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GoDanuBio

Well-Governed
Danube Region

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Regional stakeholder report

Hungary

IFKA

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Table of content

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1. Abstract

This is a brief and concise summary and quick overview of your report. The abstract covers the main points from each of the following chapters. Max 300 words

Hungary is an agricultural country with a total estimated biomass stock of 350-360 million tons. The bioeconomy of Hungary generated in 2017 about 29.8 billion € turnover and 9 billion € value added employing 374 500 persons. Waste and by-streams from field-to-fork chain (agriculture and manufacturing of food, beverages and tobacco) could be a source for development of new value chains. Agriculture accounts for 4%, while the agro-industry as a whole account for 15% of GDP. Hungary's agro-ecological conditions are extremely favourable for agricultural production, which means significant growth potential especially in rural areas. That is why in the Hungarian Smart specialization strategy agro-food sector and bioeconomy-related sectors are also mentioned amongst the priorities.

Nowadays, 70% of the population lives in cities and urban communities, and almost 30% of the total population is concentrated in the capital (Budapest) and its agglomeration. There is still a tendency of migration towards cities from the countryside, so depopulation is a huge risk in the countryside. In rural areas, unemployment and labour shortages are present at the same time. Horizontal and vertical cooperation in the Hungarian agro-food sector is low, the city-village cooperation is even less developed.

It could be seen that circular bioeconomy can play a big role and significance, however, it does not yet have a mature system, structure or regulation. On the other hand, it is encouraging that strengthening the urban-rural relationship, catching up and making the countryside more attractive appears to be among the government's goals. There is a serious need (niche) and there is an opportunity to move on.

During the GoDanuBio project, these opportunities should be exploited, in close cooperation with the stakeholders already identified, in order for the Hungarian circular bioeconomy to develop in all areas. In addition, a Hungarian circular economy strategy is currently being prepared, in which circular bioeconomy will also play an important role.

2. Definitions

2.1. Circular Bioeconomy

How is the circular bioeconomy defined in your region/country (according to your regional/country administration)? Give some examples of circular bioeconomy that contribute to rural development and rural-urban cooperation in your region/country. Max 200 words

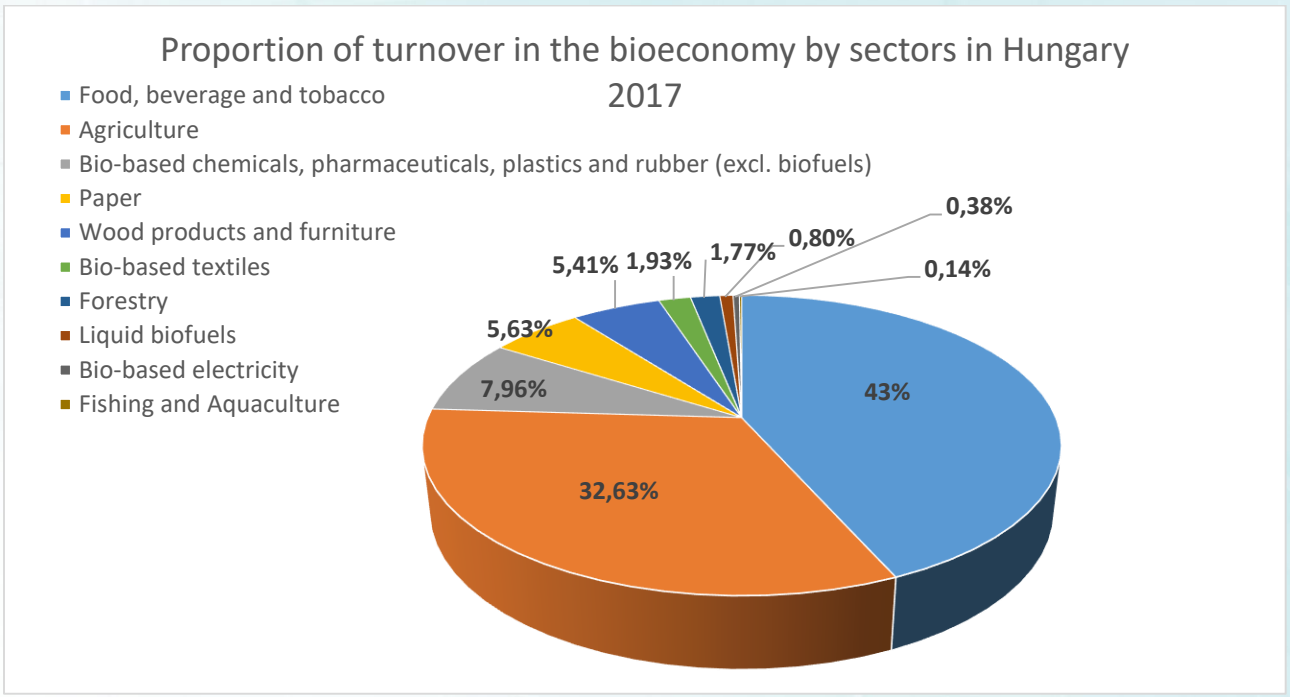
Circular bioeconomy is not defined in Hungarian policy related strategic documents. There is even a lack of clear definition of bioeconomy. Bioeconomy is often only identified with organic production, bioproducts, on strategic level it has not been determined yet.

