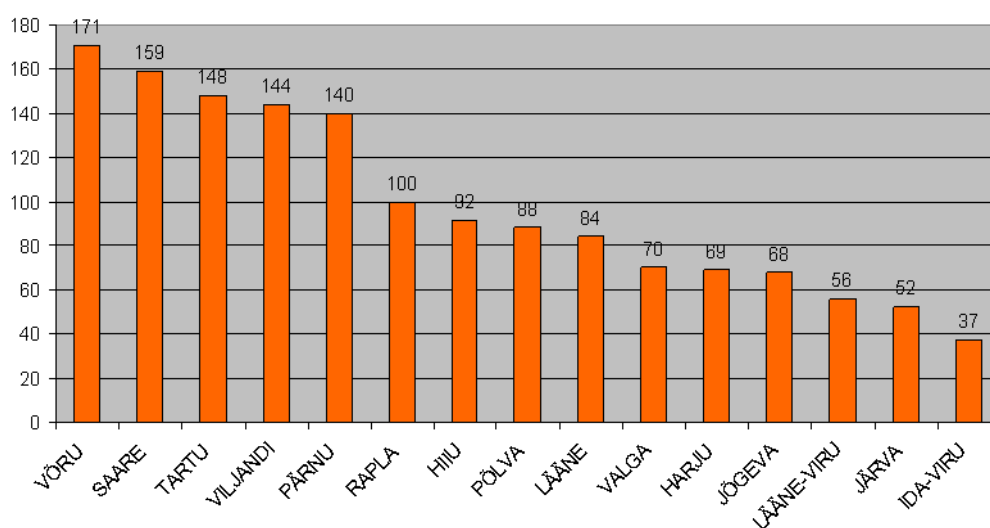
**Table 14 Number of people employed at the agricultural holdings in Southern Estonia in 2001 and 2010 (adapted from Statistics Estonia 2013).**

At the same time organic farming has been experiencing a rapid development in the last decade (Figure 7). By 2012 organic land (144 149 ha) accounted for about 15.3% of all agricultural land in use in Estonia. Additional 129 212 ha of natural areas were certified. According to EUROSTAT (2010) Estonia has the third highest share of organically farmed land among the EU countries – the highest was only in Austria (17%) and Sweden (14%).



**Figure 7 Area of organic land 1999-2012 (adapted from Vetemaa 2013).**

Southern Estonia has the largest number of organic farming enterprises (689 producers in 2012), which is about 47% of the total number of organic farming holdings in the whole country (Agricultural Board 2012) (Figure 8). According to the Rural Economy Research Centre (2012), Tartu county came second in terms of the amount of organic land (14 694 ha) in Estonia in 2012.



**Figure 8 Number of organic enterprises by county in 2012 (adapted from Agricultural Board 2012).**

In 2011 Estonia achieved the target of 120 000 ha organically farmed land set in the Organic Farming Act in Plan 2007-2013. Achieving a target of 3% share of domestic organic products by 2013 in comparison to 0.15% in 2006 might be challenging.

Such a rapid increase in organic production can be attributed to an increased support to organic farmers from the state and the EU structural funds. The farmers were especially motivated since they could make use of the land that is not suitable for an intensive

agriculture and would not have been used otherwise. The largest share of organically farmed land is under semi-natural grasslands, which are appropriate for livestock breeding. Nearly 2/3 of the organic farming enterprises in 2011 were involved in livestock breeding, mainly sheep and goats. More than half of Estonian sheep is considered organic.

At the moment, less than 15% of organically produced wheat and barley and only 0,4% of organically produced milk are sold as organic product due to badly functioning production-processing-marketing chain in Estonia (Agri 2010a).

When it comes to the energy consumption in the agricultural sector, the fossil fuels are still prevalent. The energy consumption of the agricultural sector in Estonia was about 1.1 TWh in 2010, of which renewable energy constituted about 0.9%. Machinery fuel consumption accounted for about 70% of the total energy use in agriculture. Optimizing the productivity and efficiency of machinery is of a crucial importance for increasing the energy efficiency in Estonian agriculture (Ahokas 2012).

The agricultural holdings are starting to improve their energy performance (including the agricultural buildings), especially the larger ones since their investment capacity is usually higher (Ahokas 2012).

There is a greater focus on on-site energy use. The indirect energy use, which also includes pesticides, fertilizers, etc., is not measured in Estonia today. A study on indirect use of energy by the enterprises involved in plant cultivation in Estonia showed that about 65% of all energy consumption was actually attributed to the use of fertilizers (Ahokas 2012).

In relation to climate change impact, the greenhouse gas emissions from the agriculture sector have decreased over the years. This is also a result of decreased production and the number of farm animals. Ammonia emissions into air, originating from livestock-farming, account for about 70% of total emissions. National legislation today sets the requirements to cover liquid manure storage facilities to avoid the emissions of nitrogen compounds. The methane emissions from agriculture have decreased three times between 1999 and 2004.

Since water use is not an issue of concern in Estonia, it is not often measured even in livestock breeding, which is actually a big consumer of water.

There is no biogas production in Southern Estonia today. The 2010 Agricultural Census showed that 34% of all holdings with agricultural land use manure as an organic fertilizer and half of these holdings have applied manure with immediate incorporation. According to one of the respondents, since agricultural production is not that intensive in Estonia, the amount of manure available is rather too little than excessive (Statistics Estonia 2012).

Almost no biomass is produced in the fields in the form of energy crops. Cereals straw is not used as raw material for energy production, whereas rape and cereals are mostly used for producing food and fodder (EBAP 2007). The grants for energy crops cultivation were provided under Estonian Rural Development Plan during 2007–2009. Under this support scheme, the energy crops were cultivated on 12 200 ha in Southern Estonia in 2009 (Table 15).

County	2007	2008	2009
	1000 ha	1000 ha	1000 ha
Jõgeva	1.2	2.1	2.8
Põlva	0.5	0.6	0.8
Tartu	1.4	2.5	2.8
Valga	0.4	1.1	0.5
Viljandi	2.3	3.6	4.7
Võru	0.1	0.3	0.6
<b>Southern Estonia region</b>	<b>5.9</b>	<b>10.1</b>	<b>12.2</b>

**Table 15 The area that received grants for energy crops cultivation in Southern Estonia from 2007 to 2009 (adapted from TREA 2013).**

When it comes to food habits of the population, which steer the demand for agricultural products and thus have an indirect impact on green performance of agriculture, the overall level of consumer awareness is still quite low. Although the popularity of organic food is growing, the demand is relatively low and market is developing slowly.

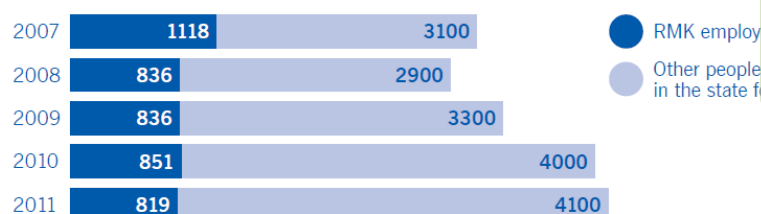
Several vocational schools and the Estonian University of Life Sciences offer organic farming courses, but it is not possible to obtain a degree in organic farming or to specialize in organic farming (Maheklubi 2011).

### 4.3 Forestry

Wood industry is well developed in the region. Estonia is processing its own and imported raw material. Estonia is one of the four European countries, where the share of forestry sector in the GDP is higher than 10% (after Finland, Sweden and Slovenia) (Agri 2010a).

Wood processing industries are important employees in Southern Estonia. 18 900 people were employed in the forest sector in the whole country in 2010, which is about 3.3% of all jobs. As shown in Figure 9, the number of

people employed in the state forest was increasing from 2007 to 2011 with the exception of a drop in 2008. In the coming years mechanical wood processing industries are expected to provide most of the jobs in forestry sector (Valitsus 2012).



In Võru town about 92% of heat production comes from biomass (mainly woodchips). The price for heat energy is one of the lowest in the region. By using biomass in district heating, the town avoids about 13 000 tons emission of CO<sub>2</sub> per year.

Figure 9 Number of people employed in the state forest. Source: RMK 2011.

Forestry sector can have a significant contribution to the green economy through increasing the share of sustainable bioenergy production. In Southern Estonia biomass (firewood, wood chips and forest waste) accounted for about 7411 TJ or 37% of the total primary energy consumption in 2011 which is higher than in Northern Estonia. The share of biomass in the total primary energy consumption was the highest in Võru and Valga counties – 53.3% and 42.6% respectively and smallest in Põlva county – 28% (TREA 2013).

Estonia fulfilled the obligations in the framework of Europe 2020 regarding the 25% share of renewable energy in gross final energy consumption already in 2011. Biomass accounted for 97% of the consumed renewable energy. The share of renewable energy in heating and cooling accounted for 46%.

The development of southeast Estonia wood cluster was initiated in 2009 in a project financed from the ERDF 2007-2013 and supported by the Enterprise Estonia. The goal is to increase export capacity of timber producers and raise a value added of the companies operating in the region. The project promotes an increased cooperation between the companies and sets the preconditions for the development of a nation-wide wood cluster.

Under the Directive 2003/30/EC biofuels should account for 5.75% of road transport fuels in the EU by 2010. The share of biofuels in road transport in Estonia was only 1.82% in 2010, which shows that Estonia is lagging behind the EU targets (Agri 2013a).

Forest biomass is the main renewable energy source in Estonia, which has been traditionally used for heating for ages. The advantage of the forest biomass is that it does not require transformation and can be utilized directly, whereas

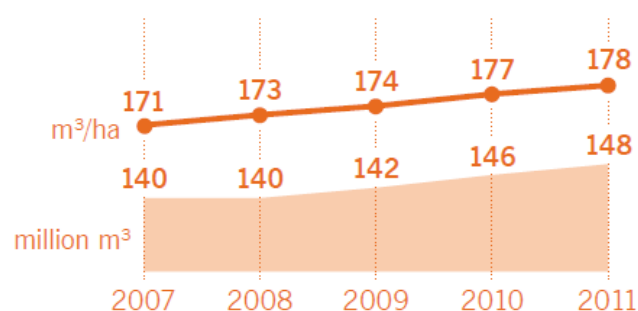
energy production from manure, sludge and biodegradable municipal waste is a more complicated and expensive process.

According to the estimations made in the Estonian Forest Development Plan until 2020 about 2 million cubic metres of low-quality wood is being

produced per year in the process of forest management. Logging waste and sawdust are used mainly for improving the quality of forest roads since the soils are swampy in Estonia. Forest residues can also be sold to the CHP plants if the distance to the plant is short. About two thirds of timber residues are left unused today. Ensuring an effective use of the timber residues (forest residues, wastes and other raw materials) are among the important objectives related to greening of the forestry sector (Kiiakas 2013; Aun 2013).

In 2011, RMK sold more than 200 000 m<sup>3</sup> of forest cutting waste. According to the RMK, much more of the forest residues could have been sold if the demand was higher (Timberg 2013).

One of the indicators of sustainable forest management is that the mean annual increment of growing stock exceeds the felling. In this regard Estonian forestry has been doing well during the last decade since the felling volumes remain at 70-80% of the allowed capacity per year. According to Statistics Estonia (2010), forests have been underutilized during the recent years in Estonia and to some extent forest felling can be temporarily increased in the region, especially when it comes to mature stands (Figure 10).



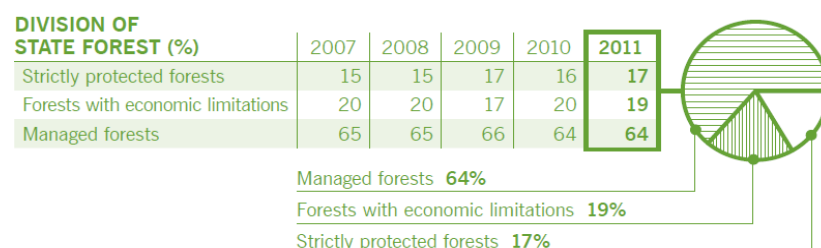
**Figure 10 State forest reserves. Source: RMK 2011.**

Integrating of sustainable forest management principles is more common among the state owned forests. The state forest has hold the FSC certificate since 2002 and PEFC certificate<sup>3</sup> since 2010, so it's about 40% of all forests in the country. In case of privately owned forests, the certification is not that common – about 50 000 ha of privately owned forests are PEFC certified (Aun 2013).

The reforestation and maintenance of forest in case of privately owned forests is paid considerably less attention in comparison to the state owned forests. In most cases logging activities prevail. From the ecological point of view these forests have more diverse composition of the forest cultures, so it's difficult to say whether it is positive or negative.

<sup>3</sup> PEFC is a national forest certification scheme, which has an overall objective to support the implementation of sustainable forestry in Estonia.

In total, about 10% of forest land in Estonia is under strict protection. When it comes to the state forests, about 17% are strictly protected (Figure 11).



**Figure 11 Division of state forest. Source: RMK 2011.**

In 2011, the budget for nature conservation works (restoration and maintenance works and species protection) in state forests was EUR 750 000, which is three times more than in 2010. About 80% of the works were funded by the European Regional Fund (RMK 2011).

When it comes to energy consumption in the forestry sector, the machines used to perform forestry operations use the conventional fuel. Having in mind that most of the equipment is not up-to-date their fuel consumption is considerably higher.

## 4.4 Tourism

Although tourism is not an economic sector with a high value added to the economy of Southern Estonia (Figure 4) and will probably never rise to the level of bioeconomy or a building sector, it has a high development potential in the region. Moreover, it makes a useful contribution to the green economy.

In Estonia in total, about 18 610 people were employed in tourism related activities (accommodation and food service, travel agencies and tour operator) in 2005 and 20 593 in 2011. The value added of these activities has increased by almost 1.4 times between 2005 and 2011 (from 155 248 to 215 142 thousand euros) (Table 16). There is no statistics available on the employment figures in the tourism sector in Southern Estonia region.

Considering that most of the tourism businesses are micro- or small-sized enterprises (often family businesses) the employment in the sector is currently quite small. At the same time, having in mind weak socio-economic structure and fewer employment opportunities in the rural areas, tourism plays an important role in job creation and diversification of the rural economy.

	Number of persons employed	Value added, thousand euros
<b>Accommodation and food service activities, 2005</b>	16 810	135 428,3
<b>Travel agency, tour operator reservation service and related activities, 2005</b>	1 800	19 819,7
<b>Accommodation and food service activities, 2011</b>	19 004	187 127,2
<b>Travel agency, tour operator reservation service and related activities, 2011</b>	1 589	28 014,8

**Table 16 Number of persons employed and value added of accommodation and tourist enterprises in 2005 and 2011 (adapted from the Statistics Estonia 2013).**

The goals of the National Tourism Development Plan 2007-2013 are quite vague and general, such as 'the Estonian tourism products and services are of a high quality and in accordance with the principles of sustainable development'. The targets set in the National Tourism Development Plan 2006-2013 include measurable goals against which the performance can be monitored and evaluated (number of overnight stays, export of tourism services, decreasing seasonality, raising labor productivity in hotels and restaurants etc.). There are no specific targets and indicators set in regards to sustainability performance of the tourism sector, which makes it challenging to speculate about the distance to policy target.

In the forthcoming National Tourism Development Plan 2014-2020 the sustainability related objectives are given a notably greater emphasis. Activities aimed at development of sustainable tourism are (MKM 2012):

- Raising awareness of sustainable tourism principles and recognition of successful businesses and destinations;
- Development of guidelines for sustainable tourism based on the sectorial needs;
- Development and implementation of international eco-labels (Green Key, PAN Parks);
- Raising awareness of local eco-labels;
- Development of measures to increase the environmental sustainability of tourism businesses (e.g., energy audits, advice on energy saving measures and investments in increasing energy and water saving).
- Development of environmentally sustainable transport solutions in tourism destinations



The tourism stakeholders stress in the interviews that the elements of sustainable tourism have been usual for the tourism businesses for years since tourism in Southern Estonia region is built on or around the attractions of the natural environment. Therefore it is in the interest of tourism enterprises to ensure a valuable use of nature and resources and to minimize the negative impacts on the environment. The respondents note that many tourism enterprises are behaving sustainably, often unconsciously. The share of tourism enterprises that have a strategic approach to sustainability is rather small today. In most cases, the communication about the sustainability performance to the customers has not been prioritized or considered important. Only a handful of tourism enterprises applied for the Green Key<sup>4</sup> eco-label in Southern Estonia.

