Bio-based Industries Consortium

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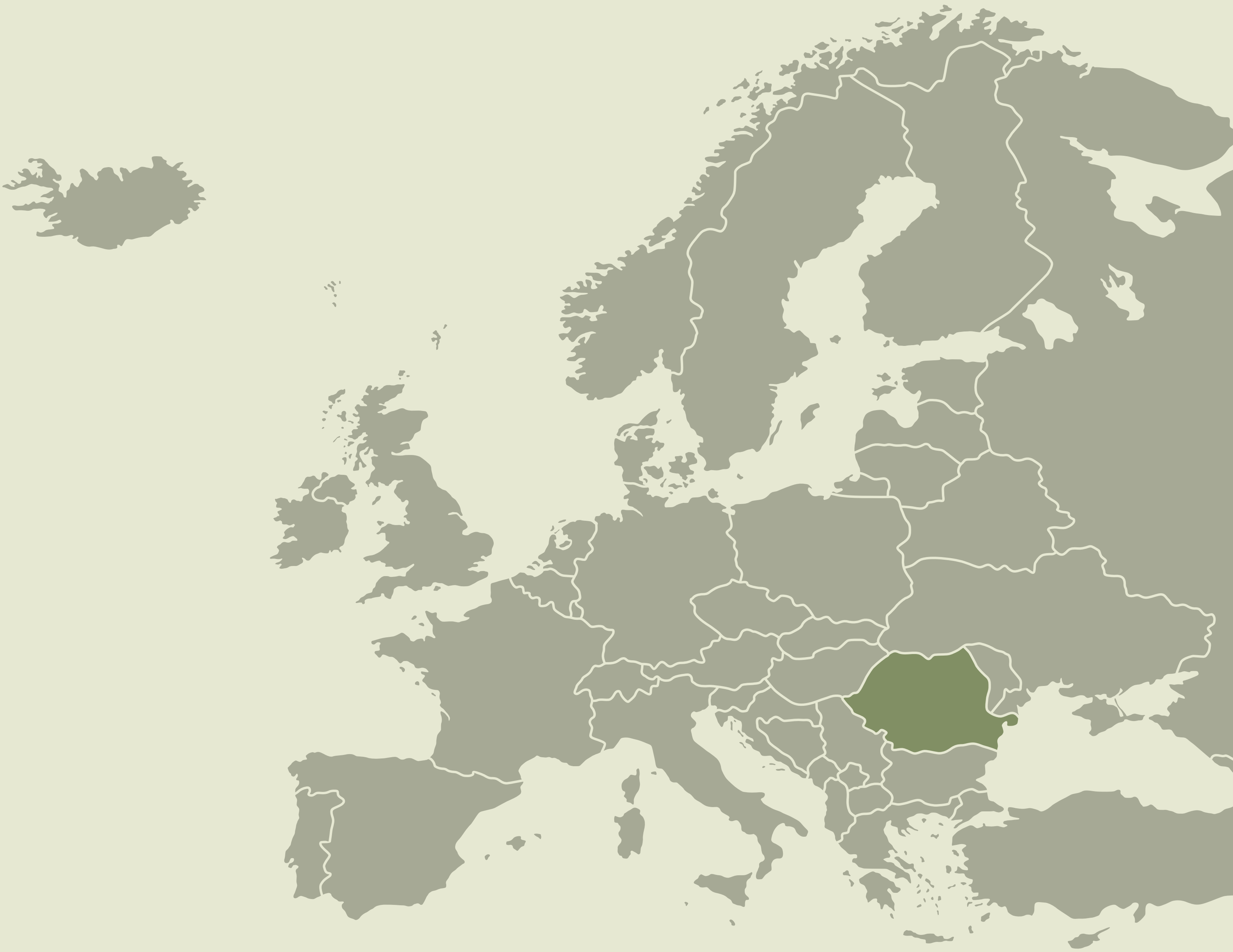
MAPPING THE POTENTIAL OF ROMANIA FOR THE BIO-BASED INDUSTRY



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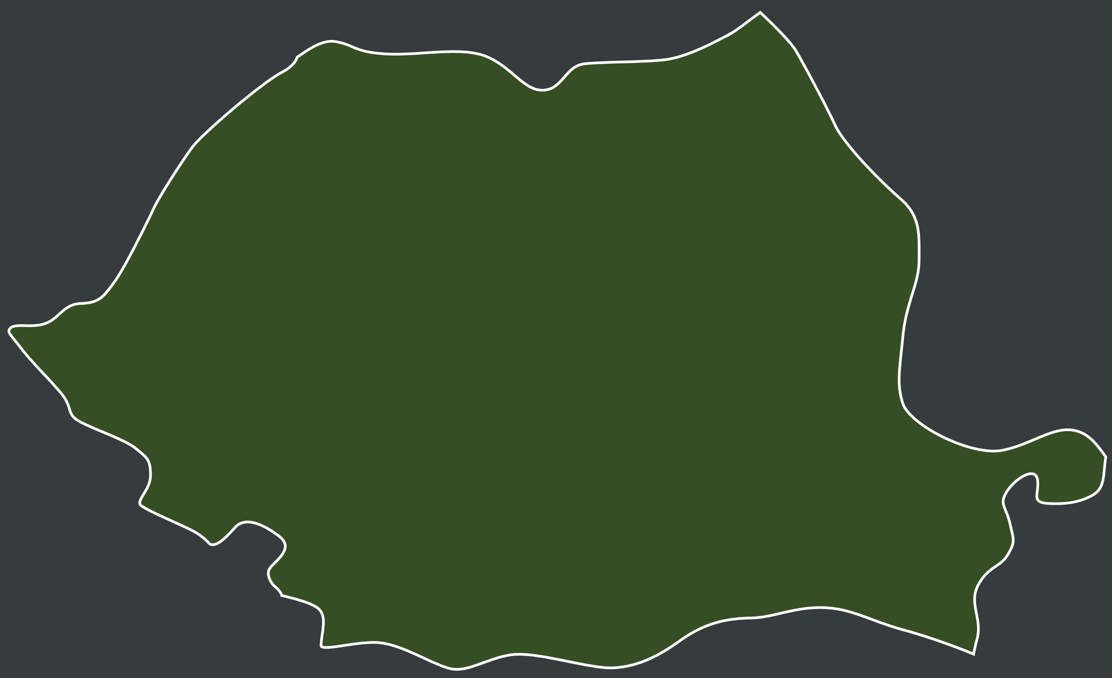


Executive summary

This document is part of a series of publications by the Bio-based industries consortium (BIC) to identify the opportunities for expanding the bio-based industry across Europe. The incentive for looking into these opportunities is the fact that the level of activities of BIC is not balanced throughout Europe. Bio-based activities heavily depend on innovation, and hence are relatively low in 'moderate/modest innovator' countries[1]. This may be the result of insufficient knowledge of the potential for the bio-based industry in these countries, by actors in bio-based activities in these countries as well as by BIC. Additionally, actors in these countries may not be fully aware of the opportunities offered by BIC and the Bio-based Industries Initiative.

The document highlights the results of the mapping exercise of local biomass sources that could be used as sustainable feedstock for the bio-based industry, and the major actors in the relevant sectors.