Within the Hungarian Smart specialization strategy – aiming to channel resources towards those investments that have the potentially highest impact on the regional economy – agro-food sector and bioeconomy-related sectors are also mentioned: advanced technologies in the vehicle and other machine

industries - including agricultural, food processing; agricultural innovation - agricultural knowledge centres, clean and renewable energies - energy produced locally - including the use of bio-energy (including biomass, biogas, bio-refinery methods); healthy local food - high-quality foods of high added value, healthy diet, functional foods and Hungarian specialities, shortening of food chains, food safety. [1]

Hungarian biomass flows show the dominance of biomass from agriculture. Waste and by-streams from field-to-fork chain (agriculture and manufacturing of food, beverages and tobacco) could be a source for development of new value chains. Wood based biomass is about a 5th of the biomass supply, and still gets a portion to be exported in a shape of round wood and wooden pellets. Capture fisheries and aquaculture are small but present part of the Hungarian bioeconomy, with imports of fishmeal and oil and seafood. The promotion of aquaponics could be another potential, since healthy (more fish-based diet), locally produced food is a relevant S3 priority.

According to the JRC, the bioeconomy of Hungary generated in 2017 about 29.8 billion € turnover and 9 billion € value added. In 2017 the bioeconomy employed 374 500 persons[2].



Bioenergy (bioethanol and bioelectricity) is the highest performing bio-based sector in the Hungarian Bioeconomy.

[1] Smart Specialisation Platform (EC), 2021

[2] JRC, 2020

Among the 50 PRODCOM products generating 50 % of the total value of all recorded products, 7 are bio-based and 5 are fossil based that could be changed to bio-based alternatives – determining the potential directions for development. See the products listed in Annex 1. (BIOEAST, 2020).

2.2. Contemporary processes

Please explain the following three processes in your region/country with a specific emphasis on rural areas (1) as a counterpart to urban areas. Max 800 words

a) Demographic change[3]

What has changed in the demographics of your region/country in recent decades? What are the demographic trends? What is influencing these trends? How would you define the main demographic challenges (e.g., in terms of population growth/decline, changing age composition, redistribution of population (rural-to-urban and return migration), changing ethnic composition, changing socio-economic composition, income disparities/poverty, employment, etc.)?

Hungary's population in 2020 is 9.66 million, and has been steadily decreasing. Compared to the population of 2010, this numbers decreased by 244 000. Hungary has the second-worst negative growth among EU countries. Hungary's fertility rate is the primary cause of the population shrinking: the fertility rate is only 1.49 births per woman, which is the highest since 1996. This has caused also the median age increased to 42.3 years by 2020. Increased life expectancy is a major cause of an aging society: as more and more people live past 65, their representation in society has grown to 18,34 per cent.

Unemployment rate based on the latest statistics (2020 4th quarter) is 4,2 %.

Nowadays, 70% of the population lives in cities and urban communities, and almost 30% of the total population is concentrated in the capital (Budapest) and its agglomeration.

The proportion at risk of poverty or social exclusion is declining, but is still above the EU average. Children and Roma population continue to be at much higher risk of poverty than the rest of the population. Home purchase subsidies have expanded. This expansion has been increasingly marked over the last two years thanks to the family support measures introduced by the government.