The travelers' awareness of the negative impact of tourism on the environment is constantly growing, as well as the willingness to pay more for environmentally friendly products and services. Recognizing this fact, more and more of tourism business today are offering organic and locally produced food and other products, which gives them a considerable competitive advantage.

Tourism infrastructure development and marketing of the region have been among the prioritized actions in the recent years. These activities are important starting points for tourism development, as without a proper infrastructure the convenient access to the tourism attractions in Southern Estonia will be limited. Among the infrastructure development projects are also those that contribute to the green economy, such as rail transport and water transport on rivers and lakes (Peipsi and Võrtsjärv).

There is a sufficient number of professional and higher education institutions offering education and training in the field of tourism and hospitality in Southern Estonia and the country as a whole. Today these subjects are taught at Pärnu Colledge of the University of Tartu, the University of Life Sciences and Võru County Vocational Training Centre. The programmes also include such modules as rural tourism and environmental impacts of tourism sector.

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<sup>4</sup> More information about the Green Key eco-label can be found in section 6.2.7

## 5 Key milestones

### 5.1 Building and construction sector

After regaining the independence in 1991, the Ministry of Construction was closed. The bureaucracy and a complicated structure of the Ministry were rather hindering the development of the sector.

The Ministry of Economic Affairs and Communications (MoEAC) became a responsible authority. The National Energy Efficiency Programme and an Action Plan of the Energy Efficiency Programme for 2001-2005 were elaborated. Due to modest financing of the action plan and other significant events, such as accession to the EU, the implementation level was not that high. Some positive results were achieved in the field of development of methods for energy certification of buildings, for example (MKM 2007). Also, some preparations were made for implementing the first version of Directive on Energy Performance of Buildings (2002/91/EC) – 28 energy auditors were trained and several information campaigns were arranged.

In 2001, KredEx Foundation (Estonian Credit and Export Guarantee Fund) was established by MoEAC to provide expertise on energy efficiency when it comes to renovation of apartment houses.

In 2003 the Building Act entered into force which provides the requirements for the operation of construction companies when it comes to quality, building material and documentation.

In 2003 Estonia's National Housing Development Plan for the years 2003–2008 was approved. In conjunction with the plan, the Government started to provide assistance to the refurbishment of apartment buildings built before 1990. The support covered 10% of the cost of the works.

The government introduced the income tax exemption on the accrued interest of housing loans which increased the affordability of housing loans. In addition, since 2003, KredEx Foundation has been providing loan security for the unions of apartment owners on loans for reparation or renovation of the heating system, roof, thermal insulation of outer walls, window replacement or insulation etc. of the house. The loan security (guarantee) programme has played a significant role when it comes to implementing major refurbishments in apartment buildings.

Throughout the years 2003 – 2006 KredEx Foundation supported 1413 housing associations, apartment union and housing unions in refurbishment for the sum of 3.71 million EUR. During these years the energy audits (technical inspections) in dwellings were supported by 50% of the cost and more than 260 energy audits were realized.

In response to the EU Directive on energy end-use efficiency and energy services the Energy Efficiency Target Programme 2007-2013 was developed. It calls for applying stricter energy performance standards in new and renovated buildings from 2013.

An important milestone was the introduction of the Governmental regulation 258 "Energy efficiency minimum requirements" which came into force since January 2008. According to the regulation, it is necessary to prove whether the new and majorly reconstructed buildings meet the minimum energy performance requirements. In 2013 a new Building Regulation was adopted which requires 20-40% higher energy performance in the buildings in comparison to the requirements in 2008 (Laaniste 2013).

Likewise, since 1 January 2009 all new constructed buildings and the sold/bought apartments and buildings are required to have energy efficiency labels (MKM 2013). Since September 2010, the renovation grants for apartment building are available. The public funding comes mainly from the revenues from the trade of CO<sub>2</sub> quotas which opened up the new possibilities for improving energy efficiency in the existing buildings.

## **5.2 Agriculture**

The development of organic farming started in 1989 when the Estonian Biodynamic Association was founded. The experience of the international organizations and available standards (mainly the International Federation of Organic Agriculture Movements) were used to work out the first Estonian organic agriculture standards.

In 1997 the first Organic Farming Act was introduced. It should be noted that the investments in agriculture have been very low since regaining the independence, so was the competitiveness of the sector. The positive change occurred in the beginning of 2000 when Estonia started to receive support to agriculture and rural development from the EU. The state support has also increased considerably.

The development of organic farming, and more environmentally-friendly farming methods was fostered from the year 2000, when Estonia started to implement agri-environment support (AES) schemes.

In general, from 1999 to 2003 Estonia's agricultural and rural policy was strongly influenced by the preparations for accession to the EU. The country focused on harmonization of the legislation and adaptation of agriculture to the EU framework. During this period Estonia participated in the special pre-accession programme for agriculture and rural development SAPARD. The resources of the programme were used for fostering the sustainable development of the agricultural sector and rural areas, including the investments into agricultural and rural enterprises in order to bring them into

compliance with the EU standards.

After joining the EU, the country prepared Estonian National Development Plan (NDP) 2004–2006 and the Estonian Rural Development Plan (RDP) 2004 – 2006 which adopted the main principles of CAP. New possibilities have opened up for the rural areas of Estonia through a number of rural development, agricultural and forestry measures under these plans and the CAP. The farmers started to receive the direct payments and AES payments continued. The access to credit has also improved.

Within the new programming period 2007–2013, the new standards and obligations concerning the performance of the agricultural producers are being applied. Bigger stock farmers, for instance, are obliged to use the best available techniques (BAT).

In 2007 the Estonian Organic Farming Action Plan 2007-2013 was introduced which set the goal to increase the organic agricultural area from 72 800 hectares (2006) to 120 000 hectares by 2013. The goal was accomplished in 2011.

For more than 10 years the State Forest Management Centre has implemented a different strategy for forest felling during April and May. The felling volumes decrease significantly in order to avoid the damage to the forest soils and to create favorable conditions for nesting of birds and animal breeding.

### 5.3 Forestry

After regaining independence in 1991 the privatization of forests started. The forest and land that were nationalized have been returned to the owners or their predecessors.

The first Forest Act after regaining the independence was adopted in 1993. It provided the legal basis for managing of the private forests that emerged in the process of land reform.

In 1995 the Ministry of the Environment launched the Estonian Forestry Development Programme, which resulted in the document “Estonian forest policy” (approved in 1997). The Programme laid the foundations for development of the liberal forest policy and monitoring. It was much influenced and inspired by the Scandinavian example (ELF 2013).

In 1997 the felling volumes increased almost twice in comparison to 1993. A new Forest Act was approved by the Parliament in 1998. The State Forest Management Centre (RMK) was established to maintain, grow and manage the state forest. The private forest owners got more freedom in managing the forests. The accurate number of private forest felling was not known. The situation in forest sector was quite chaotic.

In 1999 the statistics inventory to measure the actual felling volume was initiated, which

showed that about 12 million m<sup>3</sup> of timber is cut per year (four times more than in 1993). Although this number is in line with the objectives set in the Estonian Forest Policy, the estimations show that the actual logging volume was higher. The share of illegal logging is considered to be approximately 10% in the years 1999 to 2002 (ELF 2013).

Since 2002 the forest sector in Estonia started a journey towards a more sustainable development. An important milestone has been the approval of the national FSC forest management standard in 2002. The Estonian national forest certification scheme PEFC has also gained recognition.

The felling volumes decreased in the beginning of the 2000 which can also be explained by a low interest of private forest owners to manage their forest and market situation. The state has taken some measures to improve the situation, such as financing the establishment of the local owners association, national owners association, and introduced various support schemes for sustainable management of private forests.

The Estonian Forest Development Plan was introduced which aimed to take at least 10% of the Estonian forest land under strict protection. In 2006 a renewed Forest Act was introduced which imposed a stricter supervision over the activities of the private forest owners and put unnecessary bureaucratic burden for harvesting. The environmental inspectorate was launched in order to monitor the compliance with the legislation. The felling volumes reached about 5 million m<sup>3</sup> per year in 2006 and 2007.

The reviews of the environmental inspectorate show that the cases of violation of the forest related laws have decreased considerably over the years. In the years 2005-2008 the situation with illegal logging has improved significantly. During this period the process of forming Natura 2000 protection areas was technically over. Public funding for private forestry increased both from the EU structural funds and the state budget.

## 5.4 Tourism

Sustainable tourism has been addressed in several strategic plans since the late 90's. Sustainable tourism was among the principles formulated in the National Tourism Master plan for Estonia for 1995-2000 and the National Tourism Development Plan 2007- 2013.

The **Estonian Ecotourism Association** was created already back in 1996, which has contributed to popularization of ecotourism through developing of plans, strategies at the national, regional and local levels. In 2000, the Association Estonian Rural Tourism was established to support the development of tourism based on nature and cultural heritage. It has played an important role in promoting the sustainable tourism and improving the quality and popularity of rural tourism. Today the association has about 300 members. The association worked out the Development Plans of Estonian Rural Tourism 2004-2007 and 2010-2014. In the latest version of the development plan, the Estonian rural

tourism by the year 2014 is seen as an important branch of the rural economy, supporting the economic growth and rural entrepreneurship, which is also a significant employer in the rural areas and an important part of the Estonian tourism sector. Among the targets in the new plan are 3000 employed people in rural tourism by 2014.

Since 2000 EHE – Ecotourism Quality Mark in Estonia helps to develop a positive image of the ecotourism operators and it is on the way to becoming an important marketing tool.

There was almost no funding available for eco- and rural tourism development until the accession to the EU and only a handful of enthusiasts were involved in the development activities. After joining the EU in 2004, Estonia could receive funding for tourism projects under the ERDP 2004-2006 and 2007-2013, which played a crucial role in fostering the development of sustainable tourism.

A permanent position was created at the Enterprise Estonia Foundation to deal exclusively with the development of sustainable tourism in the beginning of 2012, which shows that the state has started to pay more attention to sustainable tourism issues.

## 6 Drivers, barriers and enabling conditions

### 6.1 External drivers

Only a handful of external drivers that contribute to a greener development of the sectors were identified. Most of the external factors have actually performed as barriers and will be discussed in [Section 6.3](#).

Rising prices on energy and other products and services are among the most important drivers for a greener development of the sectors. People are simply interested in saving costs and are therefore looking for possibilities to minimize the energy consumption, food waste etc. Rising energy prices was identified as the key driver for improving the energy performance of the buildings. In future, rising prices on conventional energy are expected to trigger an increased use of biomass for energy production.

Customer demand (mainly foreign) for sustainable products and services is growing, which motivates the tourism enterprises to apply the sustainability principles in their everyday operations.

In addition, a small population size and dispersed settlement in Southern Estonia are among the factors that favored the development of rural tourism in particular. Another important asset for tourism development in the region is its geographic location – on the crossroads between EU and the Russian Federation. The potential has not been exploited until today but a further development of rail and water transport may help to attract a larger number of tourists to the region.

A small size of the country can also be considered as an advantage in some cases, as the changes are easier to introduce and the development is easier to monitor.

### 6.2 Identification and description of internal drivers

#### 6.2.1 Insights on efficiency of EU policies in the region

In most cases the regional actors claim that the EU policies have been taken into account and referred to when drafting the county strategies. In reality, the EU policies have played a significant role in framing the *national* targets and policies, especially when it comes to increasing the energy efficiency and renewable energy use. At the regional level the EU policies and regulations have been identified as important only in case of agriculture. As noted in the interviews, the main reason for it is that agricultural sector is the most dependent on the available support schemes from the EU. The CAP and the

Rural Development Programme are the strongest development motors for agriculture.

The EU regulations in forestry sector mainly apply to Natura 2000 sites. In other cases the role of the EU regulations in forestry is insignificant both at the national and regional level.

### **6.2.2 Insights on efficiency of national/local/regional policies**

#### **National policies**

##### *Building and construction*

The state has been an important development motor in improving the energy efficiency of the buildings by introducing the policy targets and providing financial support for energy saving measures in public and private buildings since the beginning of 2000. The objectives outlined in the national policies are translated into the development strategies at the county level, such as stricter energy performance requirements of the new buildings.

At the individual level, the constructors and planners are required to follow the building related laws and regulations. In order to get a construction permit from the municipality or town, carrying out energy audits of the buildings has become compulsory. However, the respondents stress that many companies are doing and issuing the energy performance certificates today. It is seen as a new business opportunity and a real impact of such measure is questionable. In case there is an interest to get around the law, it is always possible to find a way.

The national policy is not a single and most effective driver for greener buildings. As reflected in the interviews, it is a combination of rising prices on energy and the national policies, which have the largest impact on steering the development of building sector towards the green economy.

Reconstruction of the existing public buildings and construction of new ones by local authorities depend considerably on the state's support for investments. In the last 10-15 years the state's support to refurbishment and reconstruction of buildings in Estonia has been higher than the contribution from the EU. During the last couple of years the public financing came mainly from the revenues of CO<sub>2</sub> quota sales. Funding from the state budget until 2013 is 150 million euros for public buildings (besides investments from the structural funds). State funding for apartment buildings is 30 million euros. Together with a targeted low-interest loan scheme, the total funding is about 150 million euros. The financing for the reconstruction projects after 2013 is not secured which is impacting the number of projects that are in the planning phase. A new financing solution needs to be



developed in order to continue financing the reconstruction actions.

The support schemes and loans for apartment building **reconstruction** are managed by KredEx Foundation. Investments are applied for in a competitive way and the environmental impact of the projects is taken into account. There are no support schemes for construction of new buildings or using of alternative construction techniques today.

Programmes managed by KredEx:

Kredex has provided support to the reconstruction of the apartment buildings for the buildings constructed before 1993. The available support has been 15%, 25% and 35% of the total reconstruction costs. Currently there is no support available as the reconstruction funds have been exhausted. Since most of the apartment buildings are privately owned, the support has been provided to the private persons, which in reality is the juridical establishment (union or association of apartment owners) who received the grant.

One third of Estonian families live in small houses, which also have poor energy efficiency and bad indoor climate. The income tax refund on reconstruction loan interest applied so far has been failing to motivate owners to insulate their buildings. Last year KredEx provided a support scheme for energy saving measures in small private houses. The measures were dedicated to improving energy efficiency and indoor climate, but also installation of renewable energy appliances – solar cells or wind generators. The grant programme for small buildings renovation started in April 2012. The total amount of support available was 4 million EUR and has already been spent.

A state support scheme for reconstruction of public buildings allowed energy-efficient reconstruction of nearly 480 public buildings. The budget until 2013 is 146.5 million EUR. According to the National Energy Efficiency Programme 2007-2013, the reconstruction of the public buildings is assigned a special importance in setting an example and being a model for other sectors.

The Government is committed to continuing providing support to the renovation of existing apartment buildings in Estonia beyond 2013. The largest share of support is expected to come from the revenues from the trade of CO<sub>2</sub> quotas and the funds allocated to Estonia under the next EU programming period.

### *Agriculture*

According to the interviewees, organic agriculture is quite important at the national level. The Estonian Organic Farming Action Plan 2007–2013 and the Estonian Rural

Development Plan 2007–2013 contribute to the expansion of the organic sector in Estonia.

Several national support activities are funded from the state budget (e.g., support for the breeding of farm animals, support for farm relief services, market development support, practical training support) but the level of support is much lower in comparison to the EU contribution (about 20-25%). The national support is provided on the basis of Rural Development and Agricultural Market Regulation Act. The Ministry of Agriculture decides which classes of support are to be granted and which activities are to be supported during each financial year, and how the budgetary funds granted for support are to be divided. The goals of support are harmonized with the overall objectives of the CAP.

### *Forestry*

The forestry sector is to a great extent regulated by the state in Estonia and the state has an ultimate legal control over it. This is understandable since about one third of forest in Estonia is managed by the State Forest Agency.

The national policy in the field of forestry is quite effective and strict. The respondents note that in comparison to Scandinavia the laws and regulations in Estonia are even tougher. The forestry actors indicate that by complying with the national law, the private forest owners already meet most of the requirements outlined in the certification schemes.

The respondents argue, however, that the felling parameters could have been more clearly defined in the existing Forest Act. The main parameters used today are age and diameter of the forest stands, which are actually insufficient to characterize the forest comprehensively.

Also, in the Estonian Forestry Development Plan until 2020 the allowed cutting volumes actually exceed the annual increment, which is in contradiction with the overall objective of the development plan.