Romania's agricultural sector is one of the largest in Europe. The sector is going through a rapid evolution, propelled by the liberalisation of agricultural land purchase. Forestry, largely controlled by the State, presents challenges regarding productivity and accessibility of remote forest areas. Both primary sectors, together with the food processing, the wood, and the paper and pulp industries can potentially make large quantities available of residues and other unused or underutilised material to feed a national bio-based industry. The country's strong petrochemical industry could play a major role in establishing this bio-based industry, by gradually increasing the use of biomass as feedstock and converting it into value-added products.

The ongoing work for a national bioeconomy strategy should provide the grounds for setting up bio-based value chains in the country. By also interconnecting currently separated industrial sectors, the national strategy could increase bio-based activities in Romania in the medium term.

BIC will now share this document with the local actors, and jointly set up an action plan, in particular with the industry and governmental institutions, to provide assistance in establishing and expanding the local bio-based industry.

1 See European Innovation Scoreboard 2017: http://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards_en

01 INTRODUCTION

1. Introduction

Romania has one of the largest agricultural sectors in Europe and a strong (petro)chemical industry. These two factors, combined, concur to making it an ideal candidate for bio-based chemistry. The notion of bioeconomy as a multi-sectoral discipline is just surfacing in Romania and the massive amount of biomass available is un-or under-exploited. However, relevant bioeconomy themes are included in the Smart Specialisation Strategy of the Country.

The agricultural landscape is in rapid evolution after the government enforced liberalisation of land purchase by foreign entities in 2014. This opened the market to a massive influx of foreign capital, but also caused social concerns in rural areas because of the predominantly export-oriented production set up by some of the new actors.

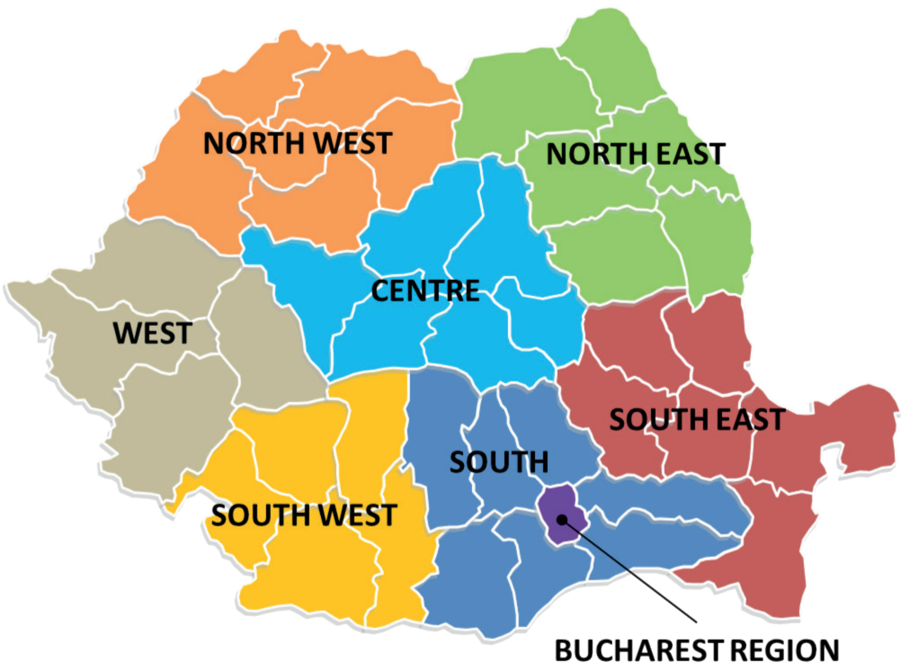
The forest sector, on the other hand, is still largely controlled by the State and suffers a chronically low productivity, due to the lack of infrastructure and difficulty in accessing remote forest areas.

Biogas production[2] and biofuels consumption[3] are projected to increase in the near future. However, most of the biofuel is not produced locally, but imported from neighbouring Poland.

1.1 Geographic Note

For the purpose of this document, the Romanian territory is divided as per the map below, corresponding to Romania's Development Regions. These are purely geographic entities not having an administrative status; they are only used in census and for allocating European regional development funds.

Figure 1.1: Map of Romanian Regions



2 http://www.business-review.eu/news/biogas-and-waste-usage-for-energy-in-romania-to-register-significant-growth-by-2030-says-strategy-124462

3 http://www.biofuelsdigest.com/bdigest/2017/07/22/romania-to-double-bioethanol-blending-mandate-for-2018

1.2 Sources

Economic data are retrieved from the following sources:

- Eurostat;
- World Bank;
- USDA;
- National Statics Institute;
- Ministry of Agriculture Romania.

1.3 Disclaimer

This report was prepared by RINA Consulting on behalf of the Bio-based Industries Consortium.

The information and views set out in this report are those of the author(s) and do not necessarily reflect the official opinion of the Bio-based Industries Consortium. Neither the Bio-based Industries Consortium nor any person acting on its behalf may be held responsible for the use which may be made of the information contained therein.

02 POLICY FRAMEWORK

2. Policy framework

Romania has published its Smart Specialisation Strategy in 2014. The full document is only available in Romanian; notwithstanding that, relevant information can be gathered from the English outline of priority axes.

Axis 4 features the following bioeconomy-related items:

- safe, accessible, nutritionally optimized, food;
- sustainable development in forestry;
- zootechnics, veterinary medicine, fishing and aquaculture;
- new products, practices, processes and technologies in horticulture;
- sustainable development of fields crops;
- biotechnologies for agro-food;
- nanobiotechnology;
- environmental and industrial biotechnologies;
- bioanalysis;
- medical and pharmaceutical biotechnologies;
- in vitro/ in vivo assessment for generic drugs;
- systemic, local and targeted drug delivery and technologies to optimize the biopharmaceutical and pharmacokinetic profile;
- molecular design, (bio)synthesis, semisynthesis, high-performance screening.

A government-funded project performed by INCDSB (National Institute of Research and Development for Biological Sciences) is presently ongoing, aiming at "*substantiating, elaborating, finalizing and communicating the priorities for the development of bioeconomy in Romania for the period 2016-2030 by (i) assessing the R & D potential and the industrial potential in the bioeconomic field; (ii) identifying priorities for the integration of national economic sub-systems into European bio-economic development, and (iii) establishing the main actions needed to achieve identified priorities*".[4]

The Rural Development Programme (RDP)[5] for Romania adopted by the European Commission in 2015, outlines the priorities and measures to invest nearly € 9.5 billion that is available for the 7-year period 2014-2020.

The RDP will support investments in the modernisation of farms and cooperatives. There is a particular emphasis on promoting cooperation between small farmers in order to improve competitiveness. In the forestry sector, there will be investments to expand the limited network of forest roads by over 900 km.

According to the provisions of the RDP, Romania has allocated € 320 million to increase the competitiveness and enable restructuring of the fruit growing sector. Support is given for the setting-up of new orchards, reconversion of the old ones, fruit processing, cooperation projects, and the setting-up of producer groups within the sector.

For the development of the agri-food value chains, the RDP aims to support investments in about 300 food processing units. It also aims to stimulate the setting up of new producer groups as well as cooperation projects (e.g. in short supply chains servicing local markets). Farmers will also have the opportunity to use risk mitigation instruments against the effects of adverse climate and other risks.

To benefit from the high numbers of rural inhabitants involved in agriculture, the RDP aims to promote and invest in projects meant to diversify of the rural economy, creating new job opportunities and increase rural incomes. The RDP targets include 3 000 projects supported for setting-up/developing non-agricultural businesses in rural areas and almost 27 000 new jobs.

