



SHERPA
Rural Science-Society-Policy
Interfaces

A VISION FOR RURAL AREAS

MAP Discussion Paper

LONG-TERM VISION FOR RURAL AREAS: CONTRIBUTION FROM 20 SCIENCE- SOCIETY-POLICY PLATFORMS

MAP DISCUSSION PAPER

CIRCULAR BIO-ECONOMY - LITHUANIA

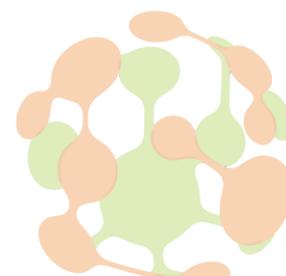
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1. Introduction

Discussion paper is aimed to introduce challenges, opportunities and long term vision of rural areas of Lithuania identified by the MAP of Lithuania. The Multi-Actor Platform (MAP) of Lithuania is "Circular Bio-economy – Lithuania" (CBioLit). This platform is coordinated by the Lithuanian Institute of Agrarian Economics. MAP of the SHERPA project is defined as "*the forum for two-way exchanges of ideas for co-learning and co-creation of knowledge with actors at European and regional levels*". Lithuanian MAP covers whole territory of Lithuania. "Circular Bio-economy – Lithuania" (CBioLit) is a newly established platform. Selection process of active members were focused by identifying if stakeholder have a role by direct or indirect participation in implementation of RIS3 strategy for Lithuania in the following fields: (1) Agro-innovation and food-technologies. Priority "*Safer food and sustainable usage of biomaterials*". (2) Inclusive and creative society. Priority "*Modern self-development technologies and processes promoting formation of creative and promotive individuals*". (3) Energy and sustainable environment. Priority "*Energy and fuel production using biomass/waste and waste treatment, storage and disposal*". Quadruple helix approach was used to identify active members of the MAP of Lithuania "Circular Bio-economy – Lithuania" (CBioLit): science (universities and research institutes); society: private sector and civil society organisations (NGOs); policy (public sector).

The MAP of Lithuania "Circular Bio-economy – Lithuania" (CBioLit) will focus on 3 broad fields of RIS3 strategy:

- Agro-innovation and food-technologies. Priority "*Safer food and sustainable usage of biomaterials*".
- Inclusive and creative society. Priority "*Modern self-development technologies and processes promoting formation of creative and promotive individuals*".
- Energy and sustainable environment. Priority "*Energy and fuel production using biomass/waste and waste treatment, storage and disposal*".

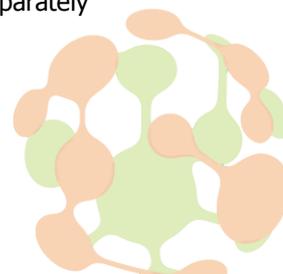
Keywords: rural areas, sustainability, local food, rural communities.

2. Results from desk research

2.1. Review of key trends

Lithuanian rural areas exhibit specific characteristics that are defined by geographical, economic, societal, environmental and cultural background. Lithuania had undergone considerable changes in last decades. In 1991 Lithuania regained independence from Soviet Union and started building the market economy after years of soviet planned system. In 2004 Lithuania entered the EU and had moved again to the transition decade, including socio-economic changes, pressures on primary production, technological development, economic and demographic change, and policy initiatives at national and EU levels. Such changes had made tremendous impacts on the people living in rural areas, as well as their connections with urban inhabitants.

The review of key development trends is grounded on the six Lithuania-specific major perspectives, with special focus on most sensitive changes undergone by Lithuanian rural areas regarding demographic shift, climate change and environmental services, change in production and diversification of rural economy, infrastructure and basic services, digitalization and smart ruralities, inequalities and well-being in rural areas. It should be stated here, that the issue of land-use change and competition was not found among the key challenges addressed by Lithuanian society in recent decades and therefore it was not separately addressed in this research for discussion.



2.1.1 Demographic shift : depopulation, ageing and urbanization in Lithuania

The decrease in the rural population is the most striking feature of the 21st century, assessing the situation in rural regions of Lithuania. The declining rural population has a direct impact on population density in rural areas. The main factors of population decline are the negative rate of natural population growth and the constant net emigration. As a result of these demographic changes, the structure of the country's population is changing: the population is aging; the number of young and working-age population is decreasing (European Semester Country Report Lithuania, 2019).

Lithuania accounted 2.8 million people population at the beginning of 2018, which was 7.0% less than in 2012. During 2012–2018 the number of urban population decreased from 2005.6 to 1875.4 thousand, or 6.5%, and the number of rural population - from 998.0 to 918.8 thousand, or 7.9%. With the decrease of the urban population, the share of the rural population remained unchanged and accounted for one third (in 2018 - 32.9%) (Demographic trends Lithuania, 2020).

The decline of the youngest population in rural areas was much faster than in urban areas. During the period 2012–2018, the number of children under the age of 15 decreased by 1.3% in urban areas and by 12.1% in rural areas. In both urban and rural areas, the proportion of children under the age of 15 remained below that of the population aged 65 and over. This reflects the rising demographic Aging rate, which stood at 122 in early 2012 and 131 at the beginning of 2018 (Demographic trends Lithuania, 2020).

In Lithuania, net emigration continues, although its pace has slowed down in recent years. In 2017, 27.5 thousand more people emigrated from the country than immigrated, and in 2018 - 3.3 thousand. Since 1990 it is the lowest indicator of net international migration. In 2012–2018, an average of 41.6 thousand population emigrated from the country per year. Due to emigration, Lithuania is losing young and working age population. In 2017 and 2018, the share of emigrants under the age of 35 exceeded 70 percent. Most emigrants belong to the 20-24 and 25-29 age group (Demographic trends Lithuania, 2020).

According to the EUROSTAT urban and rural typology (Urban-Rural Typology, 2020), most of the Lithuanian population (63.2% in 2017) lived in intermediate regions. The population of the urban region accounted for a smaller share (28.3%) and the population of the rural regions - the smallest share (8.6%). In 2017, compared to 2012, the decrease of population of rural areas of Lithuania was the biggest of EU countries (in Lithuania - 8.8%, on average in the EU-28 countries - 0.5%). The decrease in the population determined that Lithuania became one of the least populated EU countries: in 2017, there were 45.2 inhabitants per square kilometre (km²) - 2.6 times less than the EU-28 average. In rural areas of Lithuania, population density was lower than in urban and intermediate regions (respectively, in 2018 - 3.1 times and 29.7%) (Demographic trends Lithuania, 2020).

In Lithuania, as in many EU countries, the population in rural areas is aging. In 2018, compared to 2012, the share of the population aged 65 and over in these regions of the country increased from 18.7% to 20.3%. The share of the population aged 15 and below decreased from 15.4% to 14.8%, and aged 15 to 64 decreased from 65.9% to 64.9%. In some Lithuanian municipalities, demographic indicators are significantly worse than the national average. At the beginning of 2018, in most Eastern Lithuanian municipalities the population density was less than 18.0 inhabitants per km², and the demographic aging coefficient was higher than 175 (Demographic trends Lithuania, 2020).

In Lithuanian rural areas, the demographic structure is accompanied by a decline in population density, which reduces the availability of services, worsens the quality of life and makes young people reluctant to live in rural areas. In particular, this concerns the problems of generational change in agriculture, as in 2018 half of the owners of agricultural holdings are of retirement age, while young farmers (under 40 years old) make up only about 15% among those registered in the Lithuania (Lithuanian Register of Farmers' Farms, 2020).

2.1.2 Climate change and environmental services in Lithuania

In recent decades, humanity has been increasingly confronted with various crises, one of which is climate change. Changing climates are raising air and ocean temperatures, increasing the threat of extinction of many species of plants and animals, and increasing the number of new diseases and pests. As the climate does not warm evenly due to the complexity and complexity of its system, extreme weather events are also on the rise. An unfavourable factor in mitigating climate change is the growth in global food demand, which is driving up the intensity of agricultural production and, at the same time, greenhouse gas (GHG) emissions. On the other hand, improvements in agricultural technologies (eg. animal housing and feeding, manure management, feed production, tillage) and the introduction of new plant and animal species offer opportunities for climate change mitigation.

Lithuania has made a number of international commitments to contribute to climate change mitigation goals. In 2015 an agreement was reached in Paris under the United Nations (UN) Framework Convention on Climate Change to help halt global warming beyond 2020 (United Nations, 2015). In the same year, the UN Summit adopted the agenda "Transforming Our World: the 2030 Agenda for Sustainable Development". The European Union (EU), in order to implement the Paris Agreement and the UN Sustainable Development Goals, 2018 May 30 adopted Regulation (EC) No 1/2003 of the European Parliament and of the Council 2018/842, which, as a contribution to climate action to meet the commitments under the Paris Agreement, imposes obligations on Member States to reduce their annual greenhouse gas (GHG) emissions over the period 2021-2030. This Regulation sets Lithuania for 9% reduction in GHG emissions by 2030 compared to 2005. The regulation sets Lithuania at 6.5 million tonnes CO₂ equivalent from total net absorbed amount related to afforested land, felled forest land, cultivated crops and managed meadows 2021-2030 (Lithuanian National Climate Change Management Policy Strategy, 2012).