There is still a tendency of migration towards cities from the countryside. In 2019 in five more urbanized counties (Pest, Győr-Moson-Sopron, Komárom-Esztergom, Vas and Fejér), despite the natural weight loss, domestic and international migration together resulted in actual population growth. The other less developed counties achieved a negative value in this sense. The population of Budapest is gradually decreasing (1.75 million)

[3] EURYDICE, 2020

International immigration and emigration resulted in a population increase of 37.1 thousand people. In 2019, 21.9 thousand Hungarian citizens moved abroad, and 23.2 thousand Hungarian citizens born in Hungary returned home. On 1 January 2019, the number of foreign nationals legally and long-term residents in Hungary was 172,600, representing 1.8% of the country's population.[4]

b) Rural development[5]

What are locally produced economic development strategies? What are the predominant economic drivers? What factors contribute to improving the quality of life and economic well-being of people from rural areas?

In order to improve the competitiveness of the Hungarian economy, several strategic-level government initiatives have been taken in the recent period. In 2019, the Government adopted the "Program for a More Competitive Hungary" package of measures proposed by the National Competitiveness Council with the aim of creating the conditions for dynamic economic growth in the longer term. The program proposes concrete actions in six main areas: taxation, employment, the public sector, health, education and the business environment through 42 actions.

The primary objectives of the elements of the Economic Protection Action Plan to prevent the adverse economic effects of the coronavirus epidemic are to preserve jobs and create new ones, and to protect domestic businesses and families.

The Hungarian Government launched the Family Housing Support Program (Hungarian abbreviation is CSOK, English version does not exist) scheme in July 2015. The village CSOK is part of the program which can be used in small villages where the population has decreased more than the national average compared to 2003 (where the current population does not reach 95% compared to the population on 1st January 2003). It provides non-refundable financial support for the purchase of a new or used property or for its modernization or expansion. Half of the support can be used for purchases, the rest for expansion and modernization. The village CSOK – focusing on the development and repopulation of the countryside - is EUR 1 680 for families with one child, EUR 7 282 for families with two children and EUR 27 777 for families with three children.

The purpose of the support is to make rural settlements more liveable, and can also improve the financial situation of the people living in the given settlement.

c) Rural-urban cooperation

[4] Central Statistics Office, 2020

[5] National Reform Programme Hungary, 2020

Please explain rural-urban linkages and how does territorial multi-level governance work in your region/country. What is the role of rural-urban partnership in improving competitiveness and governance in the region/country?

The Hungarian Government adopted the National Rural Strategy in line with the EU program funding period 2014-2020 and the Europe 2020 Strategy. The aim of the strategy is to set out the objectives and principles of Hungary's new rural policy, and to define what needs to be done for the agricultural and food economy and rural development. It focused on viable agricultural and healthy food production, sustainability, protection of natural values and the environment. The vision of the strategy was based on the principle that "the city and its countryside share a common destiny, and agriculture is the backbone of the countryside".

The Hungarian Government initiated programs to develop the rural areas close to the level of cities. There have been a number of infrastructural developments in Hungary in recent years, and it has been seen that industry and the service sector are increasingly appearing in rural settlements, as well. This will not only make settlements more liveable, but can also help decentralize industry. After all, a given village or small settlement becomes attractive for families if there are job opportunities there or in its immediate vicinity, with usable public transport, a school, a kindergarten, a nursery.

As far as governance is concerned there is no dedicated body to manage input-output relations and linkages between urban and rural regions in general and at the national level.

However, some bodies do oversee some aspects of these relations. These bodies are actually the Monitoring Committees of the Rural Development Programme 2014-2020, where they influence the goals, the management and implementation of the investment programmes in rural areas. There is also a division of labour between funding for rural areas out of this programme and the regional and social funding, too. This is being overseen and coordinated by the Monitoring Committee of the Partnership Agreement and the Commission and Hungary. The composition of these Monitoring Committees contain the parties influencing and influenced by the relevant rural, urban and development policies, and so these bodies do operate as bodies of coordination as well

3. Key determinants of the regional/country governance system

a) Political conditions (strategic level)

In the table below please explain at least 3 policies and/or strategies in your region/country that are related to the 3 main themes (demographic change, rural development, circular bioeconomy).
Implementation: Describe how the actions related to the three main themes have been implemented. Is there an action plan?