4 http://www.incdsb.ro/p/Sectorial-Bioeconomie

5 http://www.pndr.ro/implementare-pndr-2014-2020/pndr-2014-2020-versiune-aprobata.html

03 | BIOMASS PRODUCTION

3. Biomass production

3.1 Agriculture

The primary sector (agriculture, forestry and fishing) provides the largest contribution to employment and value, accounting for 4.3 % of GVA. Agriculture accounts for 23.1 % of employment. This is higher than the European average both in economic terms (1.5 % in EU28) and employment terms (4.3 % in EU28)[6].

3.1.1 Arable crops, Fruits and vegetables

Romanian agriculture has long been characterised by a fragmented landscape (92.2 % of the holdings by numbers are under 5 ha) and an aging workforce (41 % of farmers over 64)[7]. However, the farms under 5 ha use only around 30 % of the total utilised agricultural area while large farms of 50 ha or more cover 52 % of the agricultural area. The landscape has been rapidly changing with a massive influx of foreign capital buying land from small owners: according to various sources[8], between 30 and 40 % of the agricultural land in Romania is now owned by foreign investors. Since liberalisation of land purchase in 2014 (up to 2014 foreign investors could acquire land only by setting up a company in RO), concerns have been raised about the impact of this phenomenon. A law is currently (October 2017) being discussed in the Parliament to stop what is perceived as ‘land grabbing’ by foreigners. However, due to the EU treaties provisions, the instruments for these restrictions are rather limited.

Romania is one of the top producers of oil crops in Europe. The sector is dominated by foreign players **Bunge** and **Cargill**.

InterAgro, once the largest agricultural group in the country, declared insolvency in 2016 after legal issues. In particular the fertiliser business suffered and caused the group to collapse. The agricultural branch of the group continues its activities but at a much lower scale.

Agro-Chirnogi, belonging to the Lebanese holding Maria Group (who also owns a large livestock business in the Country), is the main player on the grain producers market. The company has more than 600 employees, registering a turnover of 210 million € in 2016.[9]

Nationally-owned **Agricost** ranked the second in 2016 with more than 900 employees and a turnover of 85 million €.[9]

Racova Group is a large holding grouping agriculture, livestock, food, services and biodiesel businesses, with a turnover of 140 million € and 2100 employees. It owns 54,000 ha of land.

Cerealcom is also one of the largest nationally-owned agribusinesses, owning 25,000 ha[10] of land.

Zoo Sintex is active in the cereals sector.

6 https://ec.europa.eu/agriculture/sites/agriculture/files/cap-in-your-country/pdf/ro_en.pdf

7 https://ec.europa.eu/agriculture/sites/agriculture/files/cap-in-your-country/pdf/ro_en.pdf

8 http://www.zf.ro/zf-24/studiu-parlamentul-european-40-din-terenurile-agricole-din-romania-apartin-investitorilor-straini-16722126 - https://www.romania-insider.com/president-concerned-foreigners-30-romanias-farmland/

9 http://www.romaniajournal.ro/romania-has-become-eus-main-cereal-exporter-keysfin-analysts-show/

10 http://www.cerealcom.com/companie_en.html#figures

The **Al Dahra** group, from UAE, has announced its intention to expand its Romanian operations with a massive acquisition of 30,000 ha.[11]

About 20 % of fruits and vegetables are produced in large farms while the remaining 80 % in holdings. Hence, fluctuation in quantities and quality of the produce as well as the high production costs (or low productivity) result in higher prices for the local products. About 65 % of the national consumption comes from imports.

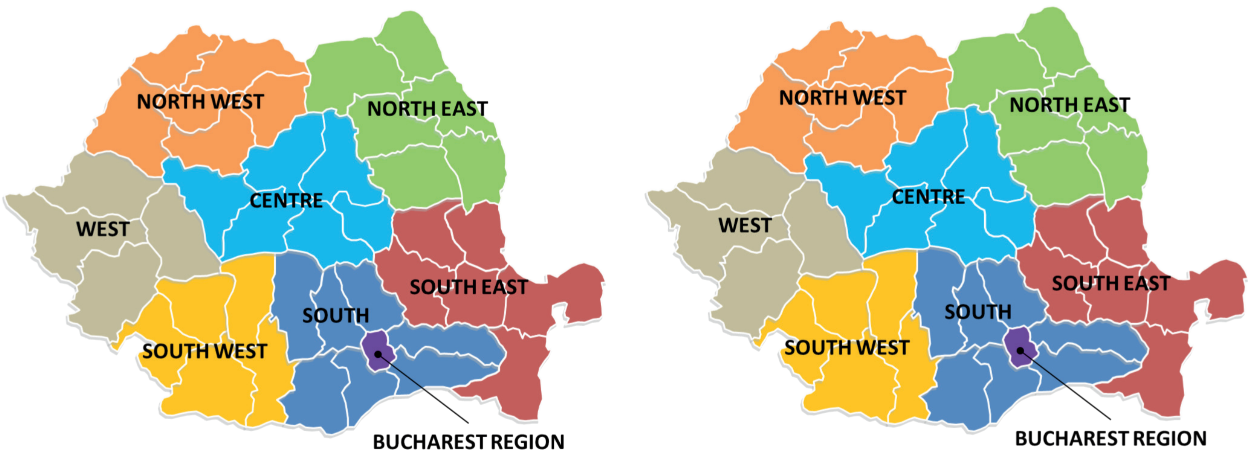
The significant fruit and vegetables growers are mainly gathered in associations or producers' groups such as:

- Matca - vegetables, mainly tomatoes;
- Frutis Voinesti - fruits, mainly apples;
- Cartof de Fagaras – potatoes.

3.1.2 Livestock

Around 2 million cattle heads are present in Romania, of whom approximately 1.2 million are milk cows, 700,000 are beef cows and 100,000 are heifers for breeding. Sheep and goat heads total 11 million, while pigs total 5 million.

Figure 3.1: Distribution of cattle livestock (left) and pig livestock (right) in Romania[12]



11 https://english.mubasher.info/news/3063781/UAE-s-Al-Dahra-to-expand-in-Romania-Serbia

12 https://www.dutchromaniannetwork.nl/wp-content/uploads/2017/01/Food-Report-Romania-2016.pdf

The main livestock farmers are shown in the following table:

Table 3.1: Main livestock farming companies

Company	Sector and size (heads)	Location (Region)
Maria Trading	cattle 6,000, sheep 50,000	South
DN Agrar Group	cattle 3,600	Centre and West
Carmolimp	cattle 2,500	Centre
Racova Group	cattle 2,000	North East
IAC Curtici	cattle 1,100	West
Agroindaf	cattle 1,000	Bucharest region
Agrointer	cattle 1,000	South
Cris-Tim Group	cattle 1,400	South
Agrimat Matca	cattle 1,000	South East
Agroindustria Pantelimon	cattle 1,000	Bucharest region
Agrisol International	poultry 18 million, pigs	South
Avicola Buzau	poultry 300,000	South East
Avi-Top	poultry 6.5 million	North East
Carmistin Group	Cattle 2,500	South and South West
Crinsuin	Swine 25,000	South East
Emiliana West Rom	Cattle 1,400	West
Europig	Swine 50,000	Centre
Eurospatial	Swine 24,000	South West
Karpaten Meat	Cattle 2,500	Centre
Nutricom	Swine 60,000, poultry 300,000	South
Nutrientul Group	Swine 42,000, poultry	Several locations nationwide
Pigcom	Swine 24,000	South East
Porcellino Grasso	Swine 23,500	South West
Premium Porc	Swine 380,000	Several locations nationwide
Safir Group	Poultry 420,000	Several locations nationwide
Smithfield Group	Swine 900,000	West
Transavia	Poultry 25 million	Several locations nationwide

3.2 Forest

Romania's forests cover roughly 27 % of the country land surface[13]. Despite having the largest remaining intact tract of contiguous natural and naturally regenerated forests in Europe, the overall area occupied by forests is well below the European average of 42 %, and well below the national target of 40 % set by the government.