In Lithuania, as the number of livestock has decreased in recent years, the impact of livestock farming on climate change has decreased. However, increasing GHG emissions from the crop subsector have led to an increase in total GHG emissions from agricultural activities (including emissions from arable land, grassland and pastures). Another adverse phenomenon in terms of climate change mitigation in the country is related to the decrease of soil organic carbon - with the predominance of narrow farm specialization, narrow crop rotations, no perennial grasses, soil organic carbon has decreased in recent years and compared to other EU countries with similar natural conditions is one of the smallest. As much as two-thirds of soil organic carbon was accumulated in meadows, but it accounted for only about a quarter of all agricultural land (Environmental Protection Agency, 2018).

In Lithuania, the increase in the number of extreme meteorological phenomena occurred in recent years: new plant diseases and pests, increasing outbreaks of animal disease epidemics. This has increased farm losses, reduced production stability, interest in farming and willingness to contribute to the development and modernization of the sector. In recent years, the share of energy produced from renewable sources in agriculture in the total primary production of energy from renewable sources has been decreasing in the country, moreover, according to the production of this energy per ha of utilized land, Lithuania lags far behind the EU average (Environmental Protection Agency, 2018). Of all renewable energy sources, biomass resources are one of the most important for Lithuania due to their volume and stable properties, but the potential of these resources for biofuel production is still untapped.

Lithuania also has not fully utilized the possibility of biogas production from animal manure, although there are good opportunities to develop it in the country, as a sufficient amount of manure is accumulated. Therefore, the new strategic plan for agriculture and rural development in Lithuania necessarily needs to include measures to encourage agricultural producers to use fertilizers properly, to apply soil-friendly tillage methods and crop rotations. There is also a need to promote the use of on-farm climate change risk management measures. In the field of sustainable energy, opportunities to promote the production of biogas from animal manure, energy production from biomass and biodegradable wastes, as well as the use of energy-saving technologies remain fully unutilized (Lithuanian Bioeconomy Development Feasibility Study, 2017).

Therefore, there are a few significant trends in Lithuania related to climate change and environmental services, which should be discussed here more detail: *GHG emissions in the agricultural sector, production of energy from renewable agricultural sources and energy consumption in agriculture and rural areas.*

GHG emissions in the agricultural sector. In line with the EU's indicative emission reduction targets set out in the Roadmap for moving to a competitive low carbon economy in 2050, the Lithuanian National Strategy for Climate Change Policy (2012) aims to reduce emissions by 40% by 2030 and by 60% by 2040 compared to 1990 levels, and by 2050 - 80%.

In Lithuania, as in other countries with intensive primary economic sectors, agriculture is an important source of GHG emissions. During 2012–2016, GHG emissions from all sectors in Lithuania decreased by 10.3% (5.9% in the EU-28), but GHG emissions from agricultural activities (including emissions from arable land, meadows and pastures) increased by 7.2% (0.6% in the EU-28). In line with these trends, the share of GHG emissions from agricultural activities in the overall GHG distribution between sectors in 2016 increased by 8.9% compared to 2012 (0.8% in the EU-28). According to the Lithuanian Environmental Protection Agency, the agricultural sector is responsible for most of the N₂O (nitrous oxide) and CH₄ (methane) gas emissions. Most N₂O is released from soils directly (synthetic and organic fertilizers, livestock manure and urine remaining in pastures, crop residues, organic soil management and nitrogen mineralization due to organic carbon loss due to land use change) and indirect (nitrogen evaporation / nitrogen leaching) and CH₄ in the intestine of animals during fermentation (Environmental Protection Agency, 2020).

However, a comparison of GHG emissions from the crop and livestock sectors shows that GHG emissions from the crop sector have increased in recent years due to the growing crop area and the related increasing use of mineral fertilizers, while the livestock sector has shown the opposite trend due to declining livestock numbers. This shows that the main GHG reduction reserve lies in the crop sector. According to the latest research data of the Public Institution FPP Consulting, in the period of 2014–2018, the main contributors to GHG reduction were organic farming, agri-environmental and climate measures and support for commitments under Natura 2000 and the Water Framework Directive (Public Institution FPP Consulting, 2019).

Production of energy from renewable agricultural sources. Lithuania has made a number of international commitments to contribute to the goals of increasing energy efficiency and producing energy from renewable agricultural resources. The UN Sustainable Development Agenda calls for a significant increase in the share of renewable energy in the global energy mix by 2030 and a doubling of the global energy efficiency target. The European Commission's Communication "A Clean Planet for All of Us A Strategic Vision for a Prosperous, Modern and Competitive Neutralized European Economy" states that energy will play a key role in building a neutralized GHG economy, accounting for more than 75% of total EU GHG emissions. It is therefore envisaged to accelerate the transition to clean energy through measures such as increased renewable energy production, high energy efficiency and better security of energy supply. The EU 2020-2030 strategy for climate and energy policy notes that the share of renewable energy in the electricity sector in 2030 should be at least 45% (United Nations, 2015).

By contributing to all these goals, Lithuania envisages in the National Energy Independence Strategy that in 2020 energy from renewable energy sources will account for 30% of the country's total final energy consumption, in 2030 - 45%, and in 2050 - 80%. It is also planned to increase the share of electricity consumption from renewable energy sources in relation to final electricity consumption to 30% by 2020 and 45% by 2030 and 100% in 2050 (Lithuanian Bioeconomy Development Feasibility Study, 2017). The draft Integrated National Energy and Climate Action Plan of the Republic of Lithuania envisages the promotion of the use of biomass for energy production.

With the introduction of technologies for the use of renewable energy sources, the production of energy from renewable agricultural resources increased in Lithuania during the period 2010–2016, but its share in the total primary production of energy from renewable sources decreased (Lithuanian Bioeconomy Development Feasibility Study, 2017). In 2016, energy produced from renewable resources in agriculture

amounted to 109 thousand tonnes of oil equivalent and total primary production of energy from renewable sources accounted for 7.3% (EU-28 average: 11.7%). In Lithuania, most energy is produced from renewable forestry resources. In 2016, energy produced from renewable resources in forestry amounted to 2.0 million tonnes and total primary production of energy from renewable sources accounted for 80.1% (EU-28 average: 44.7%). However, Lithuanian agriculture and forestry produced 27.2% less energy from renewable resources per hectare of utilized land and forest land in 2016 than the EU average. In forestry this difference was 6.2%, and in agriculture - 3.7 times.

The potential of biomass for biofuel production in agriculture is still untapped. Potential biomass raw materials can be energy plantations, straw and agricultural waste (FPP Consulting, 2019). Another problem area in terms of sustainable energy development is biogas production. According to the Lithuanian Energy Agency (2020), there are currently 40 biogas power plants in operation in the country, of which only 10 are located near large pig complexes. Taking into account the amount of accumulated and collectable manure, from 157 to 212 biogas power plants with the capacity from 100 kW to 3 MW could be built in Lithuania (Joint Research Center of the European Commission). According to the research of the Lithuanian Institute of Agrarian Economics, the main reasons hindering the development of biogas production in the country are the lack of reliable and stable support schemes and the *lack of knowledge* in implementing such projects. According to the authors of this study, the development of biogas production in Lithuania could be most stimulated by the establishment of a long-term and stable support policy for biogas production and increasing the awareness of potential biogas project implementers about the benefits of biogas production.

Energy consumption in agriculture and rural areas. With the introduction of new technologies, the energy efficiency of agriculture and forestry is increasing in Lithuania. 2012–2016 final energy consumption in agriculture and forestry per hectare of utilized land and forest land changed unevenly, but a general decreasing trend can be seen from 21.7 to 20.4 kgne per hectare. In 2016, Lithuania's final energy consumption in agriculture and forestry per hectare of utilized land and forest land was about 3.5 times lower than the EU-28 average. It is important to mention that these differences are mainly due to the prevailing farm specialization in the country. In 2016, 15.3 thousand tons of energy (oil equivalent) was generated in Lithuania. The gross value added of agriculture and forestry is almost double that of the EU-28.

According to the latest research data of FPP Consulting (2019), in the period of 2014–2018, investments in forest breeding, forest infrastructure, and renewal of forest harvesting equipment contributed to the facilitation of biofuel production. It is therefore appropriate to continue to implement these measures, as well as to encourage investment in the production of biogas from animal manure, the production of energy from biomass and biodegradable waste and their use on the farm. There is also a need to support investment in energy-efficient precision farming machinery and equipment. In addition, it is equally important *to increase farmers' competencies* in the production of energy from renewable agricultural resources and the use of energy-saving technologies.

2.1.3 Change in production and diversification of rural economy in Lithuania

In Lithuania, the agricultural production sector, which is dominated by small producers, is fragmented, and the food processing industry and retail trade are highly concentrated. In negotiations, agricultural producers are usually the weakest link, leading to low purchase prices for their products. In recent years, the shares of value-added sharing between actors in the food chain have changed not in a favour of agricultural producers but in a favour of food processors and retailers. Although farmers were actively encouraged to cooperate in order to strengthen their bargaining power, the *level of cooperation* between them *remained low*. Both the number of agricultural cooperatives (cooperatives) operating in the country and the number of members participating in their activities are small compared to other EU countries.

Recently, in order to improve their position in the value chain, some farmers have started processing their farm-produced or marketed products and selling them directly to consumers, developing organic, EU-wide production of products produced under the national agricultural and food quality system (NAFQS, 2020).

Despite the proliferation of these initiatives, the number of farmers participating in the local food system and in short food supply chains and quality schemes has not increased significantly and their share of all farmers has remained small.