The State Forest Management Centre (RMK) communicates strategically with the forest owners associations. As noted previously, there are about 80 000 private forest owners in Estonia and their greater awareness of sustainable forest management plays a crucial role in ensuring sustainability of forestry in the country and their contribution to the green economy. Through the foundation Private Forest Centre (Erametsakeskus) the state supports private forest owners by providing advice, trainings and grants. Since 2000 the state support is allocated for private forest owners and forestry cooperatives for fostering a sustainable management of forests. Private forest owners can receive the following support:

- Support for advisory services and training (sharing best knowledge on sustainable forest management)
- Support for forest survey and development of forest management plans
- Support for reforestation
- Support for the maintenance of semi-natural habitats.
- Support for the maintenance of key habitats.

Supports granted for forestry cooperatives:

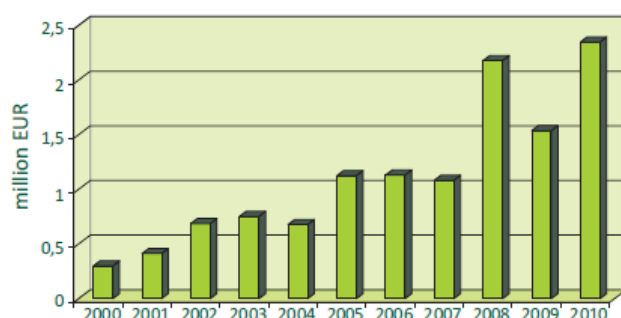
- Support for forestry cooperatives.
- Support for counseling private forest owners.
- Support for regional liaison officer of private forest owners.

Most of the funding is allocated for supporting the development of forest management plans, group and private advisory services on sustainable forest management, as well as reforestation.

According to the respondents, increasing the environmental awareness is among the most important factors that trigger the private forest owners to manage their forest sustainably.



**Figure 12 Number of national forestry subsidies in 2000-2010. Source: PFC 2010.**



**Figure 13 Payment of national subsidies in 2000 – 2010. Source: PFC 2010.**

Both state-and privately-owned forests can receive the grants through the Environmental Investment Centre (EIC) as part of the Environmental Programme. The grants are distributed from the environmental charges that are imposed by the state (fees for the right to use natural resources and pollution fees). The prioritized activities in forestry sector are: implementation of long-term forestry development goals; ensuring the renewal and reforestation of forests; protection of forest eco-systems; development of private forest management through joint activities and by strengthening the private forest owners' organizations; provision of sustainable forest management training; promotion of awareness and research; ensuring the preservation of game stock as a renewable reserve; reduction of damage caused by game, and increasing the practical skill level and hunting awareness of hunters. RMK has received support for development of infrastructure in the forests needed for conservation works (bridges, culverts, roads) and eco-tourism infrastructure development (KIK 2013).

EIC is awarding the grants for the local governments for the reconstruction of boiler houses and district heating networks and the construction of combined generation plants. A couple of years ago the grants were also awarded to businesses and foundations but not any longer. The grants are financed from the ERDF and the CO<sub>2</sub> quota sales (Kikas 2013).

### *Tourism*

The state is driving the development of tourism sector with the help of a state-owned Foundation Enterprise Estonia and other regional tourism umbrella organizations.

The role of the Ministry of Economic Affairs and Communications (MoEAC) in tourism development is to elaborate the tourism policy and legislation, as well as apply funding for the development of tourism industry (tourism attractions and infrastructure) from the state budget and the EU funds.

According to the reflections of the tourism department at the MoEAC, the national tourism policy is not the key driving force for the development of sustainable tourism but is an important reference point for the foundations and development agencies operating in the

region (Kalvik 2013).

Since tourism sector has so many linkages with other sectors, it is the combination of various national laws and regulations in the field of waste management, planning and building, nature protection etc. that steer the development of tourism sector towards more sustainable among the practitioners (tourism enterprises). Drawing up the National Tourism Development Plans 2006-2013 and 2014-2020, the intention was to avoid duplication and overlapping with other strategies.

The funding for implementation of the National Tourism Development Plans 2006-2013, 2014 –2020 is envisaged mainly through ERDF and different smaller state support programmes, which are managed by the Foundation Enterprise Estonia (EAS). It is an institution within the national support system for entrepreneurship and one of the implementing units of the EU structural funds in Estonia. EAS provides financial support, advisory services, cooperation opportunities and training for entrepreneurs, public and third sector. In the beginning of 2012 a permanent position for developing the sustainable tourism in Estonia was established at the EAS, which is an indication of a growing importance of the topic at the state level.

For example, EAS funded a food cluster development initiated by Põlva county Development Centre in order to strengthen the cooperation between food producers and thus to increase the competitiveness of the food industry. Some support was also provided to the organization of Ökofestival in Põlva county since 2007.

### ***Regional and local level***

Even though it makes sense to refer to Southern Estonia as a region since the territory is quite small and the conditions and challenges are similar, it has to be kept in mind that the regional administrative unit in Estonia is a county. Being one of NUTS-3 regions, Southern Estonia is not a region as such, but a grouping of six counties.

Although the administrative division in Estonia is similar to other European countries, including Scandinavia, the role of the regional and municipal actors is different here. As described in Chapter 2.5, the county governments in Estonia are subordinated to the central government and the county governors are civil servants, which means, that the administration in the country is centralized.

At the regional level, each county has a strategy which sets the overall development priorities and the long-term strategic visions of the county. The county strategies reflect and represent the interests of the county government, local governments, enterprises and the third sector. The funding for the activities outlined in the strategies comes partly from the state or local governments' budget, the development agencies and associations, as well as through the projects. For the purpose of this study the development strategies

of the six counties in Southern Estonia were analyzed separately.

In the case of building and construction sector, the county strategies promote an increased use of sustainable construction materials and eco-housing technology, traditional construction techniques as well as the use of heating based on local energy sources (See Appendix 1). **For example, the Development Strategy of Tartu county 2020 sets a target that 99% of all new buildings should be built as nearly zero-energy buildings by 2020. However, there are no regional or local financial mechanisms to support building renovation activities.**

When it comes to agriculture and forestry, the county strategies recognize the importance of these sectors in the counties' development and the regional economy. The actions

Tartu Regional Energy Agency (TREA) is an important actor in the region when it comes to promoting the use of bioenergy and increasing the energy efficiency in the building sector. The agency provides free of charge consultations on energy saving and different renovation solutions of the buildings to the apartment unions, county and local governments, and other interested actors. Increasing awareness of the population is among the key measures in fostering the development of a greener building sector.

TREA is in the process of drawing up a Regional Biomass Action Plan for Southern Estonia 2013-2030 which promotes a more efficient use of all sources of biomass and sets a goal to increase the use of renewable fuels in heat production up to 99%.

outlined in the county strategies are focusing more on socio-economic aspects of development – mainly related to marketing of local organic products and supporting the development of food clusters and food networks. These activities often go hand in hand with tourism development objectives.

Objectives related to tourism development are also highly represented in the county strategies. Recognizing a

growing interest and appreciation of organic food and close to nature products and services by tourists, cultural heritage and traditions, as well as available resources in the region (nature, culture, people) the counties encourage tourism development, which builds upon these values. There are considerably more actions promoting tourism development and organic local

food (e.g., tourism infrastructure, renovation, marketing), than those related to the development of forestry or energy sector.

Wood is the main fuel used for heating in Jõgeva county today. Several boiler houses are starting to use waste and wood chips instead. Local industries are increasing the use of timber industry waste for heating. Farmers are also looking into the possibilities of biogas production. Building up a cogeneration plant was brought up by the county government as a possible idea to foster a green economy in the county. Local governments are also taking the lead in promoting the electric cars. There are about 20 electric cars in the county used by the local governments and 5 charging stations.

The respondents indicate that one of the explanations for boosting tourism-related

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activities is a rather low investment need in comparison to the energy sector, for instance. Some smaller tourism development projects are much easier to finance. Tourism related performance indicators in the county strategies include the number of overnight stays, increased number of flights (in case of Tartu county) and quality satisfaction, whereas the sustainability indicators have not been developed in the current versions of the strategies.

The eight LEADER groups in Southern Estonia region have also played a significant role in promoting sustainable tourism development, more environmentally-friendly agricultural practices and alternative construction techniques.

In case of tourism, the role of the Foundation South-Estonian Tourism is considered important. The foundation unites the local self-governments, tourism enterprises and the state. It deals with the analysis of tourist activities, work coordination, marketing of local specialties, developing of the tourism products and implementation of tourism related projects. The foundation was established by the six county governments of Southern Estonia.

There is no emphasis on supporting sustainable tourism per se but the activities and measures which contribute to development of sustainable tourism are not excluded from the agenda of the foundation. Since some of the activities are implemented through the projects funded from the EU structural funds, the sustainability criteria are often integrated.

The Foundation has worked out a Tourism Development Plan in Southern Estonia until 2020, which is closely linked to the objectives and principles of the National Tourism Development Plan 2006-2013 and contributes to its realization. It is the only existing strategy up to date covering all six counties of Southern Estonia and calling for a more effective cooperation in the region.

The development plan does not focus on promoting the sustainable tourism in particular. In the revised version, which is currently being drafted, sustainable tourism objectives are presented more explicitly. For example, the Tourism Development Plan in Southern Estonia 2014-2020 promotes an increased application of Green Key eco labels by the accommodation establishments, integrating the principles of sustainable waste management in Soomaa and development of local eco-marks for Southern Estonian products. There are plans to develop water tourism on the lake Võrtsjärv and receive the European Destinations of Excellence (EDEN) award.

The financial drivers for implementation of the Development Plan come partly from the state budget (several support programmes) and the Foundation's own budget. Some of the activities are also financed through the EU projects, private sector and NGOs contribution.

At the **local level**, the local governments often focus on everyday problems and have neither interest nor resources to develop long-term objectives. There are a handful of

initiatives taken at the local level which contribute to the green economy. For instance, in the building and construction sector, local governments are responsible for issuing building permits according to the overall town/municipal planning or a detailed planning, as well as performing the energy audits. They can apply for state grants for the renovations of the public buildings from the KredEx Foundation. As such, it is clear they have a crucial role in terms of promoting green development of this sector.

In contrast, local governments are not involved in forestry management issues directly. They do not have a decision-making power in the field of forestry but to some extent can influence and even limit the forest industry activities (clearcutting) on their administrative territory.

The interest in increasing the share of biomass in heat production is growing constantly among the rural municipalities and towns. The respondents indicate that the political will and commitment of the local governments is often higher than the state's. However, since many district heating networks in Estonia are privately owned, the local governments can only suggest and promote the increased production of bioenergy. From time to time the local governments initiate the round-table discussions where they bring up this topic (Kikas 2013).

When it comes to tourism development, the local governments administer and maintain the tourism sites and infrastructure (e.g., access points, road infrastructure, hiking paths) on their territory. Thus they can contribute to tourism development by creating an attractive environment for the provision of tourism services. The local governments contribute to sustainable tourism development by co-organizing some small events, such as the tourism fairs or 'village days' which promote local tourism enterprises and local food producers.

The regional and local governments can apply for the internal development grants from the Estonian Ministry of the Interior for rather small development projects. There are several programmes managed by the Ministry of the Interior:

- **Programme for local initiative** supports the local development and growth of regional competitiveness through the initiatives taken by the locals, supporting community involvement and strengthening cooperation. Small grants (max EUR 1600). The example of the projects that have received a grant: cultural events, workshops, small renovations of the public spaces.
- **Programme for small projects for increasing the competitiveness of regions** aims to foster the regional development. Development of small objects with a purpose of visiting and holidaymaking (e.g., camping and study tracks, camping sites, nature and cultural monuments). Development of



supporting infrastructure of tourism objects (access roads, sanitary and waste management conditions, information boards and signposts).

- **Programme for support of county development activities** provides financial support to the projects and activities that tackle socio-economic problems in the county and stimulate the regional development. Some small initiatives can indirectly contribute to promoting sustainability issues. For example, some counties are organizing the county fairs, where the local enterprises have an opportunity to present and promote the locally produced food, rural tourism packages, handcraft etc.
- **Programme for development of Setomaa.** The objective of the grant is to contribute to the retaining of the viability of Setomaa, by developing the local business environment and people and by supporting the marketing activities of the region. The programme is directed to the part of historical Setomaa located on Estonian territory (parts of Põlva and Võru counties). The maximum amount of the grant is up to EUR 32 000 per project and the maximum project duration is 18 months. The supported activities include networking, museum support, marketing, renovation of some public areas.
- **Peipsiveere programme** aims to contribute to viability and sustainable development of the region of Peipsiveere and community of Old Believers through preservation of natural and cultural heritage, supporting local business environment, development of human capital and marketing of the region. The target areas are Jõgeva (Mustvee town, Pala and Kasepää rural municipalities) and Tartu counties (Kallaste town, Meeksi, Vara, Võnnu, Piirissaare, Peipsiääre and Alatskivi rural municipalities). Examples of supported projects: handicraft, choral singing, fishing and vegetable growing traditions, architecture.

### **6.2.3 Ambition of the region: driven by compliance versus proactive, ambitious and innovative**

Looking at the county strategies, they are developed in response to the specific needs and current development problems, and taking into account the availability of financial resources for certain actions. The strategies do not present a strategic development vision for the specific sectors of the economy.

The sustainability issues are not playing a central role in the regional development at the

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moment. In the current socio-economic situation the priority in the region is given to such issues as boosting the economic growth, job generation, providing high quality education, increasing the attractiveness of the region for the residents and the quality of life. A strong focus is on preventing labor force migration to the regional centres or the capital. The development of entrepreneurship and diversification of the rural economy are the topics that are high on the agenda.

From the discussions with the county stakeholders it can be concluded that the counties would like to take a more proactive approach towards greener development of the sectors if they had more financial resources and the governmental support. As noted by one of the respondents, the ambition of the regions is higher than the current capacities, especially when it comes to available financial resources. Since the budget of the counties and municipalities is restricted to certain activities, some other important issues are on the priority list and there is not much space for extra actions. In addition, the green measures and alternative technologies require substantial investments, which is often a drawback.

In Southern Estonia, Põlva county has probably one of the most ambitious and sustainability-oriented strategies. The county is using 'a greener life' slogan, which refers to a valuable natural and living environment for living, working and relaxing. In the vision 2027, Põlva county has an effective protection of the natural environment, resources are used sustainably and innovative production methods, as well as the local traditional activities are promoted. It is stressed in the strategy that both agriculture, food and tourism services should be guided by 'green' principles and form a part of the county's identity. Pristine natural environment and high quality living environment form the other part of the identity. The county has developed its own label "Rohelisem märk" (A greener mark) for local food and products, natural building and finishing materials, local handicrafts and tourism services.

#### **6.2.4 Role of Structural and Cohesion policy funds in the region**

The structural and cohesion policy funds have played a very important role in development of green economy in the region, especially when it comes to agriculture and tourism sectors.

During the EU programming period 2007–2013 Estonia is able to receive approximately 1.7 billion euros of public sector funds to support agriculture and rural development. The money comes mainly from the European Fund for Rural Development (EAFRD) and the European Agricultural Guarantee Fund (EAGF). The remaining 25% is allocated from the state budget. To support and promote agriculture and rural development the following support schemes are being implemented in Estonia:

- Direct payments and measures related to the management of agricultural market to achieve price stability and the optimal price (Agri 2013b).
  - Single area payment scheme (SAPS) and supplementary direct payments for crops and livestock farming have been introduced to compensate for the additional costs associated with agricultural production and the costs of maintaining land so that its fertility is preserved.
  - SAPS, supplementary direct payments, market organizational support and support for processing and export of agricultural products are financed from the European Agriculture Guarantee Fund (EAGF).
- Support activities under the Estonian Rural Development Plan (ERDP) 2007-2013, co-financed in the framework of the European Agricultural Fund for Rural Development (EAFRD). Under the ERDP Estonia is implementing the development measures within four priority axes:
  - **Axis 1: Improving the competitiveness of the agricultural and forestry sectors** (including construction/renovation of buildings and facilities and acquisition of equipment)
  - **Axis 2: Improving the environment and countryside** (including measures encouraging farmers and forest owners to apply land use methods that preserve the natural environment and landscape and protect and improve natural resources);
  - **Axis 3: Improving the quality of life in rural areas and diversification of rural economy** (including investments into buildings and taking the abandoned buildings into use again in non-agricultural production; rural tourism development)
  - **Axis 4: LEADER-initiative programme**, which supports local initiative based development projects.