Territorial level: We are looking for national, regional and/or local level policies and strategies.
Interactions between levels: What are the interplays/interactions between the national and regional level (is there any kind of joint work between both levels)?
Relation to S3: What is the relation to existing and future S3 on regional/country level?
Max 1500 words

Name of policy or strategy: National Environmental Program 2015-2020	
Relation to demographic change	Ensure the long term sustainable living of the mankind
Relation to rural development	Support environmentally friendly and energy-saving solutions (e.g., support for green infrastructure, development of water management based on climate change, based on water retention)
Relation to circular bioeconomy	Special attention to ensure the transformation of the agricultural structure
Implementation	3 strategic goals and an environmental indicator system were determined. Actions for the relevant stakeholders were formulated within strategic goals.
Territorial level	National – operative programmes (KEHOP, IKOP, GINOP, EFOP, TOP, VEKOP, VP, MAHOP)
Interactions between levels	The government's active partners are local governments, businesses, farmers, scientific, educational, professional institutions and non-governmental organizations, as well as the population. An important element of the co-operation is also the co-ordination of tasks at the national, county and settlement levels in order to ensure that the solution of the given tasks is realized at the level where it can be provided most effectively and the appropriate knowledge and local knowledge is available.
Relation to S3	National priorities: clean and renewable energies (green energy), sustainable environment (natural resource management, developed environmental technologies), healthy and local foods (food processing, locally produced and processed high-valued-added foods), agro-innovation

Name of policy or strategy: Hungary's Digital Agricultural Strategy 2019-2022 (DAS)	
Relation to demographic change	There is a growing demand for a workforce capable of using digital technology in agricultural production and supporting change. The use of robots and automated processes primarily results in the replacement of low-skilled or unskilled labour. Thus, the demand for technicians and machine operators with IT knowledge is expanding to the greatest extent attracting people to the countryside, as well.
Relation to rural development	The implementation of the measures of the strategy will directly increase the digitization of the countryside, the spread of digital technology solutions and services in homes, backyard farms, the economy and public life, contributing to the development of the quality of life in rural areas.

Relation to circular bioeconomy	Using precision technology in agro-sector: resource-efficiency and environmentally friendly management, resource-efficient operation of rural settlements (local raw materials, services, renewable resources and cooperation)
Implementation	The implementation (based on a detailed action plan) of the DAS is coordinated by the Ministry of Innovation and Technology responsible for the Digital Welfare Program with the participation of the Ministry of Agriculture and the Agricultural Economics Research Institute.
Territorial level	National
Interactions between levels	DAS need to be accepted by both directly affected and the more distant target groups. Acceptance is ensured by the Digital Academy of Agriculture in the case of the direct target group, targeted measures need to be developed in the case of indirect target groups.
Relation to S3	National priorities: sustainable environment (natural resource management, developed environmental technologies), agro-innovation

Name of policy or strategy: Family Protection Action Plan	
Relation to demographic change	It aims at incentivising the birth of more children. The point of the policy is to compensate the cost of raising children in families.
Relation to rural development	Part of the action plan is rural CSOK which ensures the buying and modernization of rural real estates.
Relation to circular bioeconomy	-
Implementation	The important element is a system of increasing grant to couples who build or purchase new houses and are willing to raise one, two or three children. The size of the grant depends on the number of children promised or being raised (CSOK). It was observed that grant system supporting families in taking on more children concentrated around the villages around and relatively close to large cities and towns (agglomerations) and so a change was needed to the system that helps contribute to the prevention of depopulation better. As a result, for rural areas the grant system was extended to include not only new building, but extensions and refurbishment of old buildings, too. In these areas, there is no shortage of buildings for housing, however, in general, the quality of the buildings is low. In these circumstances it is not feasible to support only new buildings, but extensions and refurbishments should be allowed to get support, too.
Territorial level	National
Interactions between levels	-
Relation to S3	-

Name of policy or strategy: Rural Development Program 2014-2020	
Relation to demographic change	Help the repopulation of villages

Relation to rural development	The overall objective of the programme is to make rural villages, settlements more liveable and attractive for those living in rural areas.
Relation to circular bioeconomy	Rural development is inconceivable without increasing the competitiveness of the agricultural sector. The primary task of agriculture is food production, in which the important task of the near future is to organize food chains and avoid risks. All this must be done in such a way that the use of the ecosystems that depend on them takes place in the context of sustainability
Implementation	In the seven-year cycle, a total of HUF 1,019 billion of EAFRD resources were allocated to achieve the objectives. Almost 1/3 of the amount was spent on protecting ecosystems and promoting their harmonious use. Roughly similar amounts (~ 18%) were spent on food chains, social development and economic competitiveness. The fight against climate change and the use of renewable energy sources counted on more than 15%.
Territorial level	National, regional, local
Interactions between levels	National support for regional groups (LEADER) and local communities.
Relation to S3	National priorities: sustainable environment (natural resource management, developed environmental technologies), inclusive and sustainable society, liveable environment

