

Policy Report

on instruments to connect
biological streams, research
results and investors



European Union
European Regional
Development Fund

12/2018

Content

Introduction	3
Finland, Päijät-Häme region	4
The Finnish Operational Programme in Päijät-Häme Region.....	4
Example: Regional Road Map towards Circular Economy.....	4
Example: Solving Circular Economy Challenges in the Grain Cluster.....	5
Spain, Castilla La-Mancha Region	7
The ERDF Castilla-La Mancha.....	7
Example: A demonstration Level R&D Biorefinery - CLAMBER.....	7
Greece, Region of Central Macedonia	9
Regional Operational Programme of Central Macedonia.....	9
Example: Decentralised Energy Generation through Biomass Gasification - BIO2CHP.....	11
Slovakia, Nitra Region	12
Operational Programme Quality of Environment.....	12
Example: Separate Collection and Recovery of Biodegradable Waste.....	12
Programme of the Economic and Social Development of the Nitra Self-governing Region 2016 – 2022.....	13
Example: Programme to Support Integrated Rural Development LEADER NSK.....	13
Romania, South Muntenia Region	15
Competitiveness Operational Programme.....	15
Example: A Project in Bio-based Circular Economy - SECVENT.....	16
National Rural Development Programme (PNDR) 2014-2020.....	16
France, Pays de la Loire Region	17
Regional Policy Framework.....	17
Example: Reduction of Biowaste as Share of Domestic Waste.....	17
Example: Bringing together the Anaerobic Digestion Actors in Pays de la Loire - Cluster Méthatlantique.....	18

Introduction

BIOREGIO Project (2017-2021), funded under Interreg Europe, aims to boost bio-based circular economy (CE) through a transfer of expertise about best available technologies and cooperation models. The project has in focus regional funding instruments from six EU countries, Finland, Spain, Greece, Slovakia, Romania and France, and is involving a large number of stakeholders who are supporting the development of bio-based CE models, to improve resource efficiency and reduce the environmental impact of biowaste.

There are significant differences between the regions united in this project, from the way regional funds are allocated to policies and involvement of local stakeholders (authorities, industries, public) in the management of biological streams.

One of the expected outputs of the project is to prepare Action Plans to improve the

policy instruments in focus towards supporting bio-based CE in the participating regions. In this respect, research and innovation play an essential role in developing new technologies for the valorization of biowaste.

In this report, the project partners have reviewed the instruments that are currently in use in their regions and have the potential to facilitate the transfer of research results to industrial partners operating in the field of biowaste and biological streams.

The report is part of the exchange of experience and good practices, and is meant as inspiration in preparing the Action Plans to improve policy instruments in this field.



Partners in BIOREGIO:

Lahti University of Applied Sciences, Finland

Regional Council of Päijät-Häme, Finland

Deputy Regional Ministry of Environment, Spain

Slovak University of Agriculture in Nitra, Slovakia

Aristotle University of Thessaloniki, Greece

Regional Development Fund of Central Macedonia on behalf of the Region of Central Macedonia, Greece

National Research and Development Institute for Chemistry and Petrochemistry ICECHIM Calarasi Subsidiary, Romania

Association of the Chambers of Agriculture of the Atlantic Area, France

Finland, Päijät-Häme region

The Finnish Operational Programme in Päijät-Häme Region

The good practices presented in this report from the Päijät-Häme region are funded from the European Regional Development Fund (ERDF) through the Finnish Operational Programme “Sustainable growth and jobs 2014-2020 – Finland’s structural funds programme” (OP). The programme has five priority axes, two of which apply to ERDF: P1) “Competitiveness of SMEs” and P2) “Producing and using the latest information and knowledge”. P1 aims at generating new business, promoting growth and internationalisation of enterprises. P2 aims at developing centres of research, expertise and innovation on the basis of regional strengths, strengthening innovation as well as developing solutions based on renewable energy and promoting energy efficiency.