Accordingly, Lithuania-specific trends might be discussed more details from the following most sensitive perspectives: *cooperation and collaboration between farmers, involvement of farmers in market-oriented production models and community-initiated local development.*

Cooperation and collaboration between farmers. One way for farmers, especially small ones, to survive and improve their market position is through cooperation. According to the data of the State Enterprise Agricultural Information and Rural Business Center (2020), during the period 2008–2018, an average of 34 cooperative companies in Lithuania were recognized as agricultural cooperative companies (cooperatives) every year. The co-operation is identified as one of the priority areas according to the Lithuanian Law on Agriculture and Rural Development no. X-1663, legislation on co-operatives is being improved to encourage co-operatives, and EU support for the establishment of producer groups and organizations in the agricultural sector is being improved. However, co-operation between farmers remains low: both domestic co-operatives, and the number of members participating in their activities is relatively small. According to the data of the Ministry of Agriculture, in 2018 about 200 agricultural cooperatives have received recognition in Lithuania. According to the Chamber of Agriculture, these cooperatives unite about 12% of all farmers in the country. Compared to other EU countries, the number of cooperatives in the country is small (15th place among the EU-28 countries) and the number of cooperative members is one of the lowest. The main obstacles to the development of co-operation are farmers' *lack of knowledge* about the benefits of co-operatives, unwillingness or inability to contribute financially to co-operative development, lack of trust, willingness to make their own decisions, inability to agree and work together. According to surveys conducted in recent years (in 2016 the Chamber of Agriculture surveyed 152 cooperatives and in 2018 the Lithuanian Institute of Agrarian Economics surveyed 60 cooperatives), the majority of cooperatives (2016 - 72%, 2018 - 57%) indicated that they have less than 10 members. A relatively small proportion of cooperatives (2016 - 17%, 2018 - 27%) indicated that they process agricultural products. Most cooperatives focus on the production and sale of agricultural products rather than on the processing and marketing of these products.

Involvement of farmers in market-oriented production models. Recently, some farmers in the country, especially small and medium-sized ones, have been looking for ways to stay viable and find their place in the market, with constantly changing purchase prices for agricultural products, and have therefore started to take advantage of changing consumer needs. With the growing interest of the population in agricultural and food products grown or produced by local farmers, which are of high quality, suitable and healthy, produced without harming the environment and in accordance with animal welfare requirements, farmers have become more active in processing and selling their farm products directly to consumers.

In Lithuania, there have been an increase in initiatives to develop the local food system and short food supply chains using various direct sales methods for agricultural and food products - mobile and stationary farmers' markets, farm shops, direct farm sales, pre-ordering and delivery systems and other partnerships between producers and consumers forms. EU support under the 2014–2020 Rural Development Program measures "Cooperation", "Economic and Business Development" and "Investments in Tangible Assets" also encouraged farmers to engage in the processing of agricultural and food products and the sale of these products directly to consumers. According to the data of Farm structure survey (2016), 39.6% in 2013 and 24.3% in 2016 of all farms in the country indicated that they directly sell more than 50% of their production. The absolute majority of these farms (79.6% in 2013, 67.9% in 2016) consisted of small farms belonging to the group of farms with the smallest economic size (less than EUR 8 thousand of standard production). In 2016, compared to 2013, the share of farms directly selling more than half of their production decreased as a large proportion of small farms closed down.

Farmers, who sell more than 50% of their production directly, were mainly engaged in the cultivation of arable crops, the keeping of grazing livestock and mixed crop and livestock production. Younger and higher educated farmers became more involved in direct sales: in 2016, compared to 2013, the share of more

than half of farmers under the age of 45 selling directly from farms increased from 18.7% to 21.9%, and the share of higher educated farmers - from 15.2% to 22.7% Farm structure survey (2016).

Many different projects have been implemented in Lithuania during the development of short food supply chains. Some of the successful examples are "Cheese House", "Village to Your Home" (2020). The "Cheese House" is located in 50 kilometers from capital city Vilnius, in Varėna district, village Dargužiai. It is a hearth of cheese culture, which develops not only the production and sale of cheese, but also other activities, such as catering, cheese school. "Village to Your Home" is a unique project that conveniently and practically unites small and medium-sized farmers and consumers looking for natural, Lithuanian products into one platform. The website created for the implementation of this project gathers buyers' communities and promotes the consumption of Lithuanian products from farmers by forming orders online.

Although there has been a recent trend of more and more agricultural and food producers being involved in short food supply chains, direct sales are not high. Their development is hampered by a number of obstacles, the most important of which are: *lack of knowledge, initiative and skills* to start new activities related to direct sales; *shortcomings in legal regulation*; high veterinary requirements, limited access to funding sources; limited range of products and insufficient quantities, seasonal nature of production; *lack of cooperation and collaboration*; *complex regulation* of public procurement for the supply of agricultural and food products to public sector bodies and institutions. In Lithuania, only a small part of agricultural and food producers carry out primary or secondary processing of their products. According to the State Food and Veterinary Service (2020), in 2017, compared to 2013, the number of farmers registered in the Register of Food Management Entities and other entities engaged in agricultural activities processing products on their farms increased from 440 to 518.

In Lithuania, the involvement of farmers in the production of organic products produced according to national and EU quality systems is low, the proportion of farms participating in these quality schemes is small. During the period of 2012–2017, the certified production area of organic products increased 1.5 times, and the number of organic farms changed unevenly and has been constantly decreasing since 2016 (these farms have grown). Organic farms accounted for a very small share of all farms in the country: in 2013 - 1.5%, and in 2016 - 1.7%. After the introduction of the National Agricultural and Food Quality System (NAFQS) in Lithuania in 2007, the first producers of products produced under this system were certified a decade ago, but a significant increase began in 2012, according to the Ministry of Agriculture and Public Institution "Ekoagros" (2020). At the end of 2017, 360 producers supplied NAFQS products to the market. All these producers were engaged only in the cultivation of fresh berries, fruits, vegetables and the production of bee products. To date, there is no single producer of other types of food (meat, milk, cereals, etc.) in the NAFQS system.

Community-initiated local development. Volunteering, community initiatives and partnerships, which are actively developed in rural areas of the country, have the potential to diversify the rural economy and alongside solve the problems of employment and social inclusion of the rural population in Lithuania.

LEADER activities have covered the whole of Lithuania since 2007. In the 2014–2020 funding period, local development strategies are implemented by 49 local action groups (LAGs), mostly territorially formed on the basis of municipalities. During the implementation of local development strategies, it is planned to provide support to more than 2 thousand projects, of which 22.0% for non-agricultural development, 16.3% for social business, 11.8% for rural renewal, 10.5% for business start-ups (LEADER Lithuania, 2020).

More than 1.9 thousand people contribute to the reduction of social exclusion, increase employment and improvement of the quality of life in rural areas. Rural community organizations have the opportunity to implement projects funded by both EU and national funds on their own initiative. Since 2012 the number of rural community organizations increased by 11.8 percent (LEADER Lithuania, 2020).

In search of more opportunities and innovative ways to address poverty and other social and labor market problems, as well as to strengthen the capacity of the non-governmental sector, Lithuania is already implementing social business initiatives. Prospects are high, especially in the area of public service delivery.

There are more and more initiatives that recognize the importance of social enterprises and civil society organizations, and express confidence in social business as a means of combating the most pressing social problems and their ability to provide public services. After the adoption of the Law on Social Enterprises in 2004, Lithuania became one of the few EU countries regulating the field of social business. Subsequent policy changes, including amendments to existing laws and the Social Business Concept adopted in 2015, the Social Business Implementation Guidelines adopted in 2017 for applicants applying under the measures of the Lithuanian Rural Development Program 2014–2020, show a constant commitment to further develop social business.

According to a 2017 survey conducted by the Ministry of Social Security and Labor of the Republic of Lithuania to determine the role of NGOs in the provision of public services, 79% of municipalities surveyed and 77% of NGOs surveyed, 60% of which participated in the provision of public services, indicated that NGOs have the institutional capacity to provide public services were mostly adequate or more appropriate than inadequate. Lithuania has accumulated a considerable amount of knowledge and skills to provide financial and business development support to small and medium-sized enterprises (SMEs). This shows that some of the infrastructure needed for social business is easily accessible, but should be adapted to the specifics of the social business model. There are several incubators to help social enterprises consolidate their business model. The "Socifaction" (2020) Incubator provides support for regional social business initiatives and funding for the establishment of social business. Lithuania also implements funding schemes directly aimed at the social economy and non-profit organizations. Non-profit organizations are mainly funded by grants from the state and municipalities. Another important source of funding is the EU Structural Funds, the LEADER program, and some international initiatives.

However, social business also often faces a variety of obstacles that prevent it from reaching scale and expanding. These barriers include the lack of a universally accepted concept of social business, limited institutional recognition, lack of policy coordination and harmonization, constraints on the public procurement system, lack of access to markets and finance and weak social impact assessment capacity, lack of information and understanding on social business, often negative attitudes and mistrust, challenges of moving from a non-profit to a social business model.

2.1.4 Infrastructure and basic services in Lithuania

The trends of infrastructure and basic services are tightly related to population density. The decrease in the rural population is the most striking feature of the 21st century, assessing the situation in rural regions of Lithuania. The declining rural population has a direct impact on population density in rural areas. Furthermore population density has a major impact on the whole life of society, the natural environment and the economy, organizing the layout of production and services, the quality of the natural and living environment, the use of natural and economic resources, transport development, investment volumes and efficiency.