Name of policy or strategy: Hungarian Village Program	
Relation to demographic change	Prevent the depopulation of villages
Relation to rural development	Improve the quality of life in villages and reducing the disadvantages in various fields these villages face in everyday life
Relation to circular bioeconomy	The more people in the countyside the more innovative ideas even supporting the circular Bioeconomy initiatives
Implementation	Hungarian Government support settlements with less than 5000 inhabitants. Local governments, churches and non-governmental organization can apply for grants in more phases.
Territorial level	Local
Interactions between levels	Direct connection between the Government and local organizations.
Relation to S3	National priorities: sustainable environment (natural resource management, developed environmental technologies), inclusive and sustainable society, liveable environment

b) Legal conditions (operational level)

Which are the existing regulations/laws boosting or hampering bioeconomic development?

Currently there is no dedicated policy framework targeting the development of bioeconomy in Hungary, but there are some indirect legislation boosting bioeconomic development.

Article XX and XXI of the Fundamental Law of Hungary - adopted by the National Assembly of Hungary on 18 April 2011 and entered into force on 1 January 2012 – directly expresses that every person has the right to a healthy environment; the agriculture should remain free from any genetically modified organism and ensuring environmental protection was also emphasised.

The Law nr. XLIV on climate protection passed in June 2020 states that Hungary will achieve full climate neutrality gradually by 2050 supporting the EU goals in this respect. Hungary will reduce its greenhouse gas emissions by at least 40% by 2030 compared to 1990. In the event of an increase in final energy consumption exceeding the level of 2005 after 2030, Hungary shall ensure the increase only from carbon-neutral energy sources. By 2030, Hungary shall achieve at least a 21% share of renewable energy sources in gross final energy consumption. So renewable energy will be in the centre of attention. The increasing solar energy production may be complemented primarily by the **expansion of controllable biomass capacities**.

The Hungarian Waste Act – law nr CLXXXV of 2012 -promotes the transition to circular economy and respecting the waste hierarchy it describes that the public service operator should provide at least separate collection of municipal paper, glass, plastic, metal and green waste. Moreover, the principle of recovery of biodegradable waste has been initiated: the separate collection and recovery of biodegradable waste should be promoted in order to return as much pure material as possible to the natural organic cycle and to reduce the biodegradable content of the landfilled municipal waste.

EU bio regulations are also supplemented by a domestic law: 34/2013. (V. 14.) Decree of the Minister of Agriculture on the certification, production, marketing, labelling and control procedures of agricultural products and foodstuffs according to the requirements of organic farming.

c) Socio-economic conditions

Current socio-economic situation in general and with special focus on rural areas. Use the data from 2019 plus qualitative description (if quantitative data not yet available) of expected COVID -19 impact. Focus on bioeconomy. Are there economic indicators related to bioeconomy?

In 2020, the volume of GDP was 5,1% less than the previous year. In Hungary, the main tool for crisis management was the moratorium on loan repayments to households and businesses, but this only partially solved the problems for businesses without income. Despite less severe restrictions, the crisis had a significant impact on the Hungarian economy, due to its openness, dependence on the automotive industry and the contraction of tourism and transportation.

The unemployment rate in Hungary increased from 3.4% in 2019 to 4.4% and may remain at this level in 2021 as well.

Hungary is an agricultural country, 66.3% of its territory is rural, 33.1% belongs to the intermediate zone, and only 0.6% is regarded as urban territory. 57% of the country's total area is agricultural land and 21% is forest land. Compared to the EU average, Hungary's agricultural sector cannot be considered typical, as

a very high proportion of agricultural land is arable land and the proportion of pastures is low (81% and 14.2%, respectively).

Hungary's agro-ecological conditions are extremely favourable for agricultural production, which means significant growth potential. Agriculture accounts for 4% of GDP, while the agro-industry (agro-chemical, food processing, etc.) as a whole account for 15% of GDP. Agriculture and the food industry are important pillars of the local economy, especially in rural areas.