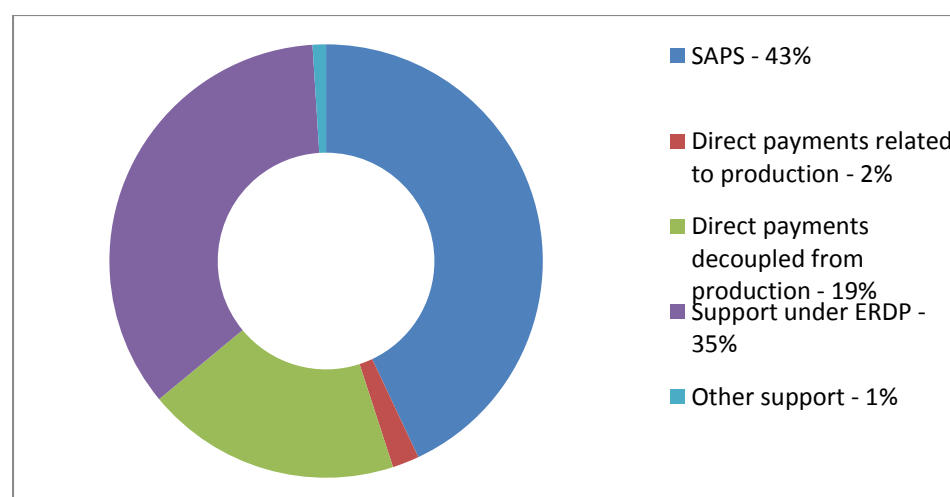
**NGO Delicious South-Estonia** was established in the framework of LEADER programme to support the local small-scale farmers in marketing and selling their production. The NGO opened a selling point for small-producers from Southern Estonia in Farm market in the city of Tartu. Increasing the visibility of the products, attractiveness and knowledge about the local food through active marketing activities was among other objectives of the initiative. The website [www.maitseveesti.ee](http://www.maitseveesti.ee) was developed where the Southern Estonia farmers are introduced. Experience and knowledge exchange and contact-building between the farmers is actively encouraged by the NGO.

When it comes to the distribution of support, the largest share of funds is allocated to priority axes 1 and 2. Looking at all the measures under the ERDP 2007-2013, the measures 2.3 “Agri-environment support” and 1.4 “Modernization of agricultural holdings” have received the largest investment support. About 10% of the development plan

budget is allocated to the LEADER-measure.

Since there are many micro- and small-sized agricultural and tourism enterprises in Southern Estonia, they are often not capable of applying for funding from the large EU programmes. The importance of LEADER-initiative programme for this type of businesses was stressed in the interviews. The LEADER programme is aiming to improve the competitiveness of agriculture and forestry, of the environment and the countryside through the partnership between the local governments, private and third sector. The Local Action Groups (LAG) were created to implement the programme (8 in Southern Estonia). There are projects supporting the development of tourism, local food networks, handicraft or other local products (Agri 2010b).

As shown on Figure 14, SAPS accounted for the largest share in the structure of subsidies in 2011. During the last 5 years the share of single area payments in the total subsidies increased from 29% in 2006 to 43% in 2011. The direct payments coupled with production accounted for 2%, direct payments decoupled from the production accounted for 19% and support under the ERDP for 35% of the total subsidies (Agri 2012).



**Figure 14 Structure of subsidies (excluding investments) in 2011 (adapted from Agri 2012).**

In forestry, the ERDP 2007-2013 contributes to achieving the objectives set in the Forest Development Plan until 2020 and provides support to a large part of private forestry support measures (max 7.6 million EUR annually). The funds are allocated from the EAFRD and co-financed from the state budget. In general, the EU budget period 2007-2013 made available the financing of sustainable forestry practices in privately owned forestry in a larger extent than earlier.

Through ERDP it is possible to support investments into the utilization of unused biomass by forest owners. Estonia has also received investment subsidies from the EU for improving the economic value of forests (measure 1.5.1.), restoration of damaged forests

and for prevention of forest fires (measure 1.5.3.) and Natura 2000 subsidy for private forest land.

In addition, Estonia is eligible for assistance from the EU structural instruments as part of the Convergence Objective. In the period 2007-2013 Southern Estonia region participates in the seven programmes under the European territorial Co-operation objective:

- Estonia – Latvia Programme
- Baltic Sea Region Programme
- Central Baltic INTERREG IVA Programme
- The interregional co-operation programmes: INTERREG IVC, INTERACT II, URBACT III, ESPON

**Via Hanseatica** tourism project is one of the most visible projects financed under Estonia – Latvia – Russia CBC Programme within ENPI 2007-2013. The route connects a large part of remote areas of Latvia, Estonia and Russia. The idea of the project is to facilitate sustainable development of these areas by unleashing their tourism development potential. Project activities include the development of joint tourism packages, marketing and training activities.

The actors from the region participated in a number of EU projects, which contributed to the greener development of the sectors of the economy. Projects in the field of organic agriculture, developing of green transport and sustainable tourism have been successful.

The most active partners are usually the development foundations of the counties, county governments and higher education institutions. The smaller municipalities are often not capable of applying for project funds due to a lack of financial and human resources.

**Estonia-Latvia Programme** supports cross-border cooperation between Estonia and Latvia. In addition to ERDF, it is funded by the Republic of Estonia and the Republic of Latvia. Six projects relevant to the selected sectors of the green economy received support in the region. The projects are promoting the active tourism and biking in the region, food networking and using the local natural resources. One of the projects is aiming to develop a network for demonstration of environmental friendly farming practices.

The partners from Southern Estonia region participate in several projects funded under the **Baltic Sea Region Programme**. Such topics as ecological agriculture and a good governance in forested landscapes are being addressed. The city of Tartu was also a partner in a biogas project, which resulted in a feasibility study for a new long term and sustainable transport plan for the city.

In the framework of **Central Baltic INTERREG IV A Programme 2007-2013** the partners from Southern Estonia are participating in the projects aiming at minimizing the use of fossil energy in agriculture, improving the competitiveness of community-based tourism,

developing of international food and activity tourism, as well as promoting the energy efficient and ecological housing.

In the framework of **INTERREG IVC** programme Tartu Regional Energy Agency (TREA) is a partner in Re-Green project – Regional Policies towards Green Buildings. Among the objectives of the project is to promote innovative policy solutions for green buildings, namely green public procurement. TREA will contribute to the project through the detailed analysis of existing situation in the field of energy consumption in the housing sector and energy management in local municipalities (the self-assessment report), the identification of good practices, and the production of its Regional Implementation Plan. TREA is also a partner in the INTERREG IVC BIO-EN-AREA project- Improve regional policies for bio-energy and territorial development.

#### **6.2.5 Role of regional and local funding for the sectors**

There is no regional and local funding for the sectors. The Southern Estonia Tourism Foundation has a budget for the implementation of some of the activities outlined in the strategy but the size of available support is quite small.

The county governments undertake some smaller initiatives. So, the county government in Põlva organized the conferences on energy issues in 2007, 2010 and 2012. In 2007 the county government ordered to perform a feasibility study on renewable energy potential in the county. The study revealed that the renewable energy production potential in Põlva county is 1.25 times greater than the current energy demand. It also showed, however, that in reality the technical and economic possibilities are more modest in comparison to the theoretical capacities.

#### **6.2.6 Role of economic instruments**

In Estonia 'environmentally harmful subsidies' have been introduced to water use and wasteland filling for oil shale based energy sector, resulting in huge amounts of waste generation, water and air emissions. Since 2005 there is an even tax level to all industries, without exemptions to the energy sector. This measure contributes to increasing energy efficiency, diversification of energy sources, and technological innovation.

In June 2005 the Government applied the Ecological Tax Reform Principles with a purpose to increase environmental taxes and reduce labor taxes. Air pollution charges have increased, as well as oil shale waste charges. The charge rates are continuously growing and the stimulus of the polluters to protect the environment is becoming evident. Avoiding the environmental charges was among the important motivations for building the municipal wastewater treatment plants in bigger cities (Tartu, Viljandi). The current environmental charges rates are determined in legislation until 2015. 'Continuing the implementation of ecological tax reform through the constant further development of the

environmental tax system' is among the measures in Estonia 2020 Action Plan for 2011-2015.

In financing of energy efficiency related investments, the market-based instruments had a significant contribution to greening of the building sector in Estonia.

Estonia has managed to reduce the GHG emissions significantly and met its obligations under the Kyoto Protocol that enabled the country to trade its CO<sub>2</sub> quotas and channel the finances to the environmental projects and programmes that help to reduce the CO<sub>2</sub> emissions. Since September 2010 Apartment Building Renovation Grants were provided under the Green Investment Scheme for residential buildings and the public sector, which constituted 10-35% of the total cost of renovation. In total across Estonia, 243 apartment buildings received the grants by the end of the year 2011, which is less than one fifth of the total amount of work which needs to be done (Odyssee 2012).

Moreover, some share of the revenues from the sale of CO<sub>2</sub> quotas was used for renovation of state-owned buildings to increase their energy efficiency with the help of the State Real Estate Ltd. The renovation budget is approximately 146 million EUR. There are currently 480 buildings being renovated, most of them are schools and kindergartens, as well as cultural institutions (RKAS 2013).

#### **6.2.7 Others: voluntary schemes, innovative financing mechanisms, GPP**

##### *Building and construction*

Since 2009 a loan for the renovation of apartment buildings is possible to receive in Estonia. The scheme combines the finances from the EU structural funds and a loan from the Council of Europe Development Bank on advantageous terms with a longer refunding period to apartment buildings constructed in 1993 or earlier. The aim of the loan is to improve energy efficiency by 20% in apartment building with an area of 2 000 m<sup>2</sup> and by at least 30% in the larger ones. In 2011 about 167 loan contracts were signed in the framework of the programme for a total sum of 16.7 million EUR. According to the estimations, if the implementation of the scheme continues in the same volume, about 15% of apartment houses in Estonia will be refurbished by 2020.

Energy certification and auditing of the buildings is a tool to promote renovation. Energy audit is a precondition for applying for the renovation grant from the public funds.

##### *Forestry*

FSC certification scheme has been an important driver for the development of sustainable forestry, especially when it comes to the state owned forest. Certification has had an important role in increasing the competitiveness of the Estonian forestry industry on the foreign markets, especially in Scandinavia.

The certification among the private forest owners is not that spread. According to the respondents, the timber market in Estonia does not value the existence of certificates. The private forest owners do not see many benefits in acquiring of internationally recognized certificates. Most of them prefer not to take additional bureaucratic burden.

### *Tourism*

There are several eco marks of tourism products in Estonia today that promote the principles of sustainability in tourism among the tourism enterprises, public and consumers. Estonian ecotourism quality mark of Estonian tourism products **EHE** (Ehtne ja huvitav Eesti -Genuine and Interesting Estonia) was introduced in 2001. EHE is a quality mark to label tourism products in compliance with the principles of eco-tourism. The quality mark is given to the specific products and not an enterprise as a whole. By applying the EHE-mark to its products, the entrepreneur obliges to follow the principles of eco- tourism and fulfill the requirements set to the products. Until now the number of products assigned with EHE mark is quite small. There are about 10 products of enterprises in total and one of them is from Valga county in Southern Estonia (Maaturism 2013).

An international eco-label for environmentally conscious tourism enterprises **Green Key** was standardized for the tourism sector in Estonia in 2001. Today there are 24 accommodation enterprises in Estonia that have the Green Key diploma. The scheme is supported by the Ministry of Economic Affairs and Communications. Enterprise Estonia is the Green Key coordinator in Estonia. The purpose of Green Key in Estonia:

- to increase environmental awareness in the tourism sector
- to increase the competitiveness of the accommodation establishments in Estonia
- to promote and raise awareness of sustainable management principles.

In 2009 Põlva county introduced a label "Rohelisem märk" (A greener mark) for the naturally manufactured high-quality local products. There are about 20 enterprises in the county who have adopted the label. These enterprises provide a wide range of products: from food products to natural clay coatings and wool socks.

### **Green Public Procurement (GPP)**

The amended Public Procurement Act creates the basis for using environmental



considerations and criteria in public procurement. It is stated in the Subsection 3 (6) that the contracting authority shall prefer green solutions. However, in most cases the public sector is still guided by the price when making a procuring the services and products.

According to Directive 2006/32/EC, Member States must implement at least two measures to ensure energy efficiency and conservation via public procurement. Estonia implements the measures b) requirements to purchase equipment and vehicles based on lists of energy-efficient product specifications of different categories of equipment and vehicles, and e) requirements to use energy audits and implement the resulting cost-effective recommendations.

The Development Plan 2007-2013 for Enhancing the Use of Biomass and Bioenergy urges to take suitable measures when it comes to public procurement for biomass, consumption technologies and bioenergy. Public procurement is perceived as an important market regulation mechanism, which can contribute to the extension of biomass use by the state and local governments. It is stated that the possibilities and impact of GPP will be analyzed. The issues that require further analysis and assessment are energy efficiency requirements for public procurement, mandatory use of renewable energy by the national and local governments and the imposition of the potential obligation to acquire vehicles consuming biofuels.

The Ministry of the Environment has developed the green public procurement guidelines and encourages the public sector to apply GPP, especially in the field of public transport, energy-efficient construction and improving energy efficiency in the buildings. In 2009-2010 SEI-Tallinn coordinated a project on promotion of environmentally friendly public procurement.

### **6.3 Description of problems and barriers encountered within sectors**

As noted in the interviews, a major obstacle to the green economy development in general is a low awareness level of the population. This concerns all sectors of green economy. Other barriers are related to the lack of financial resources at the regional and local level for the implementation of green economy objectives.

There are significant disparities between urban and rural areas in Estonia, which also results in a weaker socioeconomic structure in the rural areas. It is difficult to attract and keep the qualified labor force in the peripheral areas. There is simply a lack of committed and knowledgeable people, who would take an initiative and drive the change.

It was also brought up in the interviews and indicated in the Country Report on

Achievements of Cohesion Policy 2007-2013 in Estonia, that the current administrative structure - with highly centralized ministries and agencies but a diverse system of mainly small local governments - is a major drawback to sustainable regional development. 226 local municipalities are too much for such a small country as Estonia. Some of the rural municipalities have too few residents-taxpayers to be able to perform the necessary functions properly.

The low administrative and financial capacity of the local governments in Estonia significantly hinders the adequate use of the Structural Funds. The local governments neither have the capacity to apply for the funds, nor to co-finance the projects. In addition, there is a lack of human resources for the systematic development activities at the municipal level. As indicated in one of the interviews with a county government, the development of any EU related activities and projects stopped completely when the responsible person left the job. This shows that the role of active enthusiastic leaders is very important, especially in the peripheral areas (Kalvet 2010).

High costs of alternative 'green' solutions, unconventional character of the measures and a long payback period have also been among the barriers for a greener development of the sectors of green economy (Henrikson 2013).

It was brought up in the interviews that the current state support, both in terms of policies and financial support, is insufficient to ensure a sustainable development of the sectors of the green economy. The public sector should drive the development, both ideologically and financially, and set a positive example in their activities and attitudes (e.g., by applying green public procurement). Only then the performance of the private sector would also improve. In many cases the goals and objectives related to sustainability stay on the paper (Värs 2013).

### *Building and construction*

Emigration of skilled labor to the neighboring counties with a higher standard of living has a significant impact on the Estonian construction market, inevitably affecting the quality of available labor force and labor costs.

Another challenge is insufficient competency of labor when it comes to energy efficient construction, which could become a more serious problem in the future when the new technologies and standards are introduced. Very few construction companies are offering courses and improving competency of the employees.

Although KredEx Foundation's feedback about the implemented refurbishment and reconstruction measures is very positive, there is still a long way to go. There are few times more applications for support, than the available budget of the programmes. Billion euros of investments are needed in order to bring the apartment buildings in Estonia in

line with today's energy efficiency and indoor climate requirements. The effectiveness of refurbishment measures is often criticized.

The share of reconstruction and refurbishing activities is higher in the larger cities. The peripheral areas, such as Southern Estonia region (except for the city of Tartu), are lagging behind for several reasons: a) no will to take a loan for reconstruction, as the wages are lower whereas the costs for renovation are the same. The value of the property is lower in the peripheral areas in comparison to Tallinn; b) limited access to information; c) less efficient performance of the apartment unions; d) lower energy prices in the region. In contrast, higher energy prices in the capital region and the city of Tartu are among the most important motivations for the public and private actors to apply energy saving measures in the buildings.