The main problem in organizing the process of providing services in rural areas of Lithuania arose due to the fact that as the population density decreased, the number of service users also decreased. The declining number of customers leads to the rising cost of public services, therefore the local government seeks to reduce the cost of providing services and concentrates the provision of services in several regional institutions, abandoning small and unprofitable service locations. These circumstances have primarily led to changes in small towns and rural settlements away from regional centres. These processes are illustrated by the data of the Lithuanian Statistics Department on the places of provision of public services and their scope in urban and rural areas. Since 2000, the number of students in rural areas began to decline drastically in 2015 - the number of students reaching 145.6 thousand in 2000 decreased to 64.1 thousand in 2015. With the rapid decline in the number of pupils in rural areas, local municipalities have been unable to maintain the majority of mainstream schools. In 2000–2001, there were 1,569 general education schools in rural areas, and in 2015–2016, the number of schools was already 3 times lower - only 505 general education schools remained (Demographic trends Lithuania, 2019).

With declining access to services in a residential area, residents are forced to travel to larger cities. However, as the population shrank, so did local people's access to transport services. During the period 2000–2015, the turnover of passengers on local (suburban) transport routes in Lithuania decreased by 25% (from 429.4 thousand passengers per kilometer to 320.9 thousand passengers per km). The turnover of passengers on local (suburban) routes was maintained only in Vilnius region, in 2015, compared to 2000, passenger traffic in this region of the city decreased by only 1.3 percent (Basic infrastructure, 2020).

The declining opportunities of the population in rural areas to provide the necessary services to children in the place of residence and the resulting deteriorating quality of life is to be stated among the most scarce trends of Lithuania (Vidickiene et al., 2016). Due to the decrease in the number of all types of general education schools in rural areas in recent years, it is difficult for students to reach school and take advantage of the opportunities provided by non-formal education. Children whose place of residence is far from school are less likely to participate in various sports, artistic or other clubs. The opportunities to choose the desired group are greater for those students who live closer to school. This situation reduces the opportunities for the development of social competencies of these students. Working parents have a lot of trouble caring for school-age children after school due to the lack of day-centre services in rural areas.

The lack of public transport is becoming a barrier for the rural population to access health services (Vidickiene et al., 2016). Without the help of relatives, neighbours and others, the majority of the rural population, especially the elderly and those with health problems, would have difficulty or no contact with a medical institution. Barriers to access to outpatient care for patients coming from another area are also due to the organizational features of healthcare institutions: queuing to register with healthcare professionals, visits to treatment centres and doctor's offices, and queues for specialist research are one of the main organizational barriers. The latter problems are caused by inconvenient, short working hours for patients, lack of necessary specialists, especially in rural areas.

The reform of education and the transformation of infrastructure in rural areas had decisive consequences for the vitality of the countryside - the inability to access essential services (education, social, health care, etc.) near the place of residence continued the tendency of the rural population to migrate to cities or abroad (Vidickiene et al., 2016). These problems are particularly acute for young families, for whom it is very important that the kindergarten and school are as close as possible to home and for older people, for whom the issue of social services and mobility using public transport is important.

Infrastructure ensuring the accessibility of rural areas (roads, public transport) is an important condition for increasing the attractiveness of rural areas for living and developing business. The good condition of the roads enables even the inhabitants of remote rural areas to find work elsewhere and to receive quality health, education, social security, police, government and other services promptly.

In Lithuania, the condition of some local roads is poor. In 2017, 62.0% of local roads were gravel roads. The largest share of such roads was in intermediate regions (64.3%), slightly lower - in rural regions (61.0%). In 2017, compared to 2012, the mileage of local (suburban) routes increased by 4.4% in the urban region, while in the intermediate and rural regions it decreased by 11.2% and 5.6%, respectively (Basic infrastructure, 2020).

The general state of Lithuanian infrastructure has been improved after entering the EU in 2004. A total of EUR 328.7 million was paid in 2017 under the Lithuanian Rural Development Programme measures, which is almost EUR 25 million more than in 2016 (EUR 305 million). The greatest support amount was paid under the measure "Investments in tangible assets" with the major share being disbursed for investments in rural areas - agricultural holdings. The most, namely 244, applications for support were approved and contracts were signed under the activity area "Support for the setting up of young farmers" of the measure "Farm and Business Development" of the Lithuanian Rural Development Programme 2014–2020; support was approved for 1 182 beneficiaries under the activity area "Support for replacing asbestos roofing" of the measure "Main services and renovation in rural areas" of the Lithuanian Rural Development Programme 2014–2020. EUR 1.977 billion was allocated for the implementation of the Lithuanian Rural Development Programme 2014–2020.

2.1.5 The rise of digitalization and smart ruralities in Lithuania

The rise of digitalization highly shapes the concept of a rural region, traditionally perceived as a sparsely populated, agricultural area and this trend is very specific to Lithuania. The concept had been greatly changed by new ways of accessing information, as well as e-public services. Therefore, the key trends related to the rise of digitalization and smart ruralities in Lithuania are foreseen from the two basic perspectives: first, overall digitalization of rural areas in terms of access to the internet on a daily basis including the use of e-services, and second, digitalization of agriculture.

Digitalization of rural areas. The number of households with Internet access in rural areas has started to grow significantly since 2006. In 2016, as many as 63.1% of households in rural areas had Internet access, and this share is lower only by 13% compared to urban households: in 2016, 76.3% of households had internet access in the city. These trends show the growing opportunities for the rural population to work from home remotely (Broadband Internet, 2020).

In order to achieve better access to services through the provision of Lithuanian e-government services, the implementation of online health care and education services, the broadband Internet deployment projects RAIN, RAIN-2, PRIP and PRIP-2 have been successfully implemented in rural areas. Following the implementation of the RAIN-2 project, broadband coverage in Lithuanian rural areas reached 98%. In 2018, 71.8% of households in rural areas had broadband Internet access.

In order to develop smart solutions and to provide public services and information to the population and businesses in a higher quality and more efficient way, the portal of electronic services provided by the government "Electronic Government Gateway" was created. When assessing Lithuanian investments in e-government projects, the main focus is on the provision of services at the national rather than the local level. The migration of basic public and administrative services for the population to the electronic space is slower than for services for business. In 2018, the overall maturity of the transfer of basic public and administrative services to the Internet was 91%, 1% higher than the EU average (Broadband Internet, 2020). The introduction of open access to libraries and the provision of free internet access have increased the access of the rural population to various electronic services.

Digitalization of agriculture. The White Paper on Rural and Agricultural Development of Lithuania (2019) envisages the implementation of several actions directly related to the development of technological innovations in agriculture: in cooperation with scientists, consultants, farmers' self-government and business to implement the most advanced technologies in Lithuanian farms (robotic farms, artificial intelligence, etc.); to promote the introduction of new technologies on farms (animal husbandry and quality nutrition, optimization of feed production and use process, improvement of manure management systems, genetic potential of animals, environmental measures, etc.). However, the competitiveness of agriculture and rural areas should be enhanced, not least through technological innovation in agricultural and food production.

Recently, the bioeconomy has been identified as one of the priority areas for development. In this context, special attention must be paid to the use of biomass, promoting the production of innovative bioproducts and raw materials (eg. food supplements, materials used in the production of cosmetics, raw materials for the pharmaceutical industry, organic plastics, insulation materials, etc.). Supporting the production of innovative products would stimulate demand for the raw materials used for these products (eg., fiber crops), contribute to crop diversification and reduce the economic risk for farms. Innovation could also reduce waste by ensuring that the principles of the circular economy are implemented by recycling agricultural production waste into new products.

The application of advanced technologies and digitalisation is not yet widespread in Lithuanian agriculture, therefore it is necessary to encourage the country's farmers to use the opportunities provided by these innovations. Production digital allows you to better manage processes, reduce costs, increase productivity. Digital technologies give a new impetus to the production of agricultural products and allow the introduction of a new modern approach to farming. Information and communication technologies play an important role in the development of consumer service (eg sales of products without intermediaries),

marketing, search for new markets, economic data on products, prices, potential market niches, competition and the dissemination of other information.

2.1.6 Inequalities and well-being in rural areas of Lithuania

Research on the demographic situation in rural areas elucidated the rapid population decline and ageing in Lithuania, and the changing demographic balance. The negative impact of such trends on demographic processes and the quality of labour resources is already being felt and may become even more pronounced in the future.

Negative demographic change causes a variety of socio-economic problems in Lithuania. Rapid aging of the population is changing the relationship between the creative and consuming part of society, new challenges are emerging for the country's budget, social sphere, and development of services. Negative demographic processes threaten the continuation of Lithuanian farming traditions, the creation of public values in the future and, at the same time, the viability of rural areas. Therefore, economic growth in Lithuanian rural areas is becoming especially relevant. The rates of economic growth are directly proportional to the growth of human capital, and *the new economy is largely based on the individual possessing the knowledge and skills* needed to set up and sustain a business. All the above-mentioned characteristics are primarily characteristic of young educated people, who, due to the increased importance of initiative and innovation, will have the opportunity to take up their own activities in the future with the support of the state.

Unemployment. In Lithuanian rural areas, the share of self-employed persons in the total employed is higher than in urban and intermediate regions due to the relatively high dependence of the population in these regions on agricultural activities. During the period 2012–2015, the share of self-employed persons in rural areas of Lithuania has been steadily increasing, but in 2016, compared to 2015, it decreased by 4.1% and was 10.4% higher than in urban and intermediate regions and 8.3% higher than the EU-28 average (Unemployment Statistics Lithuania, 2020). Unemployment remains a problem in Lithuanian rural areas, although the gap between rural and urban unemployment is narrowing. *Insufficient professional training, lack of qualifications and entrepreneurship* are one of the main reasons for unemployment in the Lithuanian rural population. In 2017, the unemployment rate of the rural population was 3.9% higher than the average unemployment rate in the country and 5.6% - the average unemployment rate in cities.