Since Hungary has some of the most fertile lands in Europe food industry also has a great relevance. Hungary is best known for its production of staple products such as wheat, corn and barley, but it also produces a range of less known products such as paprika, sugar and medicinal plants. Food processing standards are also high due to rigorous national control requirements. As a result, there is strong international demand for Hungary's agriculture products.

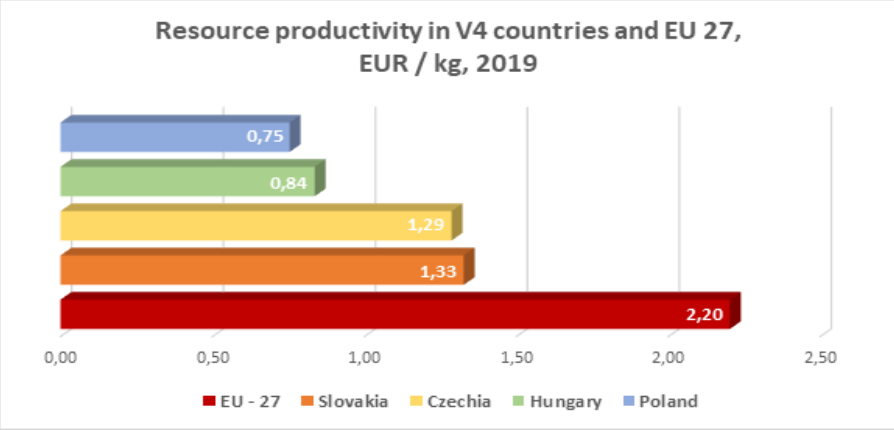
Most food industry companies are micro-enterprises that employ fewer than 10 people. The processing of meat, coffee and tea, and the manufacturing of soft drinks are the sectors with the highest share of foreign direct investment (FDI) in the Hungarian food industry. There are about 200 large food producers altogether, two-thirds of which are owned by foreign investors. Large producers primarily use Hungarian raw materials.

In Hungary, the average age of farmers is 56 years; therefore, a generational change is urgently needed. Horizontal and vertical cooperation in the Hungarian agro-food sector is low.In rural areas, the employment rate is low and the unemployment rate is particularly high among young people and women compared to the national average.[6] In addition to this, unemployment and labor shortages are present at the same time. So, there would be an advanced need for trainings and special knowledge transfer.

Direct indicators in connection with the bioeconomy has not defined in Hungary yet. However, some circular indicators could be mentioned here:

Resource productivity measures whether we have created more with less.

[6] https://ec.europa.eu/info/sites/info/files/food-farming-fisheries/key_policies/documents/rdp-factsheet-hungary_hu.pdf



Source: Eurostat, IFKA graph

According to the Eco-Innovation Index 2019, Hungary belongs to the weakest performers in the EU-28 (Countries catching up with the Eco-I). Hungary ranked 27th, lagging badly behind the EU-28 average.

Politico has released a circular economy index ranking the European Union's (EU) progress on reducing waste and boosting recycling, based on data from Eurostat and the European Parliament. Politico evaluated seven key metrics — annual municipal waste per person, annual food waste per person, municipal recycling rate, trade of recyclable raw materials, material reuse rate, circular economy patents and investments in circular economy sectors — to rank the EU's countries. There are definitely frontrunners when looking at the best practices of the EU's 28 nations. **Hungary was the 15th in 2018**.

The amount of municipal solid waste was around 3,8 million tons.The recycling rate of municipal waste in Hungary increased notably over the last 10 years, from 15.4 percent in 2009 to 36 percent in 2019.

In Hungary, the amount of municipal waste generated per person came to 387 kg in 2019, well below the European Union average, according to data by statistical agency Eurostat (the EU average amounted to 502 kg).

Out of the generated MSW 27% (1 million tons) is biowaste. The separately collected amount of biowaste is only around 24 % - at least 70 % is still landfilled.

The circular material use (CMU) rate measures the share of material recovered and fed back into the economy — thus saving extraction of primary raw materials — in overall material use. The indicator includes flows of materials but it does not include flows of water. It includes flows of fossil fuels and energy products. The circular material use rate was 6,8% in Hungary in 2019, well below the European Union average which was 11.9% in Hungary.**d) Technological conditions**

What is the existing knowledge of science and industry in the region/country regarding the circular bioeconomy and how good is the interaction between science and industry in this field?