Just over 30 % of the forest area is owned by privates. The vast majority of holdings are small and fragmented.

The forest sector in Romania has a very low productivity due to obsolete equipment and insufficient road infrastructure, making it difficult or impossible to reach potentially harvestable forest sectors. This is the result of overexploitation of the easily accessible areas.

Table 3.2: Forest ownership in Romania (from 2011 data)

Ownership	Area (million ha)	Percentage
Public property of the state	3.16	51
Public property of local communities	0.90	15
Private property of communes – indivisible	1.25	19
Private property of physical persons and legal entities (individuals, associations, schools, churches etc.).	1.21	15

Table 3.3: Ownership of private forests (from 2011 data)

Ownership category	Number of owners	Total area (million ha)
Forest < 10 ha	828,000	0.85
Forest > 10 ha	2,200	1.35

The volume of wood harvested in 2015 was 18 million m^3, divide as per the table below.

Table 3.4: Wood harvested annually (from[14] 2015 data)

Species	Million m^3
Coniferous	6.8
Beech	6.2
Oak	1.8
Other hardwood	2.0
Other softwood	1.4

Romsilva[15] is the state-owned authority managing all the state-owned forests plus 1.2 million ha of privately owned forest. It is the main timber and wood biomass producer in Romania.

13 World Bank, 2014, Romania Climate Change and Low Carbon Green Growth Program - Forest Sector Rapid Assessment - http://www.worldbank.org/en/country/romania/brief/romania-climate-change-and-low-carbon-green-growth-program

14 USDA, 2017, GAIN report RO1707 "Romania – forestry and wood products" - https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Forestry%20and%20Wood%20Products%20_Bucharest_Romania_3-20-2017.pdf

15 http://www.rosilva.ro

Privately owned forests not administered by Romsilva are grouped in **Private Forest Districts** (PFD). About 140 PFDs are currently registered in Romania. The umbrella association of PFDs is the **Association of Forest Administrators – Asociatia Admnistratorilor de Paduri[16].**

Proforest is the trade association of private forest land owners.

3.3 Fisheries, aquaculture and the blue economy

Romania produces locally less than 20 % of its consumption of fish, meaning that over 80 % is imported. Of the local production, aquaculture is by far the largest contributor, accounting for roughly 70 % of that volume, followed by inland fishing (around 20 %) and sea fishing (around 10 %)[17].

3.3.1 Fisheries

Sea fishery is marginal in Romania. The fishing fleet on the Black Sea is decreasing due to the decline of stocks and the imposed quotas on endangered species. According to the European Maritime and Fisheries Fund (EMFF) only 91 fishing companies existed in Romania in 2012, 79 % of whom owned a single fishing vessel[18].

The main port on the Black Sea is Constanta. Other fishing harbours are Mangalia, Midia and Sulina.

Inland fishing accounts for roughly twice the production of sea fishing. It is mainly done as a low tech, traditional activity by single fishers and families for own consumption or sold at local town markets.

3.3.2 Aquaculture

Aquaculture, the largest contributor to fish and seafood production accounting for roughly 70 % of the total, is mostly realised in inner waters.

Table 3.5: Aquaculture by Region (from[19], 2013 data)

Region	Units	Facilities	Total area	Nurseries area	Farms area	%
North-East	58	72	9412	942	8470	9,2
South-East	**93**	**99**	**66726**	**3385**	**63341**	**65**
South	**143**	**160**	**14123**	**1473**	**12650**	**14**
South-West	38	39	2544	129	2415	2,5
West	39	37	1709	280	1430	1,7
North-West	66	75	3129	381	2748	3
Center	53	57	2726	83	2643	2,7
Bucharest Region	28	5	1986	0	1986	1,9

16 http://www.ocoalederegim.ro

17 Neculita et al., 2015, Analysis Of Romanian Fisheries And Aquaculture In Regional Context - http://www.seap.usv.ro/annals/ojs/index.php/annals/article/viewFile/803/696t

18 https://ec.europa.eu/fisheries/sites/fisheries/files/docs/body/op-romania-fact-sheet_en.pdf

19 Neculita et al., 2015, Analysis Of Romanian Fisheries And Aquaculture In Regional Context - http://www.seap.usv.ro/annals/ojs/index.php/annals/article/viewFile/803/696

The main actors are reported below.

Table 3.6: Main aquaculture enterprises

Company	Sector	Location (Region)
Doripesco SA	Freshwater fish	Several locations nationwide
Pirania SRL	Freshwater fish	Several locations nationwide
Euro Fish SRL	Freshwater fish	South East
Baltic Marine Grup SRL	Freshwater fish	South
Rompescaris SRL	Freshwater fish	North East

3.3.3 Algae

The only company identified in this field is **Algaefit**, a small producer of microalgae, mainly Spirulina, for food purposes.

04 | Current and potential users of biomass

4. Current and potential users of biomass

4.1 Food industry

4.1.1 Meat

Several national and international players are present, either with (inter)national brand or with a local brand. The following table shows the main dairy players on the market with locally manufactured products.

Table 4.1: Main meat companies

Company	Brand	Origin	Sector
Aldis	Aldis	National	Pork and sausages
Angst	Sibiu, Santi Via	National+Swiss capital	Pork and sausages
Diana	Diana	National	Pork, beef
Smithfield	Comtim	International	Pork and sausages
Cris-Tim	Cris-Tim, Matache Macelaru'	National	Pork and sausages
Unicarm	Unicarm	National	Pork and sausages
Transavia	Fragedo	National	Poultry meat
Aaylex	Coco Rico	National	Poultry meat
Agricola	Agricola	National	Poultry meat
Sigma Alimentos	Caroli, Maestro, Campofrio	International	Pork and sausages
Meda Prod '98	Meda	National	Pork and sausages
H&E Reinert	Reinert	International	Pork and sausages

4.1.2 Fish and aquaculture products

Most of the finfish and seafood raw material is imported. According to the Romanian Fish Processors, Importers, Distributors and Merchants Association RO-FISH, the demand for fish in Romania is supported mainly by imports (87 %) while domestic production represents only 13 %.

Table 4.2: Main fish and seafood players and brands

Owner	Brand	Origin
Ocean Fish	Ocean Fish	National
Negro 2000	Negro 2000	National
Pescado Grup	Bonito, Salmar	National
Sabiko Impex	Sabiko	National
Pestisorul de Aur	De la Pestisoru	National
Costiana	Costiana	National
Doripesco	Delta din Carpati	National

4.1.3 Fruit and vegetables

The Romanian diet is mainly based on meat: a Eurostat survey[20] found that 65 % of Romanians do not consume any fruit or vegetable daily. Potatoes, cabbage and tomatoes are the most consumed vegetables, while apples, melons and exotic fruit are the preferred fruits.