Unemployment among young people aged 15-24 is higher in rural areas than in urban areas, and this gap has started to widen again, albeit slightly, in 2016 and 2017. Educated young people do not see opportunities to apply the acquired education and knowledge in rural areas, where the supply of low-skilled jobs is predominant and access to resources is difficult for those who want to farm. In the rapidly changing conditions of economic and social development, one of the factors that may affect *social exclusion* is the standard of living for lifelong learning, which in 2017 was 3.4% in rural areas and was almost 2.1 times lower than in urban areas (Population and social statistics, 2020).

Income, social exclusion. One of the most important factors behind emigration from the countryside is the low income of the rural population. In 2017, the average disposable household income per household member in Lithuanian rural areas amounted to EUR 362.2 and was 1.3 times lower than in urban areas. During the period 2012–2014, the income gap between the rural and urban population decreased, and in 2015–2017 – increased (Population and social statistics, 2020).

In Lithuania, as in many EU countries, the population of rural areas faced poverty more than the population of large cities and other cities. During the period of 2012–2017, the share of people living at risk of poverty or social exclusion in rural areas averaged 38.1%. In 2012 it was 15.3% higher than in large and other cities, and in 2017, respectively - 7.2%. Although in 2017, compared to 2012, the poverty rate in rural areas of Lithuania decreased by 1.2%, it remained significantly higher than the EU-28 average (1.6 times). Single people, people raising one or more children alone, large families are most at risk of poverty and social exclusion (Population and social statistics, 2020).

Long-term payment of benefits, lack of social integration and active measures to promote employment promote the formation of the social stratum, not interested in job search, business creation, because part of the rural population is not motivated to seek prosperity. During the period 2012–2017, the share of Lithuanian households for which social benefits (excluding social benefits in old age) were the main source of income was significantly higher in rural areas than in urban areas. In 2018, such households in rural areas accounted for 11% of all households in rural areas, and in urban areas - 5% of all urban households (Statistics Lithuania, 2020).

The living conditions of the rural population remain worse than those of the urban population. According to the Survey of income and living conditions (2017), the share of persons living in households with various housing problems in rural areas was significantly higher than in urban areas. In 2015 researchers from Lithuanian Institute of Agrarian Economics conducted a survey to find out the motivation of young educated people to choose a place to live. Researchers surveyed 128 students from agricultural activities study programmes, forestry, agrarian economics, rural policy implementation. It was found that 63% respondents who have completed their studies would like to settle in a rural area for permanent residence. Students who chose the village gave priority to more urban areas, which were less affected by the reduction of the network of educational, health or social services: 31% of all respondents tended to choose a town with several thousand inhabitants, 16% - a settlement with several hundred inhabitants. Only 12% of respondents indicated that they intend to live in a small village with several homesteads, and 11% would like to live in a single farm.

2.2. Review of main challenges and opportunities

Discussions on vision of rural areas is continuous process in Lithuania since Lithuania have joined the EU in 2004 with particular attention to this topic in the middle of programming period 2007–2013. New vision for rural areas of Lithuania have been discussed by many parts of society, academia and politicians: what new role for rural areas should be devoted, how to use human resources in most efficient way, what kind of infrastructure is needed and who are residents of rural areas in 21st age facing new digitalization opportunities.

Green paper "Future of Lithuanian rural areas" (2010)

The beginning of discussions have started in 2010 when Ministry of Agriculture of the Republic of Lithuania has initiated preparation of *Green paper "Future of Lithuanian rural areas"* as an input for rural development strategy for Lithuania for 2014–2020. This paper was prepared by Lithuanian Institute of Agrarian Economics inviting for discussions members of society (NGO and private sector), public organizations, academia and interested parties. The need to prepare a Green Paper instead of a White Paper was based on situation of rapidly changing values of society and emerging of new information and communication technologies that require not only new strategic decisions, but a new vision for rural areas of Lithuania in general. It was agreed that new vision of rural areas can be viable if the interests of the entire population are included and not only residents of rural areas. Ideas and suggestions proposed in Green paper included knowledge and experience of various parts of society, especially urban residents, who previously rarely have been involved in rural policy decision-making, by diversifying support methods and developing new, more effective support tools.

1st topic for discussion in the Green paper was focused on *peculiarities of Lithuanian national rural policy for 2014–2020*. The biggest challenge for national rural policy makers for 2014–2020 was the ability to find an agreement on the EU support model that can maximize the specifics of the country. Until 2013 Lithuania was focusing to solve challenges that other EU counties were facing several decades ago relevant for market economy but they did not fundamentally contradict the principles of the EU support model. With a new approach, support for rural areas was no longer related with support only for farmers. Additionally to the activities of agriculture, protection of rural areas, quality of life in rural areas and promotion of local initiatives have become important areas of rural policy.

2nd topic for discussion was differences in *the quality of life in rural and urban areas*. In many EU and other countries transition to the rural policy model in the 21st century has started with a debate on the definition of rural areas. The object of the EU rural policy is administrative-territorial regions, which are divided into rural and semi-rural, and not individual settlements as in Lithuania. Lithuania does not have official distribution of regions into rural and urban; settlements are divided into cities (more than 3,000 inhabitants), towns (from 500 to 3,000 inhabitants) and villages (less than 500 inhabitants). By defining rural areas of Lithuania as a number of settlements and not as a region, it is becoming increasingly difficult evenly distribute supported infrastructure objects, workplaces, and to use other tools for territorial planning. Based on this definition of settlements, economic and social environment of rural municipalities is the worst comparing with city municipalities, but rural regions have other advantages that need to be exploited. In order to improve the quality of life in rural areas, it is not enough to simply compare the values of traditional economic and social indicators in rural and urban areas, as such comparisons support the popular opinion that rural areas are backward and need to align with urban areas. In the rural vision of 21st century, villages is neither worse nor better than the city, it is simply different. The way of life in rural areas is very different from the way of life in the city, so the quality of life must be measured by other indicators. Access to high-quality services of health, education, social security, police, government and other services is of paramount importance in the decision to live in rural areas of the country.

3rd topic for discussion was *benefits of rural policy for consumers*. The history of rural policy in European countries shows that support for rural areas has always been driven by more general national objectives. After World War II with the aim to avoid food shortages, state policy has supported farmers to provide food to consumers in cities and also to prevent a massive migration of rural residents to cities searching for a better life. These trends have changed over the time, and recent policy focus more on new society needs and not to producing large quantities of food. Changes in consumer's habits also make significant impact as consumers want to eat more fresh fruit and vegetables and this tendency requires bringing their growers closer to the consumer and creating a completely different distribution system for these products. There is also a growing demand for organic food, so there is a need to replace industrial crop and livestock technologies with organic ones. A lot of educational work is needed to convince Lithuanian farmers that their farm can be successful, using other strategies instead of competing at low prices. As an example is products under quality schemes recognized at European or national level that enable producers of quality products to set up long-term businesses and also improve eating habits of the population. Promoters of Green Movement ideas support rural areas as a place to spend their leisure time and also to live permanently and no longer as a food producing place just as a food producer. This is also new trend becoming more popular in Lithuania.

4th topic for discussion was *generational change of rural areas*. Rural society is aging rapidly being significantly affected by the decline of the youngest population both in rural and urban areas. The aging of the rural population is caused not only by the declining birth rate, but also by the reluctance of young people to live in rural areas. The problems caused by generation changes are also significant in Lithuanian agriculture as 55 percent of farmers were over 55 years old in 2019. Most studies in European countries show that most young, educated farmers do not want to inherit an intensive, with focus to mass production farm, as this means a high dependence on unpredictable processes in the global economy such as falling agricultural prices, trade liberalization, restrictions on intensive farming and costly requirements for nature and animal protection and food quality standards. Young people are trying to look for alternatives and join those farmers who choose multifunctional farming. Multifunctional farming allows the development of activities using less financial resources, handling other technologies, using resources not only for agricultural activities, but also for wind or hydropower production, fish farming, agro tourism, landscape management and conservation works, and so on. Applying principles of strengthening the local market creates direct contacts with consumers and thus reduces the risk not to sell products that have been produced. In multifunctional farming, young people who inherit a parent's farm do not lose their dreams to make career in other areas, and also applying a wide range of education skills additionally to farming (as providing consultations, project work, initiating activities according to their profession, such as growing herbs as a pharmacist, etc.). There are not many such farmers in Lithuania yet. On the other

hand, the share of rural employment in the agricultural sector has decreased very significantly in last decade. People need to find other roles in employment in rural areas by choosing activities that meet their professional interests while living in rural areas. New information and communication technologies have opened up broad perspectives for this. One more option for the future, the village could be used as a recreational resource to improve the quality of the elderly by creating retirement settlements with principles of communities.

Last topic for discussion was on *living in villages based on values*. The focus here is on the preservation of historical, cultural and natural values some of them defined in the EU list as ecologically important areas. In most of these areas, there are various restrictions that limit the initiative of residents to develop their business and adapt their homesteads to their daily needs. It would be important to find ways to regulate their activities so that the preservation of values in such rural areas does not impede the natural flow of life. A good example is ecovillages where principles of daily life can preserve natural, historical and cultural values. Such initiatives have been started in Lithuania since 2007.

Proposals of various stakeholders were received and included in further discussion about the future of rural areas in Lithuania with the aim to apply for some measures in Rural development programme 2014–2020 for Lithuania.