Due to its natural and geographical features, Hungary has a huge potential in the field of circular bioeconomy, and in Hungary today there are some industrial actors operating within the framework of bioeconomy.

In Hungary, the total biomass stock is estimated to be 350-360 million tons, nearly 60 million tons of crop and livestock products and by-products, and 9 million tons of renewable biomass are generated in the forests, which is only partially utilized. The compulsory separate collection for green and food waste from 2023 will provide even a huge amount of potential resource to use it further.

Without active research and development activities through the cooperation of the industry and the research institutes supported by the European Union, these opportunities will be difficult to exploit in rural areas. The majority of producers operate in isolation, without comprehensive professional management and advocacy. The cooperation of science, academic sector and the industry should be strengthened to develop demand-led innovative solutions that will be applied in practice.

However, still today exist some good practices in this respect.

Regarding Biofuels-related solutions Pannonia Bio operates the largest single site bioethanol plant in Europe, one of the most efficient refineries in the world. The location is in Tolna County, Hungary. The plant uses state of the art production processes and is a nursery for development of new bio-based technologies. From its beginnings as a bioethanol producer in 2012, the refinery has almost tripled in size and developed into a multiproduct facility. Today, nutrition, health, biochemical and fuel bioproducts are manufactured as alternatives to fossil materials.

The more than 30-year-old Biofilter Ltd. collects, processes and transports used cooking oil and food waste using a process that recycles 100% of the valuable raw materials collected and turns cooking oil into biodiesel and food waste into electricity to serve consumers.

A new initiative, Hungarian Bioeconomy Cluster was established in 2019 to support the development of bioeconomy (biomass-based economy) in Hungary and to promote its long-term survival and continuous development.

e) Environmental conditions

What are the conditions in the forestry and agricultural sectors? To what extent do the measures in the current and future strategic plans of Common Agricultural Policy contribute to climate change mitigation and adaptation, sustainable development and the efficient management of natural resources, as well as to the protection of biodiversity, the enhancement of ecosystem services and preservation of habitats and landscapes?

The amount of greenhouse gases emitted in 2017 was similar to previous years. Compared to 2010, pollution in the energy industry decreased, while in agriculture and manufacturing it increased.

Hungarian organic farming is supported by a separate resource system in the Rural Development Program. Thanks to the introduction of the form of support in 2016, the number of producers engaged in organic

farming increased by 73, and the size of the affected agricultural area increased by 44% in one year. The proportion of areas entitled to produce organic products that have already completed the transition period increased significantly to 82% in 2018.

In 2018, the number of nature reserves increased by one, there are already 172 of them in the country. New forest was still planted in a few places and the health of existing ones continued to deteriorate. Compared to 2010, the population of big game, with the exception of wild boar, increased.

The living tree stock of domestic forests amounted to 390 million m3 in 2018, more than seven-tenths of which were hardwood species (mainly oak, acacia, tan and beech).[7]

In terms of biodiversity, 83% of habitats are in poor condition. The main environmental challenges are related to the protection of biodiversity, the quality of surface and groundwater, and soil erosion.

In connection with the new CAP reform, the Hungarian government aims to develop a support policy system in which the majority of actors in the sector will find the forms and levels of support that are acceptable – taking into consideration the very fragmented market. The main emphasis now will be on technology development and related investment - special attention to digitization: transition to precision farming with funds also provided to SMEs. From 2023, according to the new CAP environmental commitments will be mandatory – so the preparation for this should start now. Not only in the agriculture, but food industry-related complex developments should be supported just like production innovation, automation from farming to food processing.

Hungary could receive 12 billion euros in support between 2021 and 2027, and an additional 262.9 million euros out of the 7.5 billion euros that can be spent on rural development under the Next Generation EU program would reach Hungary in the first 2 years of the budget period. All the rural development measures so far remain eligible, the predominance of non-repayable investment subsidies also, and it is a lucky circumstance for bank financing that the structure of direct producer income support does not change significantly.[8]

4. Stakeholder inventory

How strong is the network of stakeholder groups in the circular bioeconomy for possible participatory governance in your region/country? Describe their role/position in the network and their importance for GoDanuBio in the table below.

Stakeholder groups and subgroups: Describe at least one subgroup within each of the groups.