Romania is the European Country with the highest number of vegetables holdings (22 % of the total), but more than 80 % of fruit and vegetables producers are located in holdings sized less than 5 ha.

Only around 40 % of acreage is exploited in farms bigger than 5 ha for fruit production, while the percentage is 50 % for vegetables. [21]

The total area for growing vegetables, represents 7.1 % of the European total and for fruit, 4.5 %.

In addition to the small size and fragmented estates, low productivity is a problem for the Romanian fruit and vegetables segment. Examples are productivity rates for apples and tomatoes: while Romania hosts 9.5 % of the area dedicated to tomatoes in Europe, it produces just 2.6 % of the total tomatoes; while it hosts 10.2 % of the area dedicated to apples, production is just 3.6 % of the total.

Table 4.3: Consumption of vegetables

Product	Annual consumption per capita, 2014 (kg)
Potatoes	100.8
Dried pulses	3.1
Tomatoes	38.1
Dry onion	20.6
Brassicas	44.1
Edible roots	13.6
Green pepper	12.1
Green peas	1.3
Green beans	2.8
Cucumbers	8.4
Other vegetables	17.0

20 http://ec.europa.eu/eurostat/statistics-explained/index.php/The_fruit_and_vegetable_sector_in_the_EU_-_a_statistical_overview

21 Marcu et al., 2015, An Evaluation of the Romanian Fruits and Vegetables Producers Access to Different Types of Common Agricultural Policy Instruments. Is there Any Real Consistency with the Policy Objectives? - http://www.notulaebotanicae.ro/index.php/nbha/article/view/9945

Table 4.4: Consumption of fruit

Product	Annual consumption per capita, 2014 (kg)
Apples	25,2
Plums	4,7
Apricots	2,2
Cherries, sour cherries	4
Peaches, nectarines	4,1
Grapes	6,2
Southern, exotic fruits	25,7
Other fruits	8,1
Melons	21,8

The Ministry of Agriculture and Rural Development (MADR) published a list of 'recognised producers', i.e. those who fulfil criteria set up in Regulation no. 1234/2007 establishing a common organisation of agricultural markets and on legal provisions for certain agricultural products ('Single CMO Regulation'). They are shown in the following table.

Table 4.5: Recognised fruit and vegetables producers according to MADR

Name	Location	Region	Products
SC Certkoop L&F SRL	Focşani, Vrancea county	South East	Fruits and vegetables
SC Prodleg Farm SRL	Galaţi, Galaţi County	South East	Vegetables
SC Mere Casa Panciu SRL	Sârbi, Vrancea county	South East	Fruits
SC Lesim Lero SRL	Arad, Arad county	West	Fruits and vegetables
Cooperativa Agricolă Stoian Land	Constanţa, Constanţa, county	South East	Vegetables
SC Legume Sabangia SRL	Sabangia, Tulcea county	South East	Vegetables
SC Tomate Com. SRL	Dracea commune, Teleorman county	South	Vegetables
SC Agriter Grup SRL	Galaţi, Galaţi County	South East	Vegetables
SC Asociaţia Pomicolă Iteşti SRL	Bacău, Bacău county	North East	Fruits
SC Muncostmar Grup SRL	Tudor Vladimirescu commune, Galaţi county	South East	Fruits and vegetables
SC Dinamic Leg SRL	Galați, Galați county	South East	Fruits and vegetables
SC Sinfrutta SRL	Sânnicolau Mare, Timiș county	West	Fruits and vegetables
SC Agronatural Solutions SRL	Bucharest	Bucharest Region	Fruits and vegetables
SC Gradina de Legume SRL	Bucharest	Bucharest Region	Fruits and vegetables
SC Axerom Grup SRL	Galați, Galați county	South East	Fruits and vegetables
SC Ferma Neagu SRL	Vărăști village, Giurgiu county	South	Fruits and vegetables
Cooperativa Agricola Gheorghe Doja	Gheorghe Doja commune, Ialomiţa county	South	Vegetables

Table 4.6: Recognised fruit and vegetables producer organisations according to MADR

Name	Location	Region
S.C.Hortifruct Bucureşti SRL	Bucharest	Bucharest Region
SC Cerasus Grup Cotnari SRL	Cotnari village, Iaşi county	North East
Societatea Agricolă a Producătorilor de mere Dedrad Batoş	Batoş commune, Mureş county	Centre
SC Agroleg Grup SRL	Galaţi, Galaţi county	South East
SC Brateşleg Grup SRL	Galaţi, Galaţi county	South East
S.C Agro Holding Annabella SRL	Drăgăşani, Vâlcea county	South East
S.C Mărul de Sibiu SRL	Sibiu, Sibiu county	Centre
SC Kronstadt Fructe SRL	Periam commune, Timiş county	West
S.C. V&F Logistic Center SRL	Arad, Arad county	West
SC Grupul de producători agricoli	Reghin, Mureş county	Centre

Romania is highly dependent on imports of fruit (12 % dependency) and some vegetables (34 % for tomatoes)

Among fruit and vegetables importers, a prominent position is held by Serpico Trading, Macromex, Biogama, ACSI Trade, Simba Invest, Nordic Import Export.

Some nationally-owned producers of preserved and frozen fruits and vegetables are present in the Country. They are shown in the table below.

Table 4.7: Producers of preserved fruit and vegetables

Company	Brand	Origin	Sector
Raureni	Raureni	National	Preserved fruit and vegetables
MGC International	Bunatati de Topoloveni	National	Preserved fruit and vegetables
Mandy Foods	Mandy	National	Preserved fruit and vegetables
Contec Foods	Olympia, Winmark	National	Preserved fruit and vegetables
MIB Prodcom	Arovit	National	Preserved fruit and vegetables
Frigorifer	Edna, Casa Taraneasca	National	Frozen fruit and vegetables

4.1.4 Beverages

Romania is home to local branches of the large international players in soft drinks and beer, as well as some local players. According to local consultancy RisCo[22], these were the top 10 companies in the beverages sector in 2014:

- Coca-Cola Romania;
- Ursus Breweries, owned by Asahi Breweries Europe, market leader for beer;
- Heineken Romania;
- PepsiCo Romania;
- Romaqua group, first locally-owned company on the list, active in mineral water and soft drinks;

22 http://www.capital.ro/top-10-producatori-de-bauturi-din-romania-coca-cola-lider-pepsi-pe-locul-4.html?&page=1

- Bergenbier, part of the Molson Coors Group (SABMiller), the world's third-largest beer producer;
- Maspex, Polish producer of fruit juices and soft drinks, but also pasta and other foodstuff;
- European Drinks, local soft drinks producer;
- United Romanian Breweries Bereprod, local brewery;
- Soufflet Malt Romania, local brewery.

Despite having a small area dedicated to vineyards (184,000 ha, 6 % of EU), Romania hosts more than 30 % of the total EU vineyard holdings (855,000, 36 %). This means that the average vineyard in Romania is considerably smaller than in the other EU Countries. The production is scattered in several areas across the country.

The National Vineyard Growers and Wine Producers Association (ONPV) is the reference association.