White paper on rural and agricultural development in Lithuania (2019)

Ministry of Agriculture of the Republic of Lithuania have initiated preparation of White paper on rural and agricultural development in Lithuania with focus on challenges, objectives and actions of the national policy up to 2030 in 2018. Lithuanian institute was responsible for preparation of this paper and organizing discussions with various stakeholders: academia, society (various NGO and business), politicians. This was continuous process to discuss current challenges for rural and agricultural development in Lithuania and to start preparation work for the next EU programming period for 2021–2027.

Vision of Lithuanian rural development and agriculture for the 21st century: *competitive, sustainable farms and viable countryside*. Goal: *modern countryside of Lithuania as an attractive place to live*. Vision also were identified of 4 vertical pillars and 4 connections reinforcing these pillars (see Table 1).

Table 1. Pillars and connections of the vision of Lithuanian rural development and agriculture of the White paper.

Pillars	Connections
Small and medium-sized farms producing niche, organic, health-friendly, higher value added agricultural products, national heritage or other exclusive products.	The EU and national support funds allow to maintain the level of farmers' income (direct payments) and increase competitiveness of farms and other entities operating in the countryside (support for investment in rural development).
Large farms and other large agricultural entities engaged in agricultural activities create a lot of jobs and by means of sustainable technologies, produce high quality products which constitute an important part of Lithuanian export structure.	Counselling and training will help the Lithuanian farmers and entrepreneurs to learn about innovations and their application, new management methods.
Business in rural areas which creates jobs and food industry in regions which ensures dignified income for rural population and is important to export development.	Reduction of control bodies' administrative burden must enable farmers and entrepreneurs focus on their direct activities and act in predictable environment.
Rural communities, that contributes to sustainable business development, creation of safe and sustainable environment, provision of social and	Increase of Lithuanian produce consumption can ensure an increase in agricultural production volumes and rise of the standard of living in rural

other services to rural residents.

areas.

Source: White paper on rural and agricultural development in Lithuania (2019).

4 challenges for rural and agricultural development were defined in white paper: (1) viability of rural areas; (2) development of competitive agriculture and business in rural areas; (3) farm's resistance to risk and sustainable farming; (4) consumption of local products and image of the countryside.

Viability of rural areas. Decrease in population density in rural areas has resulted in diminishing economic potential of the countryside. Therefore, the quality of life had declined and potential of rural areas to restore human resources has decreased. This creates a closed circle situation where the size of rural population and the prospects of the countryside define each other. Viability of rural area can be increased only by attracting new residents from cities who have emigrated. Attractiveness of life in the countryside should be increased by better transport and electronic services, availability of public services and active rural communities. Balanced regional development may also provide new impulses for rural areas.

Development of competitive agriculture and business in rural areas. Introducing research-based innovations can increase the progress and competitiveness of Lithuanian agriculture, allow breaking out of medium income trap. Innovations may also help to overcome crises emerging due to different reasons and significantly boost development of business in rural areas. Creation of higher added value and cooperation also build conditions for competitiveness of agriculture and business. Establishment of new business, development of farms and various initiatives in rural areas are impeded by excessive administrative requirements.

Farm's resistance to risk and sustainable farming. Lithuania is committed to reduce greenhouse gas (GHG) emission by 9 percent by 2030. A large part of GHG emission must be reduced in agriculture. Development of environmentally-friendly farming can be economically beneficial and attractive. The most important method to increase resistance of farms to climate change will be optimization and restructuring of economic activities. Innovative agricultural water management measures (renovation of melioration systems) will ensure lower leakage of nutrients to the surface or ground water which will increase production volumes and resistance to climate factors.

Consumption of local products and image of the countryside. As the need for healthy food is growing in the world, Lithuania should continue to position itself as a country producing healthy and high quality food. Expanding of export of high added value products is also important. Currently the situation is particularly favorable for Lithuanian farmers to sell agricultural and food products directly to the end consumers, since the demand for organic, fresh food produces near the place of residence of consumers is increasing. The possibility to purchase a part of local production in the local market may be driving force of rural areas. Tourism is one of the fastest growing activities of diversification of the local economy in Lithuanian rural areas helping to create new markets for local products, particularly, in the areas that are less suitable for agricultural activities. It is necessary to improve the image of rural areas and regions, the reputation of rural population and the prestige of the farmer's profession.

In the end of this white paper was outlined that implementation of proposed actions will increase sustainability of agricultural activities and preserve the viability of rural areas in the future.

2.3. Summary of existing foresight(s)

Discussions on the vision of rural development, agriculture and food sector is continuous process in Lithuania as role of agriculture and food sector is still at the high importance in Lithuania. Rural areas are place not only for farmers, entities for their activities but also for other residents as 1/3 of population lives in countryside in Lithuania. The main question is how residents of rural areas, farms and institutions should adapt to recent changes in demographic situation, current needs of people, new technologies, digitalization, and other emerging trends.

The following existing foresights since 2010 were identified in recent documents and studies for the case of Lithuania:

- Viability of rural areas (decline of rural population; generational change of rural areas; rural infrastructure; economic and social environment in rural areas; role of rural communities; balanced regional development; potential for remote work, opportunities using digitalization potential);
- Competitive agriculture and business (focus on cooperation and collaboration; creation of higher value added, business in rural areas, diversification and modernization of farm activities);
- Climate change and sustainable farming practices (adaptation to climate change; effective risk management measures; soil degradation and melioration issues; sustainable agri-environment; perspectives of organic farming).
- Potential of local products and benefits of short supply chain (rural–urban relations; involvement of consumers to the vision of rural areas; increase of consumption of local products; short supply chains for local products; various types of tourism in rural areas; image of rural areas).

3. Results from interviews with MAP members

In total 15 experts from Lithuania have participated in 1st SHERPA project experts meeting devoted for discussion for long term-vision for rural areas of Lithuania. 1st meeting was online meeting using Microsoft Teams programme organized on 19 May 2020. 2nd meeting was organized on 26 May 2020. Experts were representatives from science, society and policy, equally 5 experts from each group.

Results of discussion have demonstrate that experts from all three helix groups – science-society-policy – highlighted similar challenges and opportunities for rural areas of Lithuania for the next 20 years up to 2040.

3.1. Challenges and opportunities in the next 20 years

Rural areas in Lithuania cover significant amount of territory in Lithuania with different geographical, economic, societal, environmental and cultural background. Inhabitants of rural regions, activities and the whole rural areas have faced considerable changes in recent decades in Lithuania as in the whole Europe due to several key factors as economic and demographical changes, technological development, socio-economic changes and policy developments at national and the EU level. Identification of challenges and opportunities of rural areas in Lithuania are necessary for creation of future development plans for these places.

The following challenges for rural areas in Lithuania were identified at the expert group discussion:

1. *Demographic shift: depopulation and ageing.* Rural areas in Lithuania are facing *depopulation* because of internal migration of young residents to cities and external migration to work abroad. Remaining rural residents are getting *older* and in many cases rural areas are becoming depopulated with elderly people.
2. *Infrastructure and basic services.* Low density of inhabitants in rural areas. Costs for infrastructure maintenance. Availability of services in rural area: *location* of kindergartens, primary schools and secondary schools; post services; hospitals, supermarkets. Quality of services related with education (primary schools and secondary schools): if is better to have school close to you home of in some neighbor area but with good quality services? Lithuania does not have official distribution of regions into rural and urban; settlements are divided into cities (more than 3,000 inhabitants), towns (from 500 to 3,000 inhabitants) and villages (less than 500 inhabitants). By defining rural areas of Lithuania as a number of settlements and not as a region, it is becoming

increasingly *difficult evenly distribute* supported infrastructure objects, workplaces, and to use other tools for territorial planning. Difficulties of elderly to get to necessary services located outside of living place. Not sufficient skills of elderly to use possibilities of digitalization. Problem of old unused buildings and houses in rural areas – they interrupt landscape of rural areas and attractiveness to live in a village.

3. *Diversification of rural economy.* Rural areas are still observed as working place in farms or enterprises related with farming activities. Key challenge is to diversify rural economy with different economic activities in services, industry, and construction as there are increasing possibilities to work remotely because of digitalization possibilities in Lithuania. Diversification of activities of small farms or/and other initiatives providing other services. Income from various activities. In some cases for successful development of rural areas are opposition/no networking between rural communities and farmers.
4. *Competencies of inhabitants* of rural areas and public institutions responsible for implementation of rural policy in Lithuania. (1) Elderly inhabitants face problems using possibilities proposed by digitalized services. (2) Farmers and members of rural communities lack knowledge leading to innovation. (3) Employees of public institution are not able to reflect to current needs of various actors of rural areas. Low motivation to update their knowledge.
5. *Low intentions* of rural inhabitants *for integration, cooperation, co-creation.*
6. *Lack of motivation, lack of self-confidence. Lack of confidence between different generations.* On one hand, initiatives for young people are supported; on the other hand, elderly do not trust young people (including also farming activities, decision-making process).
7. Decision making process for rural regions in Lithuania. *Weak strategic planning for rural regions.* Gaps between institutions – decision-makers at national level, municipalities, local representatives, local communities and other rural actors. Reducing of administrative burden.