The construction of nearly zero-energy buildings in Estonia is not yet cost-optimal taking into account the financial considerations. The initially proposed efficiency coefficient for nearly zero-energy buildings was 50–140 kWh/(m<sup>2</sup>·a), whereas the cost optimal energy performance levels would be from 120 to 200 kWh/(m<sup>2</sup>·a). Having in mind that the current minimum requirements range from 150 to 300 kWh/(m<sup>2</sup>·a), the changes in the minimum energy performance requirements need to be made stricter and require long-term preparations (MKM 2010).

### *Agriculture*

When it comes to organic farming, the farmers need better coordination and support. In reality it is often the case today that organically produced products are sold as conventional due to poor functioning of production-processing chain in Estonia. During the processing a big number of organic products dissolve in traditional products and lose their singularity. A large share of certified organic producers today are small farmers, who are hardly ever involved in marketing activities and in most cases consume the products within their households. In future there is a need to focus more on integration of production, processing and marketing of organic products (Agri 2010a).

Not enough investments are made in innovation. Shortage of money is an innovation-impeding factor. It was noted in the interviews, that the expertise and knowledge of the universities and research establishments are not being used effectively.

When it comes to bioenergy production from agriculture and forestry, the interviewees note that there is no strong political will and the available support is quite limited. Since Europe 2020 targets for Estonia have been achieved regarding the share of renewable energy in gross final energy consumption (25%), there is no strong motivation to increase bioenergy production at the moment.

Although biogas production from agricultural residues and manure has a positive impact on rural life, agriculture (alternative activity for farmers to grow energy crops) and even job generation, it is not produced in Southern Estonia today. The renewable electricity feed-in-tariff exists but there is no demand for heating energy in the region, as it is relatively cheap at the moment. Since the heat cannot be used, the production of biogas is not economically viable today. A greater support is needed for the generation of heating, as the feed-in-tariff for renewable electricity alone is not a strong motivation (Kikas 2013).

The renewable electricity feed-in tariff in Estonia is 3 times lower than in Latvia and Germany. According to the study on the feasibility of biogas production in Estonia, neither current (5.37 € cents/kWh+market price) nor planned (6.39 €/kWh, including market price) feed-in tariff for renewable electricity. The study indicates that the CHPs using biogas become feasible, if the renewable electricity feed-in tariff for biogas can be increased to the level of the 14 €/kWh in Estonia, excluding market price, if the investment subsidies are not provided (Oja & Trink 2011).

### *Forestry*

Although forestry sector is on the right track and its overall performance is considered quite sustainable, primarily due to quite tough state regulations, there is still a space for improvement.

The awareness level of the private forest owners of the fact that forest should be managed is rising but is still at a relatively low level. A large share of the private forest owners lack the professional knowledge and experience for the management of the forest. Other challenges associated with privately owned forests in Estonia are:

- insufficient investments into environmental improvements;
- insufficient knowledge and skills in forestry;
- not using the full potential and utilization possibilities of forestry products and ecosystem services;
- insufficient attention to the improvement of marketing.

These issues are being addressed through the EU and state support schemes to the private forestry, but the respondents indicate that the available support is insufficient to make a significant change. Moreover, there is no significant push from the market for the forest owners to go beyond the requirements of the law to support sustainable forest practices.

Since there are many small forest owners, it is crucial to ensure their closer cooperation to be more successful in receiving funding or in developing joint marketing. As for today, the cooperation between the forest owners is insufficient which is seen as a barrier to rational and efficient management of private forests.

According to the respondents, there is no clear commitment from the state to promote sustainable forestry in the long run. There is not enough attention of the politicians and society to the forestry issues. Insufficient research activities might become a problem in future. The perception today is that forest is doing fine and everything is under control - this too secure feeling might actually be a bit dangerous.

The challenges encountered within forestry sector are also related to poor state of infrastructure in terms of forest roads and access to more remote areas. In addition, the Estonian roads have limits on vehicle weight and this puts restrictions on timber transportation. The trucks often have to drive half-full which is inefficient, uneconomical and affect the environment negatively.

When it comes to biomass use for energy production, an increased transition to biomass fueled heating is not economically viable at the moment due to the lack of investment support from the state to private energy producers. Long distances to CHP plants were also identified as a barrier for using the logging waste and agricultural residues for energy production to a higher extent. A hindering factor for the development of CHP is a small heat load in the region and a large-scale export of biofuels, so that the local energy producers do not have enough resources.

### *Tourism*

In case of tourism development, a poor international rail and air connection with Southern Estonia region is seen as a barrier to attracting the tourists. Within the region itself, many interesting tourist attractions can only be reached by car. There is no public transportation to the national parks and other nature objects, for instance. The water transport on the lakes Võrtsjärv and Peipsi is also underdeveloped.

Constraints to pursuing sustainable tourism also include insufficient educational and training programmes on sustainable tourism, lack of information exchange among various stakeholders, insufficient support from the state, and a lack of funding.

Sustainable tourism is not well defined today. Several concepts are used, mainly eco-and nature tourism, which can also create a confusion among the tourism SMEs. There is a lack of conscious and systematic implementation of the principles and criteria of sustainable tourism in the region.

## 7 Territorial conflicts

### 7.1 Conflicts of interest between sectors

No serious territorial conflicts have occurred in Southern Estonia so far. As for today, there are some examples of conflicts of interest on the individual level. Among the possible explanations is a small population size and dispersed settlement in the region.

As brought up in the interviews, tourism and agriculture are the economic sectors that complement each other rather than compete for the use of land and resources. The locally produced food becomes an integral part of the tourism industry. There is a growing interest to integrate local traditions and culture (including food) and traditional way of life into tourism product development.

In case of forestry, tourism development is also perceived as an additional source of income, so the conflicts are rare. Since the development of mass tourism is unlikely to occur in the region, the serious territorial conflicts between tourism and forestry are not expected to emerge.

Within the forestry sector itself, there have been internal conflicts related to the reforestation activities (regarding the tree species and reforestation volumes) and finding the most economically viable solutions. The conflicts of interest have occurred when it comes to the use of lower quality wood as a construction material or for energy production.

In the field of forestry, the most sensitive conflicts with the local community in Southern Estonia arose when the logging activities took place in the forest with a high cultural and spiritual value for the local population (old burial sites, burial mounds and some meaningful trees). These objects are not under protection and therefore such conflicts are quite common. RMK started to pay more attention to these issues and usually the interests of the local community are prioritized (Kohv 2013).

Other than that, some individual conflicts of interest exist when it comes to clear-cutting close to the settlements and tourist attractions. In future the conflicts may arise if the cultivation of fast growing tree species for energy production becomes more profitable than reforestation with the traditional tree species, which may have a negative environmental impact. In addition, a conflict between timber and non-timber use of forest (recreational use, hunting) may emerge in case of more intensive felling volumes.

TREA made a feasibility study on the bioenergy production potential in one of the counties in Southern Estonia, which showed that the conflicts of interest may arise in future in regards to an increased use of green biomass (hay) for biogas production versus the use of pastures for animal grazing.

The regional actors stress that the territorial conflicts may arise in future if the bio-energy production increases but the government does not regulate it properly.

It was brought up in the interviews that the attitude of the local community towards an increased bio-energy production is very likely to be positive, if the residents understand the associated benefits for them and their community.

As noted in the interviews, there are significant shortcomings in the comprehensive planning (municipal spatial plans) and detailed planning (land use and building provisions for cities, towns and parishes), which also result in the territorial conflicts. There are no uniform principles how the land use planning is done by the local authorities. It is quite chaotic and often driven by profit and private interests rather than taking into account the environmental needs and public interests. With a rapid development of private residential areas and infrastructure the pressure on the open space and natural environment has increased. New developments in suburban areas are taking place in the most attractive areas, which are also environmentally vulnerable.

## **7.2 Conflicts of interest within sectors**

Despite such a small area, there are great regional disparities and a highly unequal spatial allocation of capital and investment in Estonia. Higher income level of the population, higher energy prices and stronger apartment unions in Tallinn county resulted in a situation that the capital region was more successful in receiving support for refurbishment measures from KredEx Foundation compared to Southern Estonia region.

In addition, there is a shortage of people in the region, who would drive the change and urge a more proactive approach to sustainability. There is a lack of human resources in the local and regional governments. The shortage of qualified personnel in sustainable and energy efficient construction is a challenge for construction companies. Today, the desire for green building is not matched with competencies of the construction firms.

Also, according to the study Estonian Local Government Absorption Capacity of European Union Structural Funds (2010), 'the European Funds have been distributed mainly to those local governments that have higher socio-economic potential and which belong to the more developed parts of Estonia'. The peripheral municipalities usually experience problems related to administrative and financial capacity and are often unable to participate in these programmes. If so, it can be argued that the Structural Funds may have contributed to even greater disparities in Estonia.

## 8 Assessment of the region's potential to develop green economy in the future

### 8.1 Distance to target/best performers/technical potential

From the point of view of the regional actors in Southern Estonia, the sectors with the best green economy development potential are nature tourism, bioenergy, building and construction, and organic agriculture. The development of these sectors of green economy is most likely to be prioritized in the future.

Bioeconomy sector could become among the best performers in future. The nationwide targets regarding the 25% share of renewable energy in gross final energy consumption were met already in 2011. There are no binding targets for Southern Estonia region in the field of bioeconomy but in the vision of Regional Biomass Action Plan for Southern Estonia 2013-2030 which is under development by TREA, in the long-term perspective Southern Estonia can become an energy exporting region in contrast to the current situation when a large share of energy is imported. If all sources of biomass are used efficiently, there is a potential to increase the use of renewable fuels in heat production to 90%.

Due to availability of biomass raw material, the agricultural land out of use, as well as low population density, there is a potential for further increase the bioenergy production in the region. In principle, taking into account all fuel wood sources (wood, cutting waste, waste from the forest industry), at least two times more wood could be used for bioenergy production in comparison to the current levels. From the available forest biomass in Southern Estonia region it is possible to generate 12 000 TJ which is about 40% of the total primary energy production from biomass in the whole country. 10 biogas plants are in the planning or construction phase in Southern Estonia today (EBAP 2007; TREA 2013).

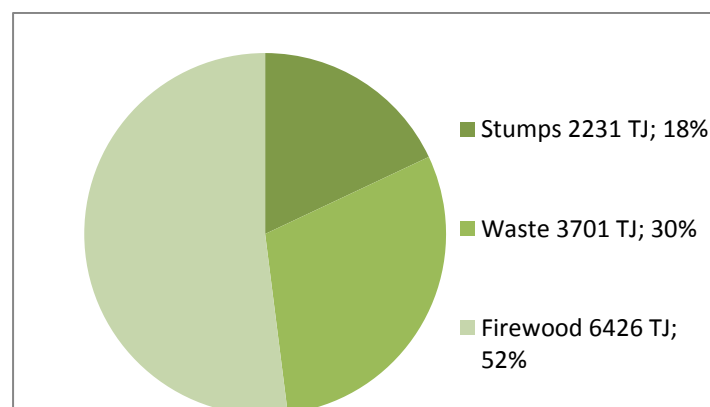


Figure 15 Primary energy production potential from forest biomass in Southern Estonia (adapted from TREA 2013).



According to the EEA and AEBOIM (2011), Estonia has a huge unused potential of biomass (Table 17).

Country	Unused potential (in 2010, %)
Estonia	61%
Greece	29%
Ireland	78%
Italy	72%
Spain	67%
Sweden	16%

**Table 17 Unused potential of biomass by country (Source: Muiste 2011).**

Due to the lack of demand and a low level of political and financial support, the existing potential of biomass is not fully used. The technical potential is also quite poor – the distances to CHP plants are long. It is difficult to predict the future development trends since the biomass and bioenergy are highly dependent on global prices on the liquid fuel and gas, as well as the domestic demand for renewable fuels in Estonia.

Until today the energy crops have been cultivated only as pilot projects and comprehensive feasibility studies have not been carried out yet. Out of 1.2 million hectares of arable land in Estonia only 0.85 million is in the active use today. One can see a great potential for cultivation of energy crops on such land, also in a view of creating new jobs and diversification of the rural economy. In this way the bio-energy crops do not have to compete with the food or fodder crops for the use of agricultural land. It is unclear how much of the unused agricultural land can be actually utilized, and what the expenses, production volumes and profit will be. The profitability of cultivating biomass for energy production is highly dependent on the available support and the price offered when marketing biomass, which has to cover the production expenses and give a reasonable profit.

Planting of fast growing tree species with short rotation period (less than 30 years) for

energy production could be viewed as an alternative land use in future. Currently planting of energy forest and energy grass is not economically viable, although the agricultural machinery is suitable for the cultivation and harvesting of energy grass (MKM 2004).

In the Long-term Public Fuel and Energy Sector Development Plan until 2015 it was concluded that the use of straw and manure for energy production is viable in the region only if the transport distances are short and raw material is not used for other purposes (e.g., use of grass silage as a feed) . When it comes to the use of bio-waste from food industry, catering and as fraction of municipal waste for biogas production, its use is complicated since the current separation level is not good.

From the global perspective, having in mind the scarce water resources and climate change impact in the southern EU countries, agriculture has a good future in Estonia. Considering such a small population, Estonia has more agricultural land per person than any other country in Europe (0.69 ha in Estonia and 0.37 ha in EU). Therefore there are big opportunities for developing of organic sector. Organic farming as a higher value activity is a profitable niche especially for the small-scale farmers, which constitute the majority in the region. Technically, the natural grasslands which are in abundance in the region are perfectly suited for organic livestock breeding.

Already today Southern Estonia region has the largest number of organic producers than any other region in Estonia. If the organic sector manages to overcome the challenges related to the development of organic processing and marketing, which are lagging behind the development at farms, organic farming will have a bright future in the region. With the popularization of organic products in future and increased awareness of the consumers the demand for organic products will grow.

As to sustainable tourism development, its performance is difficult to evaluate due to a lack of statistical data and sustainability indicators. Assessing the region's potential in sustainable tourism based on the discussions with the county governments and the regional tourism actors, it can be concluded that there is a strong interest to develop this sector of green economy. The region is marketing itself as a rural tourism destination, so the focus on sustainability is likely to become stronger in future. Currently, the sustainability aspects are not emphasized and only a handful of tourism businesses have a strategic approach to sustainability.

A further development of a sustainable tourism has a meaningful impact on the rural development. Rural and nature-based tourism is expected to develop as a niche activity, bringing economic and social benefits to the marginal and less economically developed areas in Southern Estonia. At the same time it is expected to remain fairly small-scale, which is important from green economy perspective. As noted in the interviews, a positive synergy between rural tourism and agriculture is expected to develop in future, which would be beneficial for both sectors. Tourism farms offering gastronomic specialties based on locally produced organic food, animal products and traditional handcrafts have good opportunities.

The energy saving potential of the existing building stock is high and there is a strong need for its modernization. It was discussed in the case study that Southern Estonia region does not stand out in terms of renovation levels or more ambitious refurbishment targets. It is rather the opposite – in the peripheral areas of Southern Estonia the renovation activity has been generally lower. A conflict of interest between lower energy prices on the one hand, and a lack of financial incentive for green buildings on the other hand, result in a lower refurbishment performance.

The renovation levels are expected to grow in future but they are highly dependent on the available support schemes from the state and EU. When it comes to the new dwelling houses, stricter thermal standards have been introduced, which results in lower heat consumption. At the same time new buildings are becoming larger and higher living standards require more energy.

## **8.2 Potential of GVA increase and job creation**

As noted in the interviews, there are no big industries and production in Southern Estonia region, so the green jobs are most likely to emerge in the field of tourism and agriculture. Moreover, it is expected that wood demand will rise in the coming years due to a growing demand in traditional wood industry and energy sector, which will generate new jobs and GVA increase.

The organic products account for a small share of the GVA today. At the same time GVA increase is expected in future as a result of improved processing and marketing of organic products which will give better export opportunities, as well as raising the awareness level of the population.

When it comes to job creation, most of the organic producers are small and not many jobs will be created directly at the agricultural holdings. However, there are possibilities for job creation in the processing chain.

In the building sector there is a growing demand for specialists and construction workers with a working knowledge in green building and sustainable construction principles. The demand for renovation measures will continue to grow, as the majority cannot afford buying newly built private houses and apartments in the nearest future. Also, the energy performance requirements are becoming gradually stricter which calls for adaption of new construction practices and technologies. This suggests that building and construction sector will provide with a growing number of green jobs in future.