Liquors are a traditional product from Romania. Some of the most representative distilleries are:

- **Scandic Distilleries;**
- **Alexandrion Group;**
- **Szicsek;**
- **Distilerule Bran;**
- **Prodal.**

A trade association of spirits producers and importers named Spirits Romania exists, representing the following companies: Amigo, BDG, Brown-Forman, Cristalex, Diageo, Pernod Ricard Romania, Prodal, Prodvinalco, PPD.

4.1.5 Dairy products

In Romania, there are approximately 350 companies active in the sector of production of dairy products.[23]

Table 4.8: Dairy production

Product class	Production 2015 (t)
Milk	259,508
Cream	67,385
Acidified milk, yogurt	190,519
Butter	11,196
Cheese	81,650

Several international players are present, either with an international brand or with a local brand. The following table reports the main dairy players on the market with locally manufactured products.

Table 4.9: Main dairy players

Owner	Brand	Origin
Danone	Danone	International
Lactalis	Albalact, Raraul, LaDorna, Zuzu	International
FrieslandCampina	Napolact	International
Fabrica de Lapte Brasov	Olympus	National
Bongrain	Delaco	International
Hochland	Hochland	International

23 https://www.dutchromaniannetwork.nl/wp-content/uploads/2017/01/Food-Report-Romania-2016.pdf

Covalact	Covalact, Friss	National with international capital
Simultan	Sim	National
Lacto Food	Lacto Food	National
Carmo-Lact Prod	Monor	National
Gordon Prod	Gordon	National
Five Continents	Five Continents	National
Lacto Solomonescu	Solomonescu	National
Therezia Prodcom	Therezia	National

4.1.6 Cereal-based foods, bakery

Romania is among the top three Countries in Europe for consumption of bread per capita. It is home to several national and international producers of biscuits, snacks and cakes. Several national and international producers of pasta, both made from corn and wheat, are present.

Table 4.10: Producers of cereal-based products

Company	Brand	Origin	Sector
Dr. Oetker	Dr. Oetker	International	Bakery, flour
Ferrero Romania	Ferrero, Kinder	International	Bakery, chocolate, biscuits
Kandia	Kandia	National	Chocolate
MARS foods	Mars, Snickers, Twix, M&Ms	International	Chocolate, snacks
Mondelez	Lu, Oreo, Ritz, Tuc	International	Snacks
Nestlé	Nestlé	International	Chocolate, snacks
PepsiCo Star Foods	Lay's	International	Snacks
Vel Pitar	Vel pitar, French Toast, Chef Gourmand	National, USA capital	Bread
GoodMills	Titan	International	Bread
Boromir	Boromir	National	Bread, snacks
Pambac	Pambac	National	Bread, pasta
Dobrogea	Bongrana, Eugenia	National	Bread, biscuits, pasta
Croco	Croco	National	Snacks
Alka Co	Alka, Elephant, Toortitzi	National, Israeli capital	Snacks, biscuits, cakes, coffee
Intersnack	Chio	International	Snacks, potato chips
RoStar	RoStar	National	Biscuits
Maspex	Lubella, Arnos	International (Polish)	Pasta (also drinks and other foodstuff)
SAM Mills	Arpis, Pasta d'Oro	National	Pasta
Baneasa Pasta	Baneasa	National	Pasta

4.1.7 Food additives

There are four producers of sugar in Romania: Agrana, Fabrica de Zahar Bod, Tereos and Zaharul Oradea.

Some of the producers of acetic acid: Chemical Company, Silal Trading, Chimopar Trading.

Producers of salicylic acid: Chemical Company, Sinteza.

Vinegar and seasoning producers include: Alexandros Impex, Romvintec, Sitemani.

One main producer of raw materials used for the processed fruit and vegetable industry in Romania is Supremia Grup.

4.2 Wood

Romania has an international trade surplus in wood and wood-articles in value and volume terms. Wood fibreboard accounts for the highest percentage among wood products (21 % in 2016). Wood in the rough ranked second (17 %), builders' joinery followed at 14 %, wood sawn or chipped accounted for 12 %. Other elements such as particle board, plywood, veneered panels and veneer sheets have smaller shares.[24]

Furniture is a major use of wood, with a total value of 2.5 billion €. Imports covered more than half of the domestic consumption, while local production is predominantly export-oriented (85 % of furniture production goes to foreign markets). The sector employs around 61,500 employees in 3,000 companies. High-value furniture items are exported, with EU being the destination for a large part of this segment of furniture. Two fifths of Romanian furniture exports reach Germany and France. Other major markets are Italy, United Kingdom, Czech Republic, and the Netherlands.

A relevant share (28%) of the wood production is consumed for heating.[25]

4.3 Pulp and paper

A list of pulp and paper companies active in the Country is shown below[26].

Table 4.11: Pulp and paper companies

Company	Location	Region	Sector
Vrancart	Adjud	South East	Tissue, cardboard, packaging
Petrocart	Piatra Neamţ	North East	Tissue, cardboard
Ambro	Suceava	North East	Cardboard
Comceh (Sofidel group)	Călăraşi	South	Tissue
Dunapack Rambox	Sfântu Gheorghe	Centre	Cardboard, packaging

24 USDA, 2017, GAIN report RO1707 "Romania – forestry and wood products" https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Forestry%20and%20Wood%20Products%20_Bucharest_Romania_3-20-2017.pdf

25 Combined from USDA, 2017, GAIN report RO1707 "Romania – forestry and wood products" - https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Forestry%20and%20Wood%20Products%20_Bucharest_Romania_3-20-2017.pdf and https://www.pwc.ro/en/press_room/assets/2016/wood-industry.pdf

26 https://www.technavio.com/report/romania-textile-fiber-and-composites-paper-manufacturing-market-romania-2016-2020 and http://www.ceprohart.ro/posdru81/publicatii/buletin%20informativ/bit8.pdf

Monte Bianco	Târgovişte	South	Tissue
Rondocarton	Târgovişte	South	Cardboard, packaging
Packaging	Salonta	North West	Packaging
Pehart Tec	Petreşti	North West	Tissue
Ceprohart	Brăila	South East	Paper, packaging
Somes	Dej	North West	Paper, packaging
Sistelse	Bucharest	Bucharest region	Packaging
Ecopack - Ecopaper	Ghimbav	Centre	Paper, cardboard, packaging
Letea	Bacau	North East	Paper
Rondocarton	Cluj	North West	Cardboard
Elfi	Albota	South	Tissue
Rompaper	Cristian	Centre	Tissue

ROMPAP is the national association of pulp and paper industry.

4.4 Chemical and petrochemical industry

Romania is home to various large chemical and petrochemical complexes.

Table 4.12: Chemical producers

Company	Location	Region	Sector
BASF	Ploiesti	South	Additives, coatings
Chimcomplex Borzesti	Borzesti	North East	Chlorates, chlorines, organic solvents, alchilamine
Oltchim	Valcea	South West	Polyurethanes, epoxy, lubricant, additives
Chemical Company	Iasi	North East	High purity organic and inorganic chemicals

Table 4.13: Oil refinery and petrochemical plants

Company	Location	Region	Sector
Arpechim	Ploiesti	South	Petrochemical plant
Petrobrazi	Ploiesti	South	Petrochemical plant
Petromidia	Midia	South East	Petrochemical plant
Petrotel Lukoil	Ploiesti	South	Petrochemical plant
RAFO	Onesti	North East	Petrochemical plant

APDCR is the Romanian association of chemical producers and distributors.