The following opportunities for rural areas in Lithuania were identified at the expert group discussion:

1. *Potential of digitalization.* Large network of high speed broadband services. Digitalization of activities, access to online services, reducing connectivity gap between remote rural areas and cities.
2. *Human resources.* Highly motivated, hardworking people. Modern programmes at universities reflecting current needs of rural areas including farming.
3. *Strong urban-rural relations.* City residents have strong relation with rural areas as previous residents of rural areas (themselves, or their parents used to live there). Purpose of visit to rural areas is related with spending leisure time in nature (various types of tourism: slow, transformative, ecological, and so on), visiting families or friends in rural areas, other activities.
4. *Covid-19 pandemic situation* have opened a need to search for a place outside cities with more space for living, spending time in nature. Rural areas a perfect place for remote work for employees of different professions using high speed broadband.
5. Local food: potential to strengthen *local food market*; short supply chain of local food; *tourism development.* Supply of biologically valuable food is not sufficient. Encourage consumption of Lithuanian production.
6. *Opportunities by Green deal* initiated by the EU. Strategies for development of rural areas in Lithuania should reflect on ecological farming and other ecological initiatives, less pollution, environmental requirements.

3.2. Desirable future for 2040

Discussion on desirable future for rural areas is a long lasting process in Lithuania and it will continue in the coming years as large territory of Lithuania is rural areas and cities cover only small part of it. 1/3 of population lives in rural areas of Lithuania. Another part of population that lives in the cities have close relation with rural areas as their parents or grandparents used to live in rural areas or still live there. Many

of residents from cities and rural areas still have good skills for growing vegetables, fruits and spending time in the countryside enjoying nature. So people from urban areas still have strong roots with rural areas. What desirable future for rural we can observe that many members of Lithuanian society would find their role in rural areas reflecting current challenges and opportunities related with possibilities to work at home, digitalization potential, increased role of networking and others?

Rural areas in Lithuania is still in the favor for farmers particularly large farms as they play important part in rural economy and have good tools in lobbying for decision making process with public authorities in Lithuania responsible for implementation of agricultural policy in Lithuania. Small and medium farms and entities also try to find their role but their power to influence is not as high or important as other actors. Rural communities are becoming more active last decades and in Lithuania there are very perfect example of successful development of places where communities are known with interesting project, more intensive involvement of local residents and even attracting new people to live in these places. Also new initiatives are becoming more popular in rural areas of Lithuania as slow, educational or transformative tourism, new business models established from residents from cities who decided to move from cities to villages (various culture-uncommon thematic villages, local food restaurants, therapy centers, etc.) or various networking initiatives between urban and rural areas (as rent a peace of garden project, food basket to your home, etc.). Initiators of new innovative initiatives or rural communities with successful experience in most cases are not encouraged to spread this practice via various communication channels and to increase their power by aiming to get some EU or national support so they simply live their life with desirable activities being good example for inspiration for many others. Good practice examples can inspire many potential newcomers to the rural areas of Lithuania who are still searching for activities where they can realize themselves.

Another trend with rural areas in Lithuania are related with moving to suburban areas close to large cities aiming to be close to nature, have more living space and with good distance to all necessary infrastructure.

Epidemic situation with Covid-19 even opened more discussion with increased potential for rural areas. Rural areas are seen as attractive and safe place to live especially for those who can work remotely as high quality Internet broadband is covered in all territory of Lithuania. Also this situation opened more opportunities to focus on internal food market and to strengthen short supply chains of local food; also by exploiting more tools to create networks between rural areas and cities for consumption of local food.

In the light of the above mentioned circumstances, desirable future of rural areas by the experts was highlighted in the following features:

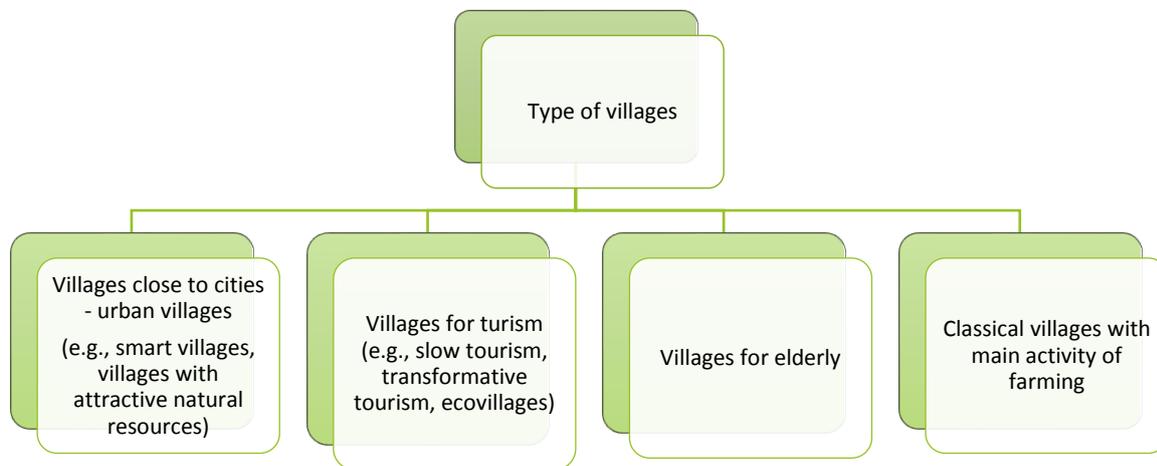
1. Rural areas are place for residents of various professions as rurality is not equal to farming by finding various roles for economic activities by working in place or remotely. Residents or new comers can focus on new innovative initiatives using unique natural or cultural resources of this place (slow, transformative tourism, etc.) or create new non-agricultural business (small or medium food processing entities, wood construction, etc.).
2. Creation of desirable infrastructure in the region and locally. Public authorities should assess rules for creation or existence of needed infrastructure in the region and not in a number or small towns or villages independently as it is common practice currently: by defining how much time is needed to get to the hospital, post, supermarket, school, kindergarten, etc. Infrastructure in villages also should be attractive by finding tools how to solve problems of non-used old living houses or previous farm buildings for many years as this neighborhood do not attract new comers to choose their place as new home.
3. Specialization of the regions. Inhabitants of rural regions in Lithuania should choose their specializations to use their resources in the best way: regions with focus on agriculture, regions with unique natural resources for development of various forms of tourism, regions with focus on non-agricultural activities, e.g., social business, cooperatives with focus on processing of agricultural products, wood processing companies, etc.).
4. Implementation of RIS3 strategy. Priority on supporting biologically valuable food. Biologically valuable food for consumers. Food grown with ecological, clean technologies. Biologically valuable

for people, the environment and nature. Fewer emissions are results of producing biologically sustainable products.

5. Local food: potential to strengthen local food market; short supply chain of local food; tourism development. Encourage consumption of Lithuanian production. Increase education skills on benefits of local food for consumers. Decrease transportation of imported products; focus on consumption of local food. Orientation to the local market creates direct contacts with consumers and thus reduces the risk not to sell products in the market and allows obtaining a higher price, which decreases in proportion to the growth in the number of intermediaries.
6. Education in universities and colleges. Need for innovation brokers and mentors. Need for distance learning to get new skills and increase knowledge in some interested areas. Need for continuous professional development.

A vision for rural areas of Lithuania up to 2040 – rural regions with modern villages in a partnership as an attractive place to live. Smart villages with selected strategy for development where live, work and invest communities of farmers, craftsmen's, other businesses applying principles of cooperation using renewable resources to produce local products and sell it to consumers. Such principles ensure protection of biodiversity and creation/preserving of rich landscape. Rural regions are administrative-territorial regions and not a number of individual settlements with effective and efficient planning tools for provisions of needed services and infrastructure based on the principle of networking: transport (roads), education (kindergartens, schools), social and other services (hospitals, primary care centers, day care centers, etc.). Measured by the time it takes to reach selected place or service.

Experts have highlighted the following future development of rural areas in Lithuania by supporting three types of villages:



1. New/renovated villages close to cities, so called urban villages. An example of these villages are (1) new smart villages, (2) new villages with focus to attractive natural resources of rural areas. Great possibility to work remotely. Inhabitants of these villages – city residents who want to live close to cities and to use city infrastructure but live in the nature. Epidemic situation with Covid-19 even opened more discussion of city residents to search for new places outside cities to live in nature in private houses with more land instead of living in block of flat houses.
2. Villages with focus on tourism: slow tourism, transformative tourism, ecovillages. A lot of new initiatives in Lithuania are implemented by residents from cities. New established villages or

previously existing villages get perfect possibility to be involved in new services by providing necessary services for new business. New services as 'Walk with a ranger', 'Walk on food in Labanoras forest' and many others. Creation of strong community can be as a result.

3. Villages for elderly: elderly people can move to new living place in these villages and get social services in new types of villages focused on provision of social services. Elderly with possibilities to take care of themselves can live in a village and existence of these villages can significantly reduce the cost of social services they need, and at the same time create the most attractive living conditions for this age group and the opportunity to communicate with each other by using open spaces created for their needs: gardens, cafes, handicrafts and other activities.
4. Classical villages with farming and other economic activities as services, industry, construction. New inhabitants of these villages often come with fresh ideas, innovations and so on and can inspire to implement some new initiatives together with already existing society. Focus to (1) biologically valuable food for consumers; food grown with ecological, clean technologies; (2) products with recognized quality schemes at European (protected designations of origin or geographical indications and guaranteed) or national level (agricultural products of exceptional quality) would not only improve the eating habits of the population but also enable producers of quality products to develop the long term perspective-oriented business. Possibilities to apply multifunctional farming method. By choosing a multifunctional farming method, knowledge or farmers or owners of enterprises can be adapted to the development of new activities, for example, a pharmacist can combine his/her profession with the cultivation of herbs. Farmers' knowledge of agriculture can also be used for consulting, design work, journalism and so on. Use of diversification strategy in agriculture. Strong relation with cities as consumers of local food. Possibility to use 'Farm to fork' strategy. Potential of bio-economy and circular economy.