Due to development efforts of the South-Estonia Tourism Foundation and other actors in the region, as well as improved infrastructure networks, the number of tourists and

tourism businesses are expected to increase in future. At the same time tourism is expected to remain small-scale, which suggests that GVA increase will probably be quite modest.

As to job creation, seasonality of tourism is among the main challenges. The employment in tourism sector varies during the year, with better employment opportunities during the peak season. Since the majority of the tourism businesses are driven by families, not so many additional work places are created. A growing number of international visitors calls for good language competences of the employees in the tourism sector, which may also result in increased employment of the qualified labor.

### 8.3 Conclusions

Poor quality of infrastructure, low density of population, incoherent governmental regional policy and a lack of financial and human resources are among the barriers for a regional development. At the same time the region has a good development potential in terms of green economy, which has not been fully used until now. Further development of green economy can turn the existing constraints into opportunities. For example, due to low density of population there is a lot of unused land that is suitable for organic agriculture and the cultivation of energy crops. The region can significantly improve its competitiveness by fostering green economy.

The regional stakeholders have a generally positive attitude towards the future development of the sectors of green economy. At the same time they argue that high costs of the sustainability measures is a substantial barrier to pursuing green economy objectives. Green initiatives are often considered of secondary importance, after addressing the fundamental issues. This suggests that there is insufficient understanding of the opportunities within green growth, and combining green and growth has not been considered enough until now.

As long as green initiatives are mainly supported from EU structural funds, there is a degree of uncertainty in the light of the next EU programming period, as the priorities and the amount of support envisaged for specific measures are not clear. This also makes a long-term and more ambitious planning problematic.

## **9 Road ahead and conclusions**

### **9.1 Road ahead and policy needs as seen by local stakeholders**

A lack of financial support is seen among the limiting factors for green economy development in the region. The regional actors stress the importance of financial mechanisms and emphasize the need for increased public support.

As to policy needs, the public sector should ensure the economic stability and create a favorable economic environment which will steer the investments in green technologies and alternative solutions. Only a long-term commitment at the national level to pursuing green economy objectives provides investors the security to invest in a green economy and the costly activities that might bring profit in the future. The stakeholders expect the political reorientation and would like to see the state leading the way and setting a positive example through applying GPP and creating a demand for green products and services. Continuing the implementation of the ecological tax reform through further development of the environmental tax system is seen as an effective driver which steers the economic development towards more sustainable. In addition, a stronger legislative provision and stricter regulations need to be introduced.

Besides that, the regional stakeholders stress the need to increase the overall awareness level of the population and increasing the standards of living. This might help the consumers to make responsible choices (sustainable construction materials, organic food etc.) which are not only based on the price (as it is today). The regional actors also highlighted the importance of education in greening of the sectors (including retraining and further training of personnel).

### **9.2 Road ahead: recommendations and policy needs as seen by GRECO**

The current governance structure limits initiative and high-quality green development activities of the municipalities. A new governance model in Estonia should be developed that gives more decision-making power to the regional and local level and would help to rationalize their work.

There have been attempts to tackle the problems related to the fragmentation of the local governments by reducing the number of local government units (Kalvet 2010). Simply creating bigger local government units is unlikely to solve the municipalities' performance problems, as many other issues should be considered. Although the local governments have the power to undertake almost any activity, their ability to do so depends on the available funds to finance the costs. In this regard it is advisable to reconsider local

governments' fiscal system, which would allow them to implement larger development projects on a bigger scale.

Among other things, the cooperative culture among the municipalities should be supported, which is currently very weak or even non-existing. The problems concerning the lack of human resources should also be addressed. There is a strong need to attract staff with the requisite skills and technical expertise for an effective regional development.

In the current situation when there is a lack of sustained funds and there are fundamental shortcomings in the region, such as quite poor performance of buildings, a narrowed focus on a few key initiatives could take precedence in order to achieve beneficial results. By dedicating the higher share of investment to one sector or theme, the region could become a role model and an expert in one specific field, instead of performing marginally at a number of things. The building sector could become one of such examples in Southern Estonia. An opportunity could be to dedicate higher shares of investment toward funding that supports green building investment, green building knowledge development (of firms) and awareness, and energy efficiency of energy supplied to home for heat.

Profitability is of utmost importance for any green initiative that is introduced in the region today. As such, green opportunities (perhaps second generation bioenergy harvesting from agriculture and forestry) could be viewed as a means of improving competitiveness of rural regions. Development of bioenergy could be highlighted for its potential to make the traditional sectors more competitive.

The emphasis on sustainable tourism should be strengthened in future. As for today, sustainable tourism as a concept is not well defined, which creates confusion and misunderstanding among the practitioners. Tourism businesses should also receive additional guidance and help in their sustainability work, as there is a small number of tourism businesses today addressing sustainability strategically.

In their efforts to support entrepreneurship, the region could focus on supporting the development of green businesses (environmental technologies, R&D etc.), which might create a positive image of the region in future.

In general, there is a need for road infrastructure improvement to favor the development of bioeconomy and tourism in the region. At the same time alternative means of transportation, such as biking, should be increasingly promoted. Biking is especially convenient in the region, as the travel distances are quite short. The border location of the region, combined with well-developed IT enables growth in the transport and logistics sectors. In this regard it is important to further encourage the development of rail, which could gradually force out car transportation.

### **9.3 Transferability**

Estonian example and experience in development of IT services is often brought up as a role model for other countries. In terms of green economy initiatives in Southern Estonia, the support schemes and loans for apartment building reconstruction could be brought up as a good example of initiatives that could be picked up by other countries with a poor energy performance of the building stock.

Efforts and initiatives of a relatively small group of people at the regional energy agency in Southern Estonia made a great contribution to popularizing green building and energy issues. Thus, a great starting point of the development is to ensure that there are the people with the right skillsets and experience in place. In addition, the experience of the regional energy agency showed that providing practical advice and hands-on knowledge directly to the enterprises and public authorities is an effective measure in promoting greener solutions.

The experience of Southern Estonia region could be transferred to other new member states, especially those struggling with demographic problems and socio-economic inequalities.

Among the most visible initiatives that has not been discussed in the case study but is worth mentioning is providing free public transport to the residents of Tallinn since 1 January 2013. This measure is expected to reduce the amount of private vehicles in the city and thus to reduce the GHG emissions.

### **9.4 Lessons learned**

Among the findings in the study is that the EU structural funds play a significant, if not the key role, in regional development initiatives in Estonia. The budgets of local and regional governments are quite limited which does not allow them to undertake extra initiatives in the field of green economy. Thus, the greening of the sectors (especially agriculture) is coherent with the availability of EU funding and relies on the policy development taking place at the EU level.

The role of EU policies and targets is marginal for the regional and local development. The national policies play a more important role. Regional policy development has not been effective, as great regional disparities in the country still exist.

In general, the local governments in Estonia have insufficient administrative and financial capacities to foster green economy. At the regional level, there are no long-term commitments, such as 'becoming fossil fuel free' or other similar targets. There is a lack of targets and indicators related to green performance of the sectors in the counties' strategies.

The counties do not use sustainability as part of the brand, except for one county which used 'a greener life' slogan in its strategy. As such, the opportunities to combine green and growth have not been exploited.



Financial concerns and profitability are among the main drivers for introducing any green initiative at the state, regional and individual level. Rising energy prices, for example, are encouraging the application of energy saving measures in buildings.

Certification has played an important role in promoting of green forestry. The popularity of eco marks and eco labels in tourism sector is still quite low. Only a handful of tourism businesses and products in Southern Estonia region are labeled.

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# 11 Appendices

## 1. Summary of the objectives outlined in the development Strategies of Jõgeva, Tartu, Viljandi, Põlva, Võru and Valga counties

County	Strategic document	Sector activities		
		Bioeconomy	Building & construction	Tourism
Jõgeva	<p><i>The Development Strategy of Jõgeva County 2020+</i></p> <p>Vision 2020: Jõgeva county values the cultural identity, nature and healthy lifestyles and is a place with secure and safe living environment. The local governments of the county have a strong administrative capacity and ensure the access to high-quality public services to their residents.</p>	<p>-Promotion of agricultural and food industries and aquaculture to enhance the value of local produce. Fostering agricultural product development and marketing</p> <p>-Development of forestry sector using the potential of Luua school of forestry</p>	<p>-To ensure high quality and energy efficiency of new residential buildings</p> <p>-Renovation of residential buildings using economical and ecological solutions (insulation, natural materials)</p>	<p>-Increasing the exploitation of the natural potential of the Peipus lake – development of fishing industry and recreational tourism. Marketing of Old Believers culture.</p> <p>-Development and marketing of Vooremaa recreational area. Many of the measures are targeting tourism infrastructure development (restauration of castles, historical objects, parks etc.)</p>
Tartu	<p><i>The Development Strategy of Tartu county 2014</i> has four prioritized areas:</p> <ul style="list-style-type: none"> <li>• Education (modernization of learning and teaching environments, internationalization, development of technical and vocational education)</li> <li>• Support to new businesses</li> <li>• Improving the living environment and social infrastructure in the regional centers</li> <li>• Developing road infrastructure, transport and communication networks</li> </ul>	-Development of the environmentally sustainable agriculture sector with high productivity, which provides the county residents with high quality local food and supports rural development.	-Development of eco housing technologies, Increased application of new construction technologies	<p>-Developing a number of nature routes introducing the local nature and promoting the nature tourism</p> <p>-Development of eco-museums network</p>
	<p><i>The Development Strategy of Tartu county 2020</i></p> <p>County's strategic vision incorporates an objective of becoming a leader in transition to a more resource-efficient economy</p>	-Ensuring the competitive business environment for the agricultural enterprises	-Increased integration of energy management, the environmental technology and energy-efficient construction in technical education (vocational, professional higher- and engineering education)	<p>-Establishment of nature tourism development center, involving tourism enterprises, LEADER local action groups and tourism development organizations;</p> <p>-Promotion of nature tourism on the basis of nature education centers and nature museums;</p> <p>- Promoting nature tourism for</p>

				<p>raising the environmental awareness and educating the public on environmental matters;</p> <p>-Construction and maintenance of recreational areas, nature routes and hiking trails – linking with local employment projects;</p> <p>- A tourism product development on Emajõgi river – ports, accommodation, viewing towers, tourist boats, thematic itineraries etc.</p>
Viljandi	<p>The Development Strategy of Viljandi County 2020+</p> <p>The Action Plan is valid until 2010 and is currently being updated. The Development Strategy is also being revised</p>	<p>- Promoting sustainable forest management in order to increase sustainability of forests and ensure biodiversity and regenerative capacity and livability</p> <p>-Supporting environmentally-friendly production (organic farming)</p>		<p>-Development of nature and rural tourism, which ensures a sustainable use of local resources and values</p> <p>-Green Way tourism route development which is an international route going through Finland, Sweden, Norway, Denmark, Germany, Poland, Lithuania, Latvia and Estonia.</p>
Põlva	<p><i>The Development Plan of Põlva County 2011-2017 and its Action Plan 2011-2013</i></p> <p>Põlva county uses a 'greener life' slogan, which refers to a valuable natural and living environment for living, working and relaxing. In the <i>vision 2027</i>, Põlva county has an effective protection of the natural environment, resources are used sustainably and innovative production methods and local traditional activities are promoted.</p> <p>Both agriculture, food and tourism services should be guided by 'green' principles and form a part of the county's identity. Pristine natural environment and high quality living environment form the other part of the identity .</p>	<p>Development and promotion of local products and services as part of county's green identity.</p> <p>Supporting the development of business clusters (Southern Estonia food cluster, wood cluster etc.)</p>	<p>- Establishment of Sustainable Renovation Information Center in Mooste. Info center collects and distributes information, initiates trainings and implements the subject related projects.</p> <p>-Promoting of heating based on local energy sources and implementation of energy-saving solutions in buildings.</p> <p>-County programme for energy efficient buildings. All new public buildings are designed and constructed as nearly zero-energy buildings.</p>	<p>-Monitoring the visiting capacity of the most popular nature protected areas and promoting a more environmentally responsible behaviour of the visitors. Development of nature tourism plan, creating a publication on environmentally conscious hiking.</p> <p>-Several actions aiming to increase the value added of tourism sector in the county (new tourism objects development (nature, cultural and natural healing tourism), increasing the quality of tourism products and services)</p>
Võru	<p><i>The Development Strategy of Võru County 2009-2019</i> has 6 prioritized areas:</p>	<p>-Promoting sustainable forest management principles</p>	<p>-Promoting ecologic construction techniques and continuing the traditional farm building</p>	<p>-Developing of rural tourism on former agricultural areas</p>



	<ul style="list-style-type: none"> <li>• Võru county identity</li> <li>• Rural life</li> <li>• Entrepreneurship and vocational training</li> <li>• Education</li> <li>• Green energy</li> <li>• Developing an image of Võru town as the pull centre in the area</li> </ul>	-Launching of Southern Estonia food network which supports the production of close to nature and organic products	practices	-Supporting tourism product development which highlights Võrumaa cultural heritage, traditional way of life and nature based products
Valga	<p><i>The Development Strategy of Valga County 2018</i></p> <p>Vision 2018: Valga county is easily accessible, with a strong identity and an attractive center of Livonia and is an attractive place for living.</p>		<p>-Promoting energy labelling of the buildings and raising awareness about energy efficiency</p> <p>-All new and renovated buildings are nearly zero-energy buildings</p>	<p>- Tourism destinations and products are developed taking into account the sustainability principles</p> <p>-Development of eco-tourism cluster in Southern Estonia</p> <p>-Raising the environmental awareness of tourism enterprises employees and other target groups</p> <p>-Launching of a network of hiking trails promoting nature tourism; development of outdoor nature education programs for kids and school children</p>

## 2. Interview Protocol Templates Southern Estonia

<b>Institution</b>	The Ministry of Economic Affairs and Communication
<b>Date</b>	19 March 2013
<b>Present at meeting</b>	Madis Laaniste, Head of Sustainable Energy Office, Energy Department
<b>Main points discussed:</b> <ul style="list-style-type: none"> <li>• EU versus state influence</li> </ul> <p>EU role is important. Professional requirements for energy auditors were developed in response to the requirements imposed on the Member States by the Directive on Energy Efficiency;</p> <p>The state has been an important development motor in improving the energy efficiency of the buildings;</p> <p>Building Act (2003) set out the requirements for the operation of construction companies when it comes to quality of services;</p>	

In 2008 the state imposed a regulation on applying minimum energy requirements in all new buildings, which is a highly effective measure in moving towards a more sustainable building sector. In 2013 a new Building Regulation was adopted which has even stricter minimum energy requirements (20-40% higher energy efficiency than in 2008).

Financial support from the state today is higher than from the EU funds. Although some support schemes (very small share) are tailored to renewable energy appliances in buildings, the priority is given to energy efficiency improvements in the existing apartment buildings.

- The policies and initiatives at county and municipal level

Not many independent initiatives at the local level. Local governments do not have resources to support renovation activities and construction of new buildings. Such issues are not in their portfolio.

- Driving factors for a greener building sector

High energy price and available financial support instruments from the state. These factors are the most effective until today.

- GPP in building sector

To some extent implemented, cannot provide details

- Barriers to a greener building sector

The investments are predominantly made in large cities. The rural areas are lagging behind, which can be explained by a lower purchasing power and less efficient performance of apartment buildings cooperatives.

<b>Institution</b>	The Ministry of Economic Affairs and Communication
<b>Date</b>	19 March 2013
<b>Present at meeting</b>	Margus Sarmet, Head of Building and Housing Department
<b>Main points discussed:</b> <ul style="list-style-type: none"> <li>• EU versus state influence</li> </ul> <p>The EU influence is considerable but the national policies are more efficient. There are no regional policies in the field of building and construction sector.</p> <ul style="list-style-type: none"> <li>• Driving factors for a greener building sector</li> </ul> <p>The awareness of the population is much higher today due to the EU and state regulations. However, the main driver is the energy prices which are constantly rising. The main consideration of the people is the price and the possibility to save money, not so much the environmental benefits.</p> <p>The customers and building companies are well aware of the fact that increasing energy efficiency in buildings brings about real cost-savings and it's not just a bureaucratic talk. In this regard the EU and</p>	

state regulations have not played a crucial role, since if the customers really want to get around the law, they will find the ways how to do it. It's a joint interaction between market and regulations that made a difference.