05 | CLUSTERS AND ASSOCIATIONS

5. Clusters and associations

5.1 Industrial clusters

The Romanian Clusters Association 'ClusteRo'[27] acts as an umbrella organisation for local industrial clusters. It groups 21 clusters from all over the country, among whom Agro-Food (Bucharest), Agro-Food (Covasna), Pro-wood, Green Energy.

ClusteRo has several initiatives which may be related to bioeconomy in place, in particular a Swiss-Romanian bilateral cooperation on eco-innovation, a national network for eco-innovation and a "Green entrepreneurs club".

Sector clusters related to the bioeconomy are listed below.

AGROFOOD - The Regional Cluster of Food Industry and Products, centre

The Cluster groups 27 companies, 16 banks and foundations, 5 universities and research centres and 6 public institutions from the Centre region.

The Cluster's aim is to 'set up a wide partnership to support companies which provide agricultural products, to increase competitiveness, where the common knowledge and the innovative skills concentrate on the research-development capacities'.

Website: http://www.agrofoodcovasna.ro/

Members: Badi Mustar, Prod Agricom, Bertis, Bertikris, Biofarm, milkcom, Societatea Agr. Silv-alim, Solfarm, Spicom, Timate, Szicsek, Romion agri, Milkprod, Wega invest, Prodspicomp, vancsa Multipast, Madexport, Prodcomplus, Toro impex, Meotis, Comer enis, Prosperland, Nexxon, Vinalcool,

AGROPRO Oltenia Cluster, south-west

The Cluster Groups 11 industries, 4 universities and research centres, 11 associations and public institutions. It is incorporated within the Regional Development Agency of Oltenia, which corresponds to South-West.

Website: http://www.adroltenia.ro/clustere/

Members: Agentia pentru Dezvoltare Regionala Sud-Vest Oltenia, Universitatea din Craiova, Facultatea de Agricultura si Horticultura, Consiliul Judetean Olt, Primaria Turceni, Primaria Dabuleni, Primaria Sisesti, Primaria Bustuchin, Primaria Calarasi, Primaria Teasc, Liceul Tehnologic " Petre Banita" Calarasi, Centrul de Cercetare-Dezvoltare pentru Cultura Plantelor pe Nisipuri Dabuleni, SC Triumviri Comex SRL, Societatea Agricola AGROSUD Calarasi, SC Chimro Prod SRL, SC Agronova SRL, S.C. Domino S.R.L, O.U.A.I. Valcovia Olt, O.U.A.I. Racari Olt, Asociatia Crescatorilor si Cultivatorilor "Gospodarii Olteniei", SC Trade Development Group Commerce House SRL, SC Oltenia Garden SRL, SC Agrifarm SRL, SC Tristan Farms SRL, SC Isolde Farms SRL Craiova, SC Longin SRL

AgroTransilvania Cluster, North-West

The Cluster groups 29 companies, 2 universities and 3 public administrations from the region of Cluj Napoca (north-west).

27 http://clustero.eu

It lists among its objectives:

- create and develop a harmonious interaction between all stakeholders operating in the value chain in the agro-industrial complex;
- develop a platform for research, development and innovation. Drive the private sector towards innovation and technology transfer;
- support and promote project of common interest, including projects abroad.

Website: http://agrocluster.ro/

Members: COSM-FAN CARMAGERIE, BONAS IMPORT EXPORT S.R.L, ONCOS PROD S.R.L., MARIFLOR PRODCOM S.R.L., MIB PRODCOM S.R.L., XAMUS IMPORT EXPORT S.R.L., EVEREST PRODSERV S.R.L., FABRICA DE BRANZETURI TRANSILVANIA, ASOCIAȚIA IJARUL, COOPERATIVA AGRICOLĂ SOMEȘ ARIEȘ, COOPERATIVA AGRICOLĂ LUNCA SOMEŞULUI MIC, AGRO TURDEAN IMPEX S.R.L., PFA SECARĂ DOREL VIOREL, TEHNOSTAR S.R.L, PRIMCHIM S.R.L, AQUADOX S.R.L, TEHNOFAVORIT S.A., CONF TUB INOX S.R.L, MECANICA HUEDIN S.A., GRATECO TEHNOPLUS S.R.L, ADISAL TH, GLUECHIM, STUPARUL PUNCT RO, GLOBAL DISTRIBUTION GROUP S.R.L., DLG INTERMARKETING S.R.L, FUNDAŢIA HEIFER PROJECT PENTRU ROMÂNIA, HOSTVISION S.R.L, FOOD TRANSILVANIA MARKET, CENTRUL AGRO TRANSILVANIA

IND-AGRO-POL, Bucharest region

The Cluster has 95 members, including 50 SMEs.

It lists as its fields of activity:

- manufacture of technical equipment for agriculture and food industry;
- bio-economy;
- renewable energy;
- environment and climate changes;
- eco-technologies and advanced materials;
- information technology and communications.

Website: http://www.inma.ro/indagropol/

Members; SC COMPOZITE SRL/ Brasov, SC IMS WERKZEUGBAU SRL/ Brasov, SC RANCON SRL/ Iasi, SC METATECH-CD SRL, SC RURIS IMPEX SRL/ Craiova, SC SERVOPLANT SRL/ Bucuresti, SC PROFILAM EXIM SRL/ Otelul Rosu, SC Universal Exim SRL/ Bucuresti, SC Valtec Tractors Industry SRL/ Bucuresti, SC MECANICA CEAHLAU SA, SC INPULSE PARTNERS SRL, SC GAPA SRL, SC ECOVIABLE INGENIERIE SRL, SC ECO BIHOR SRL, SC EUROCONEX SRL, SC DAIRY MAX INTERNATIONAL SRL, SC SALBAC SA, SC ALEXANDRION GRUP ROMANIA SRL, Manufacturers and Importers Association of Tractors and Agricultural Machinery from Romania – APIMAR/ Bucharest, Society of Mechanical Agricultural Engineers from Romania – SIMAR/Bucharest, National Institute of Research - Development for Machines and Installations Designed to Agriculture and Food Industry – INMA/Bucharest and branches / Timisoara, Cluj Napoca, Politehnica University of Bucharest, University in Agronomy and Veterinary Medicine - Bucharest, University of Agricultural Sciences and Veterinary Medicine - USAMV Iasi/ Iasi, Research Institute for Hydraulics and Pneumatics – INOE 2000, National Research and Development Institute for Electrical Engineering ICPE-CA / Bucharest, National Institute of Biological Sciences – INSB/ Bucharest, National Institute of Research and Development for Mechatronics and Measurement Technique / Bucharest, National Research Institute for Food Bioresources Development, National Institute for Small and Medium, Federation for Democracy, Culture and Freedom – FDCL/ Bucharest,

PRO WOOD Regional Wood Cluster, centre

The Cluster has 32 industrial members and its main objective is to foster the competitiveness of the local forest-based value chains. The Cluster is a participant in the Interreg project FORESDA - Forest based cross-sectoral value chains fostering innovation and competitiveness in the Danube Region.