3.3. Challenges in reaching the vision

The following challenges were identified in reaching the vision for future of rural areas in Lithuania up to 2040:

- 1) Lack of long-term planning process for rural areas in Lithuania based on results of elections. Not only when focusing on vision for rural areas but also for other sectors too. RIS3 strategy is too broad.
- 2) Unequal power of rural actors to influence decision-making process in Lithuania. Urban residents are not intensively involved in decision-making process for strategic planning for future of rural areas in Lithuania. Only vision where all actors can find their role in rural areas can be alive and successfully implemented.
- 3) Lack of education skills and knowledge on various topics for all triple helix members: policy, society and NGO. Policy: focus on new initiatives and practices to create prosperous of rural areas based on successful initiatives locally and internationally. Society: best practice examples; coaching, mentoring. Science: new programmes; new ways of involvement of students and elderly in long-life learning reflecting current tendencies.

4. Conclusion and next steps

Inhabitants of rural regions, activities and the whole rural areas have faced considerable changes in recent decades in Lithuania as in the whole Europe due to several key factors as economic and demographical changes, technological development, socio-economic changes and policy developments at national and the EU level. Results of discussion have demonstrate that experts from all three helix groups – science-society-policy – highlighted similar challenges and opportunities for rural areas of Lithuania for the next 20 years

up to 2040. Depopulation and ageing, infrastructure and basic services, diversification of rural economy, characteristics of human resources (as not sufficient competencies, low intention for cooperation, lack of motivation and self-confidence) and decision making process in rural areas of Lithuania are the most important recent challenges identified by the experts. Identified opportunities focus on potential of digitalization, human resources, strong urban-rural relations, local food market and tourism development, proposals from Green deal and new opportunities created by pandemic situation with Covid-19.

Rural regions with modern villages in a partnership as an attractive place to live was defined as a new vision for rural areas of Lithuania up to 2040. Smart villages with selected specialization strategy for development where live, work and invest communities of farmers, craftsmen's, other businesses applying principles of cooperation using renewable resources to produce local products and sell it to consumers thus strengthening urban-rural relations.

The next steps until September–November 2020 will be (1) MAP survey to rank identified challenges and opportunities, and enables to overcome challenges; (2) preparation of position paper; (3) validation of results in a consensus meeting.

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Annex 2. Survey Questionnaire

SURVEY QUESTIONNAIRE

Dear respondent,

The Sherpa project (rural-interfaces.eu) cordially invites you to participate in a survey to identify key challenges and opportunities, enablers and hindlers in rural Lithuania up until 2040.

The survey contains 8 mostly 'quick click' multiple choice questions. The estimated time for completion is 10 minutes.

Your responses are anonymous and confidential. They will be analyzed and presented to a Lithuanian expert group – the so-called Multi-Actor Platform. The results will also be shared with the European Commission and as a contribution to its Long-term vision for rural areas.

Your feedback is important and we greatly appreciate you taking the time to complete this survey.

Thank you!

5. From the options below, which one describes your background best? Please choose only one option

- Public Sector / National Level
- Public Sector / Local Level
- NGO / Civil Society
- Business
- Research
- Private person

A group of experts and different societal actors from the Lithuanian Multi-Actor Platform discussed a number of themes and topics they consider being relevant for rural areas. The next questions allow you to state how important you perceive the topics to be and also rank them.

6. On a scale from 1 (not at all important) to 5 (very important) how important are the themes and topics mentioned below for you?

	Not at all important	Slightly important	Important	Fairly important	Very important
<i>Demographic shift: depopulation and ageing</i>	<input type="radio"/>				
<i>Infrastructure and basic services</i>	<input type="radio"/>				
<i>Diversification of rural economy</i>	<input type="radio"/>				
<i>Competencies of inhabitants</i>	<input type="radio"/>				
<i>Low intentions of rural inhabitants for integration, cooperation, co-creation</i>	<input type="radio"/>				
<i>Lack of motivation, lack of self-confidence. Lack of confidence between different generations</i>	<input type="radio"/>				
<i>Weak strategic planning for rural regions</i>	<input type="radio"/>				

7. Rural areas are well prepared for and resilient to acute shocks, such as the COVID-19 pandemic.

Please indicate the extent to which you agree or disagree with this statement.

Strongly disagree	Disagree	Neither Disagree nor agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. Rural areas are well prepared for and resilient to long term challenges, such as demographic change.

Please indicate the extent to which you agree or disagree with this statement.

Strongly disagree	Disagree	Neither Disagree nor agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. Opportunities in the next 20 years.

How important are the opportunities below?

	Not at all important	Slightly important	Important	Fairly important	Very important
<i>Potential of digitalization.</i> Large network of high speed broadband services. Digitalization of activities, access to online services, reducing connectivity gap between remote rural areas and cities.	<input type="radio"/>				
<i>Human resources.</i> Highly motivated, hardworking people. Modern programmes at universities reflecting current needs of rural areas including farming.	<input type="radio"/>				
<i>Strong urban-rural relations.</i> City residents have strong relation with rural areas as previous residents of rural areas (themselves, or their parents used to live there). Purpose of visit to rural areas is related with spending leisure time in nature (various types of tourism: slow, transformative, ecological, and so on), visiting families or friends in rural areas, other activities.	<input type="radio"/>				
<i>Covid-19 pandemic situation</i> have opened a need to search for a place outside cities with more space for living, spending time in nature. Rural areas a perfect place for remote work for employees of different professions using high speed broadband.	<input type="radio"/>				
<i>Local food and tourism development.</i> Potential to strengthen <i>local food market</i> ; short supply chain of local food; <i>tourism development</i> . Supply of biologically valuable food is not sufficient. Encourage consumption of Lithuanian production.	<input type="radio"/>				
<i>Opportunities by Green Deal</i> initiated by the EU. Strategies for development of rural areas in Lithuania should reflect on ecological farming and other ecological initiatives, less pollution, environmental requirements.	<input type="radio"/>				

10. Rural Vision Lithuania 2040

Please indicate the extent to which you agree or disagree with the statements below.

In 2040, Lithuanian rural areas...

	Strongly disagree	Disagree	Neither Disagree nor agree	Agree	Strongly Agree
<p><i>...for all professions.</i></p> <p>Rural areas will become a place for residents of various professions: rurality - is not only for farming anymore! New roles and economic activities by working in place or remotely. Focus on new innovative initiatives using unique natural or cultural resources of the place (slow, transformative tourism, etc.), creation of new non-agricultural business (small or medium food processing entities, wood construction, etc.).</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p><i>...with desirable infrastructure.</i></p> <p>Creation of desirable infrastructure in regionally and locally by newly established rules, based on regional demands: how much time is needed to get to the hospital, post, supermarket, school, kindergarten? Tools for solving problems of non-used old living houses, previous farm buildings to attract new comers to choose these as a place for new home.</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p><i>...with regional specialization.</i></p> <p>Inhabitants of rural regions in Lithuania should choose their specializations to use their resources in the best way: regions with focus on agriculture, regions with unique natural resources for development of various tourism forms, regions with focus on non-agricultural activities (e.g., social business, cooperatives with focus on agricultural products processing, wood processing companies, etc.).</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p><i>...with implemented smart specialization strategy.</i></p> <p>Priority on supporting biologically valuable food. Biologically valuable food for consumers. Food grown with ecological, clean technologies. Biologically valuable for people, the environment and nature. Fewer emissions as results of producing biologically sustainable products.</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p><i>...with developed local food networks.</i></p> <p>Strengthened local food market; short supply chain of local food; tourism development. Encouraged consumption of Lithuanian products. Increased education and skills on benefits of local food for consumers. Decrease transportation of imported products; focus on consumption of local food. Orientation to the local market: direct contacts with consumers, reduced risk of open market, obtained higher price, decreased proportion in the number of intermediaries.</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

... with gap-focused education and continuous improvement.
 Education in universities and colleges. Need for innovation brokers and mentors. Need for distance learning to get new skills and increase knowledge in particular interested areas.
 Need for continuous professional development.



11. Rural Vision Lithuania 2040 - short statement

Discussions in expert groups and different societal actors from the Lithuanian Multi-Actor Platform accelerated to formulate the Rural Vision 2040 for Lithuania as following:

"A vision for rural areas of Lithuania up to 2040 – rural regions with modern villages in partnership as an attractive place to live."

Please indicate whether you agree or disagree with the formulated vision.

Agree

Disagree:

In case You disagree with proposed Rural Vision 2040 for Lithuania, please suggest alternative formulation:

12. Fighting challenges in reaching the vision

Please indicate to what extent the proposed opportunities would be helpful for implementing the Rural Vision Lithuania 2040

	Not helpful at all	Neither helpful nor hindering	Very helpful
National policy framework (enabling place-based strategies)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Interconnectedness between policies on national and local level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability of local knowledge and small scale data	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Existing partnerships and cooperation between different policy levels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Existing networks of local actors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Existing networks between rural and urban actors



Trust between authorities and society



13. Anything else?

Do you have any comments?

Rural development up until 2040 - Challenges, opportunities, enablers and hinders

THANK YOU !

Thank you very much for your time!

Results will be made available in September 2020.

Any questions? Contact Živilė Gedminaitė-Raudonė: zivile.gedminait@laei.lt



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