*- **Public** group of stakeholders includes public institutions, regional/country government and local*

[7] Hungarian Central statistical Office, 2019

[8] Anikó Juhász, Deputy State Secretary for Agricultural Economics of the Ministry of Agriculture, 2020

government, regional networks and development agencies, competence centres
*- **Industry** includes private firms, private producers, industrial chambers, cluster initiatives*
*- **Academy** represents research and educational institutions*
*- **Society** represents NGOs and informal civil organisations*
Position in the network:** Please explain their role, interactions and potential influence. How strong are their interconnections/embeddedness in the network, how much are they integrated into the network of stakeholders? You can assess their position based on mindmap (graphical diagram) that you submit as **Annex I.
***Importance for GoDanuBio**: Assess their potential influence on the project objectives, outcomes and future implementation.*

Max 1200 words

Stakeholder group	Public
Stakeholder subgroup	Country government
Position in the network	Responsible for policy making, financial support strategies, operative programmes for funding Preparation of strategies, action plans tight connection with the relevant stakeholders (background institutions, academies, R&D&I organizations, experts and companies) which have reviewer and advisory roles in these processes.
Importance for GoDanuBio	Policy related proposals and actions

Stakeholder group	Industry
Stakeholder subgroup	Private firms, private producers
Position in the network	employers and innovators They are the members of the relevant alliances, chambers whose interest should appear in the relevant strategies and legislation. Their role in the network is crucial to identify the real obstacles and challenges to the transition to a circular bioeconomy. They determine locally the demand for workforce, so they are keys to the repopulation processes of the countryside.
Importance for GoDanuBio	Identifying good practices; determining practical challenges and barriers, and to identify their needs to overcome them

Stakeholder group	Industry
Stakeholder subgroup	Cluster initiatives
Position in the network	R&D&I activity, technology transfer, supporting the innovation activities of the members, building links between actors in the knowledge economy, services for the members, finding and involving development sources in domestic biomass-based economic processes

Importance for GoDanuBio	Practical information on the status quo of circular bioeconomy in Hungary. Identifying the challenges and the needs of the key market players.

Stakeholder group	Academy
Stakeholder subgroup	Universities and research institutions
Position in the network	. Based on the reform initiatives of the government the universities should be the centre of innovation. Their cooperation with the industrial players should be fostered and their R&D&I activities should be linked to demand led problematic areas. So academia apart from expertise and education is a relevant link to innovation answering the need of the companies.
Importance for GoDanuBio	Modern innovative knowledge centre of agricultural good practices, technologies. Knowledge transfer

Stakeholder group	Society
Stakeholder subgroup	Civil organizations, NGOs
Position in the network	Direct contact with the consumers, relevant expertise Mediating role between the government and society to negotiate about problems and possible solutions. This role should be strengthened, their embeddedness should be emphasised in these processes. They are independent, well accepted experts in the eye of the public, so their role in awareness raising activities is indispensable.
Importance for GoDanuBio	Promotion of sustainable production and consumption practices, public counselling, environmental education, awareness raising, dissemination of knowledge, community and networking. Their approach starts with improving the way people live, creating the products required for a better living environment, and they look to optimise land use to produce the food people need.

Annex 1: Bio-based products and potentially bio-based products among PRODCOM products that generate 50 % of the total value

CODE	Description	M€
22111100	New pneumatic rubber tyres for motor cars (including for racing cars)	1.084
11071930	Waters, with added sugar, other sweetening matter or flavoured, i.e. soft drinks (including mineral and aerated)	548
22292995	Other articles of plastic n.e.c (excluding appliances identifiable for ostomy use)	543
10921030	Dog or cat food, p.r.s.	529
22299160	Plastic parts and accessories for all land vehicles (excluding for locomotives or rolling stock)	421
17211300	Cartons, boxes and cases, of corrugated paper or paperboard	418
10121050	Fresh or chilled cuts of chicken	
10111230	Fresh or chilled carcases and half-carcases, of pig meat (including fresh meat packed with salt as a temporary preservative)	354
20147400	Undenatured ethyl alcohol of an alcoholic strength by volume ≥ 80 % (important: excluding alcohol duty)	338
20165130	Polypropylene, in primary forms	323
10891950	Other food preparations n.e.c.	322
20161050	Polyethylene having a specific gravity of ≥ 0,94, in primary forms	319

Source: Table 19. BIOEASTD1.2. Report on analysis of BIOEAST national bioeconomy related sectors