State grants are provided from the revenues from trading of quotas – both for public sector- and apartment buildings and private houses. There is no direct contribution from the state budget.

There is no support to construction of new buildings at all. Support is provided to reconstruction of buildings with a primary objective to improve energy efficiency. Energy efficiency is the main criteria in construction today.

In Southern Estonia the reconstruction activity is a bit lower since the region has less financial resources. The wages are lower and the residents are less likely to self-finance the reconstruction.

- Barriers to a greener building sector

The projects in Estonia are so small-scale that development of new approaches and solutions in the building sector is not profitable. It is easier and cheaper to continue the existing practice instead of developing a new system.

<b>Institution</b>	KREDEX Foundation
<b>Date</b>	19 March 2013
<b>Present at meeting</b>	Mirja Adler, Head of Housing and Energy Efficiency Division
<p><b>Main points discussed:</b></p> <ul style="list-style-type: none"> <li>• The main financial sources for the grants managed by KREDEX</li> </ul> <p>A combination of several funding sources – state, quotas trading and the EU funds. The share of the support which came from these sources has varied over the years. During the last 10-15 years the state support versus EU support has been almost equal. Since the revenues from quota sales could be used only from 2010, the money received was about 30 million EUR. From the EU structural funds Kredex received about 20 million during the same period. The share of state's support since 2003 was even slightly higher.</p> <p>During the recent years Kredex has provided support to the reconstruction of the apartment buildings. So in principle the support has been granted to the private sector buildings but in reality it is the juridical person who received the grant (an apartment cooperative).</p> <p>Last year Kredex provided a special support scheme for the private persons to support the installation of renewable energy appliances – solar panels or wind generators, and support to reconstruction of private houses. The programme had a relatively small budget - 4 million euros in total. After 2013 the plan is to continue with the same support programmes since they have been functioning quite well.</p> <ul style="list-style-type: none"> <li>• The role of regional and local governments</li> </ul> <p>Since the economic crisis the local governments have been having difficult times. They implement rather small projects but their resources are quite limited. Cannot tell that they do nothing at all –</p>	

here and there they do take initiatives.

<b>Institution</b>	Estonian Fund for Nature
<b>Date</b>	14 March 2013
<b>Present at meeting</b>	Kaupo Kohv, Forest Specialist, Member of the Board
<b>Main points discussed:</b> <ul style="list-style-type: none"><li>• The main factors that have driven the development of sustainable forestry</li></ul> <p>The national policies. The EU regulations in forestry sector mainly apply to Natura 2000 sites. In other cases the role of the EU is insignificant. To some extent FSC certification schemes have been important, PEFC does not have an impact.</p> <ul style="list-style-type: none"><li>• How green is the forestry today? Which principles of sustainable forestry are implemented in Estonia?</li></ul> <p>Sustainable forestry aspects were mainly brought up and discussed with development of FSC certification. Today the discussion on sustainable forestry as such mainly concerns the felling volumes and intensity, logging planning in general. Another important issue is drainage system development, especially in privately owned forests – support from the ERDF available.</p> <ul style="list-style-type: none"><li>• How effective is the national legislations in the field of sustainable forestry?</li></ul> <p>In general it's sufficient and effective; not overregulated. Some aspects could have been more clearly defined. When it comes to felling parameters, today the main parameters are age and diameter of the forest stands. These parameters are not sufficient to characterize the forest.</p> <ul style="list-style-type: none"><li>• Effectiveness of market-based mechanisms</li></ul> <p>Not really effective. It's mainly the national law that influences the development. In comparison to Scandinavia, the forest related legislation is quite strict.</p> <p>There are no effective regulations or market-based mechanisms that motivate the private forest owners to start managing their forest. Some support for renewal of forests exists (mostly from the EU) but it has a marginal influence looking at the whole private forestry sector in general.</p> <p>Only a small share of forest enterprises and private forest owners are involved in renewal and maintenance of forest. In most cases logging activities prevail. From the ecological point of view these forests (that are not managed) have more diverse tree composition, so it's difficult to say whether it is good or bad.</p> <ul style="list-style-type: none"><li>• Multi-level cooperation in the field of forestry</li></ul> <p>The State Forest Management Centre (RMK) communicates strategically with the private forestry representative organizations. The state supports private forestry sector through various support programmes. The grants are distributed through the foundation Private Forest Centre (Erametsakeskus).</p> <p>The local governments are not involved in forestry management issues directly. They do not have a</p>	

decision-making power but to some extent can influence and even limit the forest industry development (clearcutting) on their territory.

- Major barriers to development of a greener forestry sector

No barriers as such. If the political interest and will exists, then there are no significant barriers.

Today the felling volumes are quite low. It is difficult to predict how the situation will be in the future since the development of forestry sector is influenced by the timber market and market prices.

It does not seem like the state is purposely focusing on sustainable forestry. Sustainable forestry is not defined as a concept in Estonia. In the Estonian Forestry Development Plan the allowed cutting volumes actually exceeds the annual increment. In this respect there is no strong support for sustainable forestry from the state, as we understand it.

- Territorial conflicts/ conflicts of interests

In Southern Estonia a sensitive conflict with the local community arouse when the logging activities took place in the forest with a high cultural and spiritual value for the local population (old burial sites, burial mounds and some meaningful trees). These objects are not under protection and these kind of conflicts are quite common. RMK started to pay more attention to these issues and usually the interests of the local community are prioritized.

<b>Institution</b>	Estonian University of Life Sciences, Department of Forest Management
<b>Date</b>	12 March 2013
<b>Present at meeting</b>	Ahto Kangur, PhD, Associate Professor. Dendrometria, Forest management
<b>Main points discussed:</b> <ul style="list-style-type: none"> <li>• Major drivers to a greener forestry</li> </ul> <p>The Estonian laws and regulations in the field of forestry are quite strict. In comparison to Sweden, for instance, the regulations in Estonia are sometimes tougher. If the forest owner complies with the Estonian laws and regulations in forestry sector, it corresponds to the requirements outlined in the certification schemes.</p> <p>On the other hand the market is influencing the development of the sector. The EU and Scandinavian market requirements are among the key drivers, which foremost steer the demand for certified timber.</p> <p>Certification is a strong market-based mechanism which gives a competitive advantage when selling the timber, especially when it comes to export.</p> <p>In addition to the national laws and regulations, there are 2 certification schemes in Estonia. All state Estonian forests are certified with FSC and PEFC. In case of privately owned forest, certification is not that common but few enthusiasts exist....Forestry sector in Estonia is quite sustainable today. The felling volumes can actually increase to some extent in future.</p>	

- The barriers to sustainable forestry

Not enough attention of the politicians and society to the forestry issues and insufficient research activities might become a problem in future. The political will in future is not clear. The perception today is that forest is doing fine and everything is under control - this too secure feeling can actually be a bit dangerous.

When it comes to private forest owners, fragmentation occurs today. There is a need for increased cooperation between the forest owners to be more successful in receiving funding or in marketing.

- Territorial conflicts

There are currently no such conflicts. Further development of hunting activities can have some impact. There is rather a conflict today when it comes to reforestation activities – to which tree species, which volumes and what are most economically viable solutions.

<b>Institution</b>	Private Forest Centre (Erametsakeskus)
<b>Date</b>	12 March 2013
<b>Present at meeting</b>	Jaanus Aun, board member
<b>Main points discussed:</b> <ul style="list-style-type: none"> <li>• Milestones in private forestry development</li> </ul> <p>Land reform and its implementation into life– formation of private forests; About 10 years ago -more intensive management of private forests which first resulted in intensive felling (influenced by the legislation and the overall development trends in the society); about 5-6 years ago- felling decreased, more sustainable maintenance period. The state started to support sustainable management of private forests; increased public funding for private forestry- EU and state money</p> <ul style="list-style-type: none"> <li>• The role of certification schemes</li> </ul> <p>Not well developed in Estonia. The influence of market is insignificant. Timber market does not value the existence of certificates. In addition, the Estonian legislation in the field of forestry management is very strict. If the forest owners are acting in accordance with the existing legislation, they already meet the certification requirements. When the private forest owners do not have any additional gains from the certification, most of them prefer not to take additional bureaucratic burden. All state owned forests are certified with PEFC and FSC, so it's about 40% of all forests. In case of privately owned forest FSC is more popular; about 50 000 ha are PEFC certified.</p> <ul style="list-style-type: none"> <li>• Bioenergy production</li> </ul> <p>Bioenergy production is expected to grow in future. However, the overall development depends on the market demand ... There is definitely a great potential, especially when it comes to increasing the use of forest residues and lower quality of wood in energy sector. The forest owners do not receive</p>	

support for bioenergy production today. The energy companies (CHP plants) can receive national grants for bioenergy production from biomass. Today the private forest owners can sell their forest residues if the distance to the CHP plant is short.

- Role of the regional governance versus the national

There is not much cooperation in the field of forestry with local authorities. The cooperation between private forest sector and the state exists. The forest cooperatives provide support in forest management to the private forest owners. The heads of forest cooperatives also cooperate and discuss the emerging challenges with the regional managers of the state owned forests.

- Territorial conflicts

Some individual cases exist but they have been possible to solve. A recent case – the state decided to apply a clearcutting very near to the tourism farm, which was a reasonable method in this area from the forest management perspective. They had a conflict with the local community.

- Barriers to development of a green economy in forestry sector

The awareness of the private forest owners and understanding of the fact that forest should be managed - the forest needs to be cut, renewed and maintained. The level of awareness is currently not that high. In addition, when it comes to financial mechanisms in private forestry – although they are quite well developed, the support to forestry is not sufficient. Tax law motivates the forest owners to manage their forests to some extent, but not sufficiently. Another problem is not the best state of infrastructure in the Estonian forests, for example, the roads network is quite poor. Another issue is the state policy regarding the timber transportation restrictions. In Estonia it's not allowed to drive with as heavy trucks on the roads, as in Sweden, for instance. This fact gives the Swedish timber producers a competitive advantage.

<b>Institution</b>	The State Forest Management Centre (RMK)
<b>Date</b>	19 March 2013
<b>Present at meeting</b>	Tiit Timberg, Member, Management Board
<b>Main points discussed:</b> <ul style="list-style-type: none"> <li>• Milestones in forestry development. The role of RMK</li> </ul> <p>Since 1999 RMK is responsible for management of the state forest and nature conservation works. RMK also establishes and takes cares of the forest recreational infrastructure (tracks, billboards, fire places etc.). The forestry development plans until 2010 and until 2020 have guided the RMK work.</p> <ul style="list-style-type: none"> <li>• Available support mechanisms</li> </ul> <p>In case of state owned forests there is no support for forest management activities from the EU. RMK</p>	

receives grants through the Environmental Investment Centre (EIC) for the development of infrastructure in the forests needed for conservation works (bridges, culverts, roads) and eco-tourism infrastructure development. Support is provided from the European Regional Development Fund. In addition, RMK organized and co-financed cultural heritage inventory in the forests in Estonia. The support was also provided through the INTERREG program.

- Bioenergy production

Whether the production increases or not depends on the development and demands of the enterprises dealing with the bioenergy production. Last year, the purpose was to deliver 150 000 m<sup>3</sup> of cuttings (branches, tops) from the clear-cuts. More than 200 000 m<sup>3</sup> was actually sold. RMK could easily sell more if a demand was higher.

- The main barriers to sustainable forestry

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Low awareness level and experience of the forest owners

- Territorial conflicts, conflicts of interest

Conflict of interests have occurred and they are projected to increase coupled to urbanization trends, including the urban sprawl

- Good practice in sustainable forestry

For more than 10 years RMK has implemented a different strategy for forest felling during spring and summer. In April and May felling volumes decrease significantly in order to avoid the damage to the forest soils and to create favorable conditions for nesting and breeding of bird and animals.

<b>Institution</b>	Estonian University of Life Sciences, Department of Forest management
<b>Date</b>	7 March 2013
<b>Present at meeting</b>	Paavo Kaimre, PhD, Associate Professor, Forest Economics
<p><b>Main points discussed:</b></p> <ul style="list-style-type: none"> <li>• The most effective mechanisms that foster a greener development of forestry sector</li> </ul> <p>A combination of different factors –legislation on the one hand, and raising the environmental awareness on the other hand. The latter is especially relevant in case of privately owned forests.</p> <p>There are about 90 000 private forest owners in Estonia—their greater awareness plays a very important role. The financial mechanisms, support from the EU and the state is available.</p> <ul style="list-style-type: none"> <li>• What kind of sustainable forestry aspects/activities are supported?</li> </ul> <p>Supporting biodiversity, healthy stands, ecosystem stability. Energy efficiency is not addressed in forestry sector today.</p> <ul style="list-style-type: none"> <li>• Political will to promote sustainable forestry</li> </ul> <p>Yes there is. When it comes to biomass use for energy production – it has an important role and the</p>	



production of bioenergy is growing

- The main drivers to sustainable forestry in Estonia

Raising the awareness of the population and forest owners about the potential and benefits of green economy

- Territorial conflicts

Some single conflicts exist, mainly the conflicts of interests on a personal level.

<b>Institution</b>	Valga County Association of Local Authorities
<b>Date</b>	7 March 2013
<b>Present at meeting</b>	Riho Karu, Head of the Environmental Department
<b>Main points discussed:</b> <ul style="list-style-type: none"><li>• How is development of agriculture, building, forestry and tourism sectors addressed at the county level? How much can counties decide on the priorities and set targets?</li></ul> <p>At the local level ambitions of the local authorities are bigger than the current capacities, especially when it comes to available financial resources. The state should increase the level of financial support.</p> <p>Another problem is the current legislation which sets a lot of obstacles, meaning that the legislation does not allow to implement a number of activities. There is a strong need to create favorable conditions and promote a closer cooperation between the local governments. In Southern Estonia, for instance, there is no such regional cooperation organization, which would also provide a legal support service.</p> <p>At the county level the available support for activities within the above mentioned sectors is too small. Also the investments into sustainability measures are usually quite costly.</p> <ul style="list-style-type: none"><li>• Sector with the best greening potential in Valga county</li></ul> <p>Recreation and tourism. Due to dispersed settlements in Southern Estonia there is a great potential for rural tourism development. A big problem for Estonia is that people are moving away from the rural areas. A lot of old farms are just left behind - overgrowth, swampy areas appear. However, they can be used for tourism development. Agriculture and tourism are closely interlinked and dependent on each other. Agricultural products can be used in tourism and recreational industry (tourism farms for instance). Promoting of sustainable tourism in connectivity with agriculture has very good development prospects.</p> <p>Organic farming has a good development potential in Estonia, but it's very expensive. At the county level the support for organic farming has not been quite small. Other topics like canalization, waste management infrastructure have been prioritized instead.</p>	

- How is building and construction sector addressed at the county level?

There are single projects initiated on increasing energy efficiency in the building sector but the results have not been so satisfactory (not as high energy saving, as predicted). There are some nuances, like weather conditions, which are often not taken into consideration and affect the performance. When it comes to renovation, several legislative acts collide (e.g. the renovation of cultural heritage objects versus energy related). This affects the performance negatively. There is a need for a better planning which takes into account specific local conditions, incorporates spatial planning, the environmental legislation, building sector legislation etc. The lack of a comprehensive planning is an obstacle at the moment, which does not allow for achieving good performance results of renovation or construction projects.

- How is forestry addressed at the county level?

The counties or local administrative units do not have a big influence on the forestry issues – it is regulated purely at the governmental level. There are no strategies or development plans at the regional (county) level. RMK - State Forest Management Center is the main actor. The share of municipally owned forests is very small.

- Drivers, barriers and enabling conditions

Public environmental awareness (including the benefits associated with pursuing a greener economy) should grow. There is also insufficient support from the government – it should drive the development, both ideologically and financially. In many cases the goals and objectives related to sustainability stay on the paper, there are not enough economic instruments

- Territorial conflicts

There are shortcomings in spatial planning. The national spatial plans are too broad and general, also when it comes to different sectors. More specific planning is done at the county level.

In Estonia the share of land that is under protection is quite high. To some extent the share of protected land could be diminished and used for such purposes as ecotourism, for instance. In this regard the conflicts arise.

- Green jobs potential

There are no big industries and production in Estonia, so the green jobs are also more likely to emerge in the field of tourism and agriculture. It's important to merge these two industries together and promote cooperation. Should be also supported at national level to a greater extent than it is today.