Website: www.prowood.ro

Members: AKÁRMI S.R.L, ARTA VERES S.R.L, BALÓ SÁNDOR P.F.A, BARIBUTOR S.R.L, BENATI S.R.L, BIO HAUS S.R.L, COBRA PRODEXIM S.R.L, CONAFMA B.B S.R.L, DOMINO DECOR S.R.L, EX-FOR S.R.L, FATIP S.R.L, FENESTELA 68 S.R.L, GEMELLI IMPEX S.R.L, GRIZZLY&CO DESIGN STUDIO, HOLZBAU IMPORT-EXPORT S.R.L, HOLZINDUSTRIE SCHWEIGHOFER S.R.L, IMPORT EXPORT IBA S.R.L, KOQS S.R.L, KRISTÓ S.R.L, MAXIMO IMPEX S.R.L, MONDOIMPEX S.R.L, NABOR S.R.L, OLIVER S.R.L, PRODUCȚIE COMERȚ ȘI TURISM ”CONECTIC” S.R.L, PRODUCȚIE MULTINR. S.R.L, PRODUCȚIE și COMERȚ ”BETA” S.R.L, SCULPTURA SECUIASCĂ S.R.L, SEBAGO MOB S.R.L, TÁNCZOS TUZSON COM S.R.L, TOFER S.R.L, ULTRA MOB S.R.L, WOOD MANAGEMENT S.R.L

Green Energy, centre

The Cluster aims to link biomass producers and users along multiple value chains, focusing on energy use of agricultural and forest residues.

It groups 25 companies and 45 other entities active in the sector of biomass and bioenergy.

Website: http://www.greenenergycluster.ro

BIODANUBIUS, south-east

It is a small cluster with 7 members located in Danube delta region. Its focus is on promoting sustainable industrial activities in such a biodiversity-rich region. The fields of activity are: Bio-economy and Bio-agriculture, Pisciculture, Tourism, Logistics-transportation, Protection and conservation of the environment, Renewable energies, Creative and cultural sectors, Social Innovation.

Website: http://biodanubius.ro/

Members: MANOR Laboratory Centre, LTA Mondial, Agrichim, Bio Romania, Rezervatia Biosferei Delta Dunarii, Incod Tulcea, Universitatea Spiru Haret

5.2 Sector associations

Romanian Employer Federation from Food Industry (ROMALIMENTA, http://www.romalimenta.ro/) is the reference player in the food and drinks industry. It groups 18 large companies and 8 sector associations:

- **Industry**: Aldis, Angst Ro, Bunge Romania, Coca-Cola HBC Romania, Danone P.D.P.A, Diana, Dr. Oetker Ro, Ferrero Romania, Kandia Dulce, Mars Romania, Mondelez Europe Services Gmbh Opfikon – Sucursala Romania, Nestlé Romania, PEPSICO Romania / STAR FOODS, Premier Restaurants Romania (owner of the Mc Donald’s brand), Red Bull Romania, Sitemani, Unilever South Central Europe SA, Ursus Breweries SA;

- **Associations**: Asociatia Berarii Romaniei (BR) – Association of Breweries, Asociatia Nationala pentru Bauturi Racoritoare (ANBR) – Association of producers of soft drinks and juices, Asociatia Patronala Romana din Industria Laptelui (APRIL) - – Association of milk producers, Asociatia Producatorilor de Hrana pentru Animale de Companie (ARPAC) – Association of producers of petfood, Patronatul apelor minerale din Romania (APEMIN) – Association of mineral water producers, Patronatul Roman din Industria de Morarit Panificatie si Paste fainoase (ROMPAN) – Association of bakeries and pasta producers, Asociatia Producatorilor si Furnizorilor de Ingrediente pentru Industria Panificatiei, Patiseriei si Cofetariei (FEDIMA) – Association of producers of food additives and ingredients.

National Federation of the Producers in Agriculture, Food Industry and Related Services (PRO AGRO, http://www.cnproagro.ro) is an umbrella organisation grouping the following organisations:

- League of Romanian Irrigation Water Users- L.U.A.I.R.;
- National Association of Young Romanian Farmers - A.N.T.P.A.R.;
- Romanian Farmers Association- A.F.R.;
- Romanian Union of Poultry Breeders- U.C.P.R.;
- National Interbranch Organization of Wine- O.N.I.V.;
- Romanian Association of Pork Meat Producers- A.P.C.P.R.;
- Romanian Federation of Mountain Shepherds - F.O.M.;
- National Association of Milling And Bakery Industries In Romania - A.N.A.M.O.B.;
- Pro Romanian Food Association - A.P.A.R.;
- Romanian Association of Cattle, Sheep And Swine Breeders And Exporters - A.C.E.B.O.P.;
- Romanian Association of Beekeepers - A.C.A.;
- Romanian Association Biomass and Biogas- A.R.B.I.O.;
- Romanian Meat Association - A.R.C.;
- Association Of ‘Holstein Ro’ Cattle Breeders- A.C.V.- Holstein Ro.;
- Federation Cattle Breeders of Romania - F.C.B.R.;
- The Romanian Fisheries Association - P.P.R.;

Romanian Chemical Producers and Distributors Association (APDCR, http://www.apdcr.ro) groups producers and distributors from the petrochemical sector. Its members are BASF, Brenntag, Chimcomplex Borzesti, Donau Chem, Dow, Elton, Interallis Chemicals, Oltchim, Nordmann Rassmann and Ravago Chemicals.

06 | CAMPUS, INCUBATORS & TECHNOLOGY PARKS

6. Campus, incubators and technology parks

Liberty Technology Park is the largest technology park in Romania. It is located in Cluj Napoca, in the north-west region. It hosts several large hi-tech companies as Siemens and Altran, but also start-ups- No evidence of bio-based operations was found.

Two large technology parks are currently (October 2017) being built, Vox Technology Park in Timisoara (west) and Bihor MedTech Scientific and Technological Park in Oradea (north-west).

A list of incubators active in the Country is reported below.

Table 6.1: Clusters and incubators

Incubator	Location	Region	Active in bioeconomy
Risky Business	Cluj Napoca	North West	Yes
Innovations by Crossrider	Bucharest	Bucharest region	No
SprintPoint	Cluj Napoca	North West	Yes
Privacy Accelerator Program	Bucharest	Bucharest region	No
Seed for Tech	Cluj Napoca	North West	Yes
StepUP	Cluj Napoca	North West	Yes
Simplon	Cluj Napoca	North West	Yes
Gemini Solutions Foundry	Bucharest	Bucharest region	No
Innovation Labs	Bucharest	Bucharest region	No
Spherik Accelerator	Cluj Napoca	North West	No
AICAR	Alba Iulia, Brasov, Mangalia, Sfantu Gheroghe, Targu Mures, Cluj Napoca, Bacau, Satua Mare, Dorotoi, Campia Tutzii, Timisoara	Government supported nationwide network	

A Romanian Institute for Bioeconomy exists in Bucharest, but its website is currently under maintenance.

07 MARKET ACTORS: BRAND OWNERS AND CONSUMERS' ASSOCIATIONS

7. Market actors: brand owners and consumers' associations

Romania is home to local branches of most of the global consumer brands.

A survey conducted by Superbrands Romania in 2016 gave the following results in consumers' brand recognition:

1. OMV Petrom – fuels.
2. ARIEL – detergent.
3. Bonduelle – food.
4. Borsec – mineral water.
5. Carlsberg – beer.
6. Castrol – lubricants.
7. Catena – pharmacy chain.
8. DHL – courier.
9. FAN – courier.
10. Gerovital – cosmetics.

APC Romania is the leading consumers' association.

Bio·based Industries Consortium

http://biconsortium.eu

Bio-based Industries Consortium
European Forestry House | Rue du Luxembourg 66 | B-1000 Brussels | Belgium
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