<b>Institution</b>	Estonian University of Life Sciences, Institute of Agricultural and Environmental Sciences
<b>Date</b>	7 March 2013
<b>Present at meeting</b>	Sirli Pehme

**Main points discussed:**

- The main milestones of agricultural sector development

The development of organic farming started in 1986. Started to develop the standards. The experience of the international organizations and available standards were used as a base. 1997 the first Organic Farming Act was introduced. Before that the development was mainly driven by the Estonian Biodynamic Association. Since then a positive development was noticed. It speeded up especially when Estonian started to receive support from the EU. The area used for agricultural farming and the number of producers increased. The Organic Farming Act in Plan 2007-2013 sets the goal of 120 000 ha organically farmed land by 2013, which has already been achieved. Organic farming regulates only the production method, there are no requirements when it comes to energy use or water use, for example.

- What are the main reasons for an increased popularity of organic farming?

The type of land used for organic farming in most cases is semi-natural grasslands, which is in any case not suitable for intensive agriculture. Organic farming has a great development potential on such land – especially for livestock farming. It is logical that with increased funding for organic farming the farmers were more motivated.

- Are there action plans and initiatives at the regional/local level to promote organic farming? Is there funding available for the sector at regional/local level?

No, the main support comes from the Estonian Rural Development Plan 2007-2013 (ERDP). Part of it is Estonian but most is EU money. Most of incentives related to promotion of organic farming come from the national /EU level. There is no regional or local funding available to support organic farming practices. In regional planning agriculture is not addressed (so it's different from Scandinavian planning). Of course there are some counties that are more active in this regard. For example, Võru and Põlva counties organize some kind of events to promote organic farming. Green Põlvamaa – encourage production, organize information days, marketing activities. Also the counties try to develop cooperation with the experts in the field. There are some enthusiasts also in Võru county government who try to address the barriers that hinder the development of organic farming. There is land available and enough of organic farming producers, but the main problem is the processing which is not well developed. Only a small number of organic production goes for export, for instance. Many products are sold as conventional ones. The small producers often do not apply for labeling of their production. There is often not enough financial resources to address the challenges.

- What about conventional agriculture and initiatives to improve energy efficiency and make it more sustainable?

Under the ERDP there are grants available for a so called environmentally friendly agriculture. There are no direct programmes or support envisaged for increasing energy efficiency in conventional farming as such.

Talking about energy use in agriculture, which also includes indirect use (pesticides, fertilizers, etc) – there are no studies or in depth analysis performed in Estonia covering these issues. There is a greater focus on on-site energy use. There was a study<sup>5</sup> which analyzed the indirect use of energy by the enterprises involved in plant cultivation in Estonia. The study showed that about 70% of the energy use was actually attributed to fertilizers.

<sup>5</sup> [http://enpos.weebly.com/uploads/3/6/7/2/3672459/energia\\_plumajanduses.pdf](http://enpos.weebly.com/uploads/3/6/7/2/3672459/energia_plumajanduses.pdf)

The Statistics Office also measures direct energy use. Since water use is not an issue of concern in Estonia, it is not often measured even in livestock breeding, which is actually a big consumer of water.

Fossil energy is the main source of energy used in agriculture. Bioenergy production is small – not much in Southern Estonia. There is a lack of competency to some extent and not enough feasibility studies on how to produce the bioenergy effectively. The government supports the bioenergy production only by purchasing the energy produced in the form of electricity and heat – based on the electricity act – the producers can sell it at a competitive price – this is the main motivation.

- What is the role of LEADER programme, does it play an important role in development of organic farming?

Yes it does. Many of agricultural holdings are micro and small enterprises. It is easier for micro and small enterprises to apply for funding from LEADER programme, whereas it is mostly middle or large agricultural holdings that apply for grants from the ERDF.

- What are the main drivers (financial mechanisms, economic instruments, etc.) that support the development of organic farming in Estonia?

Politics and financial support, but also the growing awareness of the consumers. Cooperation between the different producers is an important driver.

- Is there a political will to promote organic agriculture?

It's not the number one priority of course, but is still quite important at the state level. There is a continuous discussion about the allocation of funding to conventional versus organic agriculture.

- Territorial conflicts

In regard to land use, there are no conflicts between tourism and agriculture today. These 2 sectors rather complement each other. There is a lot of agricultural land available in Estonia, especially in Southern Estonia. Locally produced organic food becomes an integral part of the tourism industry. There is a growing interest to integrate local traditions and culture, traditional way of life into tourism product development.

Energy cultures are almost not cultivated in Estonia (just few attempts). Corn is not cultivated. Even if some kind of hay is cultivated for energy purposes in future, there is currently a lot of not used agricultural land which can be used for these purposes.

Some of the farmers are interested in increasing the volume of agricultural land and are interested in renting a bigger area to increase their productivity. Often it is not possible to do. It is partly because a lot of foreigners are buying the agricultural land in Estonia. Talking about the future – the development and possible conflicts are difficult to predict. The conflicts may arise if energy production increases and the government does not regulate it properly. If the agricultural producers receive support for cultivating biomass for energy production but the use of biomass sources is not supported...

Manure is used as a fertilizer today. Actually since agricultural production is not that intensive in Estonia, the amount of manure is rather too little than too much. It is also quite different in different counties. As opposed to Denmark, for example, the amount of fertilizers and nutrients in the Estonian soils is quite little, sometimes even insufficient.

<b>Institution</b>	Tartu county government
<b>Date</b>	22 March 2013
<b>Present at meeting</b>	Peep Männiksaar, Spatial Planning specialist
<p><b>Main points discussed:</b></p> <ul style="list-style-type: none"> <li>• Planning in Tartu county</li> </ul> <p>Guided by the overall national planning strategy until 2030- nothing concrete and vague; and Tartu county planning document, which will be renewed this year. It is a territorial –economic development strategy. County planning is also kind of a national, since the county governor is a civil servant. In this sense, county governments in Estonia are not like in Scandinavia. The county governments have a limited budget for management, administration and strategic development.</p> <p>Another thing is planning at the local level – towns and rural municipalities. There should be a comprehensive planning for the whole town or municipality. If there is an obligation to draw up a detailed planning, then the construction project should be developed according to the detailed plan. If not, then according to the planning conditions issued by the rural municipality or town.</p> <p>The local governments have their small budget but most of the activities are still implemented with the help of EU. The local governments' budget in rural areas is lower than in the capital city.</p> <ul style="list-style-type: none"> <li>• Policies or financial instruments at regional/local level in the field of building and construction</li> </ul> <p>There is definitely no budget from the county governments. The support could be provided from KredEx. It is an individual initiative to refurbish an apartment building or a private house, not steered by the county or government. There are several times more applications for grants than KredEx can support.</p> <p>In case of public buildings, in order to get a construction permit from the local government, the energy performance requirements should be met. Energy audits should be carried out – a new 'shadow business' in Estonia. The number of auditors is growing and their objectivity is doubtful.</p> <p>There is no statistical data available on reconstruction and refurbishment. Everything is privatized here in Estonia and is a business secret. There is no municipal or social construction in Estonia, everything is being sold to make business. Construction sector is a private business, very capitalistic</p> <ul style="list-style-type: none"> <li>• Role of EU policies in the region</li> </ul> <p>The EU regulations are mainly developed for declaring the funding and not for raising the quality of life of people. For those who get the EU support, the EU policies are probably also important (like the agricultural sector).</p>	

<b>Institution</b>	Foundation South-Estonian Tourism
<b>Date</b>	26 March 2013
<b>Present at meeting</b>	Angela Järg, Head of the Foundation

**Main points discussed:**

- The role of EU versus national policies in the field of tourism

No big influence from the EU but the state is driving the development of tourism sector with the help of Enterprise Estonia and other regional tourism foundations (umbrella organizations).

EAS and the Ministry of the Interior asked to provide an input to the National Tourism Development Plan 2014-2016 when it comes to tourism segments development in Southern Estonia. The Foundation sees the potential of family tourism, nature tourism and active tourism (sport and culture events).

At the regional level there is a Tourism Development Plan in Southern Estonia until 2020. Right now it is product based. The Foundation is planning to revise it for different target groups.

The Foundation is the main responsible actor for tourism marketing of the region, defining the target groups and tourism product development.

- Indicators of sustainable tourism in the Tourism Development Plan in Southern Estonia until 2020

No such targets or indicators. The Tourism Development Plan in Southern Estonia is quite general. It's mainly implemented through the projects, EU funding. Since many EU programmes support sustainability in tourism, it has been also considered in the projects. The majority of projects are financed through LEADER groups, Estonia – Latvia program; EU structural funds. The county and local governments finance the strategic activities of Foundation but not the projects as such. Local governments implement very small scale projects in their counties. More enterprises are applying for GREEN KEY certification.

- Main factors influencing the development of sustainable tourism

Demand from the customers. Also if you apply for financial support, in most cases your business should be relatively green, otherwise you might not get the grant. In addition, the electricity and heat is getting more expensive and the enterprises want to save money. A growing popularity of eco products.

- Barriers

The awareness is low among the enterprises, as well as among the population as a whole. Insufficient infrastructure, Bad international connection. Riga- Tartu no flights. Pskov – Tartu no more train connection. Some interesting parts and attractions in the region can only be reached by car.

- Territorial and conflict of interest

In case of infrastructure development and buildings construction in all possible places – there was a boom some years ago and the conflicts occurred. But not because of tourism.

- Political will in on the regional level to promote sustainable tourism

Local governments have different kind of problems, tourism is quite 'soft' issue for them. They tend to prioritize health care or infrastructure repairmen (e.g. a roof), tourism is of secondary importance. Hoping for administration reform in 2015 would contribute to a better change – less counties, bigger administrative units.

<b>Institution</b>	The Ministry of Economic Affairs and Communication
<b>Date</b>	14 March 2013
<b>Present at meeting</b>	Martti Kalvik, Tourism department
<p><b>Main points discussed:</b></p> <p>The implementation of the state tourism policy is the responsibility of the EAS Sustainable Tourism Centre</p> <ul style="list-style-type: none"> <li>• Milestones in sustainable tourism development</li> </ul> <p>Sustainable tourism has started to develop since regaining the independence in 1991. Eco Tourism Association has existed for many years. It is important to consider that a large share of Estonian tourism infrastructure was built quite recently - huts, tourism farms, tourism facilities etc. Therefore they are already more energy efficient. Some of the elements of sustainable tourism are quite usual for the tourism businesses in Estonia and rooted in their behavior.</p> <ul style="list-style-type: none"> <li>• Drivers for sustainable tourism development</li> </ul> <p>On the one hand, state requirements and regulations in the field of waste, water management, etc. On the other hand, the rise in prices for resources. It makes sense for the enterprises to save energy and water, minimize waste – they can see the benefits of efficient use of resources.</p> <p>Another important factor is the demand for more environmentally friendly services and products, since many of the tourists come from the EU countries where the standards and requirements in the field of environment are higher. The tourism enterprises realize that to be competitive that have to pay attention to their environmental performance.</p> <p>Since nature and everything related to it are the main tourism resources in Estonia, especially in the rural areas, the development of nature and sustainable tourism has been important from the very beginning in the national policies, as well as at the enterprise level. Both state and the tourism SMEs themselves have supported the development. The tourism enterprises showed interest and took initiative in this field (e.g. by creating the Eco Tourism associations). Cannot say that the state's role is the most important.</p> <ul style="list-style-type: none"> <li>• Barriers for development of sustainable tourism</li> </ul> <p>Many tourism businesses are by their nature behaving sustainably. The share of businesses that are consciously behaving sustainably is not that high – eco marks and labels, such as Green Key, are not widely used. Few enterprises have a strategic approach to sustainability. The communication about the sustainability performance to the customers has not been prioritized or considered important, while their behavior might have been sustainable.</p> <p>Sustainable tourism is not well defined today. Several concepts are used – mainly eco-tourism, nature tourism, sustainable tourism that can also create a confusion among the tourism SMEs. Conscious and systematic implementation of principles and criteria of sustainable tourism creates more tension.</p> <ul style="list-style-type: none"> <li>• The effectiveness of the National Tourism Development Plan 2006-2013</li> </ul> <p>It is important to note that the implementation of the main principles of sustainable tourism in a</p>	

broad sense has been taking place throughout many years.

In the National Tourism Development Plan the intention was to avoid overlapping with other strategies in different sectors. Also the Rural Development Programme provides support to local and organic food production, network development etc., so that the implementation of sustainable principles in tourism sector is supported by several strategies and initiatives in various fields.

The overall assessment is that the National Tourism Development Plan is working well but could work even better.

Estonia is a member of the EC initiative – European Destinations of Excellence (EDEN) – a project promoting sustainable tourism development models across the EU.

- The role of regional and local policies and actors in sustainable tourism development

There are several tourism associations in the regions in Estonia that unite the local self-governments, tourism enterprises and the state. The work is mainly related to marketing of the region, destinations development, marketing of local specialties, food, etc. Several networks were initiated. The LEADER groups have been active.

- Territorial conflicts

In the National Tourism Development Plan have not considered them. Nature resource is considered important for tourism development. Tourism enterprises try to preserve it and ensure its valuable use. For agriculture and forestry, tourism development is an additional source of income, so the conflicts are rare.

<b>Institution</b>	Tartu Regional Energy Agency
<b>Date</b>	26 March 2013
<b>Present at meeting</b>	Martin Kikas, Director and bioenergy expert
<b>Main points discussed:</b>	
<ul style="list-style-type: none"><li>• The share of renovation in Southern Estonia versus other regions</li></ul> <p>In Tallinn the share of building renovations is higher. It can be explained by a) higher energy prices in the capital region and also Tartu in comparison to smaller towns; b) the access to information; c) insecurity of people to take a loan for renovation. The value of the property is lower than in Tallinn and people are poorer. From 2012 the renovation activity grew in Southern Estonia. TREA contributed to an increase, since they started to provide advice and expertise to the apartment unions, local governments, and organized several information campaigns. There are no regional or local financial mechanisms to support building renovation activities.</p> <ul style="list-style-type: none"><li>• Political will to increase bioenergy production</li></ul> <p>Not very strong at the state level. Europe 2020 targets have been achieved when it comes to the share of renewable energy in final energy consumption. Southern Estonia uses more bioenergy than Northern part of the country. Biomass accounts for about 60% of the heat consumption.</p> <p>Among the local governments the interest in bioenergy production is higher. More and more rural</p>	



municipalities and town are interested in increasing the share of biomass in heat production.

In Estonia, many district heating networks are privately owned and are not in possession of the local governments. The local governments can only suggest and promote the increased use of bioenergy. From time to time they initiate the round-table discussions where they bring up this topic.

- The main drivers for bioenergy production
  - - a) A stronger support from the state, but also from the local governments is needed. Not only in financial terms, but also legislative and by introducing additional regulations
    - b) Information sharing, good practice examples and knowledge from the state and local governments
    - c) Supporting financial mechanisms
  - The main barriers to bioenergy production

No investment support for switching to biomass; no financial mechanisms. Not economically viable for energy producers. To some small extent some support is provided through the Environmental Investment Centre (KIK). But KIK supports only project applications submitted by the local governments, not the private enterprises. Two years ago also private enterprises could submit an application, but not anymore. Now the interest is growing but without investment support the transition is very slow. No motivation from the state.

- The use of forest residues in Southern Estonia

Logging waste and sawdust are used quite extensively today. Stumps are not utilized. A large share of logging waste is used to improve the quality of roads (also in the forest) since the soils are swampy in Estonia. Wood chips are used for pellet production. A large pellets manufacturer is located in Southern Estonia in Tõrva. Round wood is not exported. It is mainly the lumber and pellets that goes for export.

- Biogas production in Southern Estonia

No production in Southern Estonia. It is not economically beneficial. There is no demand for heat generated from biogas today. It cannot be utilized, since the heat energy is relatively cheap in Tartu today. In case of electricity production, there is a feed-in tariff, but since the heat cannot be used, the feed-in tariff alone is not a strong motivation. Tartu water treatment plant is planning to produce biogas from sewage – under development.

- TREA financing

From the EU (about 60%) and the rest through proving services to the city of Tartu (15%) and KredEx Foundation (15%).

- Territorial conflicts /conflicts of interests

More like the conflicts of interest. Green biomass (hay) use for biogas production versus the use of pastures for animal grazing. A smaller conflict - the use of lower quality wood as a construction material or for energy production



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