The OP is implemented in the larger area of Southern Finland (two combined NUTS 2 regions), comprising six NUTS 3 regions: Helsinki-Uusimaa, Kymenlaakso, South Karelia, Päijät-Häme, Kanta-Häme and Southwest Finland. Overall, Southern Finland is a well-developed area; however, there are sub-regions that suffer from dramatic restructuring. Narrowing the gaps inside the area is, therefore, the most important task of regional development financing. The OP steers the selection of regional development projects. Yet, each region’s Smart Specialization Strategy (RIS3) and other regional strategic documents play an important role in steering the implementation of the programme.

The Päijät-Häme regional development strategy and programme 2018-2021 was updated in the year 2017. The programme also includes the RIS3 spearheads, which are defined as

1) CE, 2) design and 3) sports & experiences. The main priorities of the regional development programme are:

- 1) Increasing the attractiveness of the area by making Päijät-Häme a sustainable choice and investing in services and culture
- 2) Increasing the value of services and products through investing in developing new technologies and processes, as well as by increasing internationalisation of companies
- 3) Strengthening new growth areas through innovative pilot solutions and investing in brave education choices

The examples presented below are co-funded by the ERDF. The managing authority of the ERDF program is the Ministry of Employment and the Economy and the intermediate body is the Regional Council of Päijät-Häme.

Example: Regional Road Map towards Circular Economy

As a part of the Päijät-Häme regional development strategy and programme, a joint regional CE strategy for the nine municipalities in Päijät-Häme was launched in September 2017. The process of creating “a road map towards CE” is an example of utilizing a structural fund project (ERDF) as a tool in strategic development. A 2,5 years long project (2016-2018) tackling CE was funded from the OP’s Priority 2 delivering the specific objective 4.1. “Developing research, competence and innovation clusters that draw from regional strengths”. The project’s total budget was about 995 000 € (70% funding rate from ERDF), however, only a small share of the project was dedicated to developing the road map.



The CE strategy process i.e. the road map, was planned together with The Regional Council of Päijät-Häme and Lahti University of Applied Sciences. Lahti University of Applied Sciences coordinated the development phase as a part of the ERDF project. The project also provided necessary background information on e.g. regional material flows and regional CE actors.

Setting up the road map involved intense work with the regional stakeholders to define the common vision, regional aims and concrete actions. This was organized through workshops, discussions, a request for comments from additional stakeholders through a survey and direct emails. The stakeholders involved in the process included the regional council, other regional and municipal authorities, academia, a regional development organisation, as well as public and private companies. This regional CE stakeholder group will update the road map annually; the first update was carried out in September 2018. The road map process continues through implementation, identification of new opportunities and involvement of new actors through novel solutions.

Developing the regional CE strategy connected stakeholders and research with the authorities through the joint aim. Funding from the ERDF policy instrument enabled this project to be a tool in strategic development.

Example: Solving Circular Economy Challenges in the Grain Cluster

The Päijät-Häme Grain Cluster is a cooperation network of the local grain value chain aiming at finding synergies, innovations and solutions for CE. The cluster brings together all actors in the region, from grain producers to industry and retail, both large international to small craft companies, including mills, breweries, bakeries and a malt producer. In total 14 companies, two advisory organisations and about 1000 farmers are connected through the network. The cooperation model was founded in 2003 and it is shown to be exceptional on an international scale.

During 2016-2018 a project was carried out with a focus on increasing the growth of the cluster's companies by developing the use of

their process residues. The activities were co-ordinated by the regional development company. The project was funded from the OP's Priority 2 and it delivered the specific objective 4.1. "Developing research, competence and innovation clusters that draw from regional strengths". The project's budget was 1 70 000 € (70% funding rate from ERDF).

Different ways to utilise industrial side streams of the Grain Cluster companies were studied in co-operation with universities and research institutes. The studies included the use of brans remaining from grain milling in baking as well as the separation of lignin from brans to make other products. The utilisation of other biological side streams, such as mash originating from beer production, was also investigated in the project.

The study results revealed, for example, that grain-based side streams have high nutrient concentrations, allowing them to be used as

a material for forest fertiliser. It was also found out, that lignin can be used in many ways, but separating it from brans would be cost-effective only if also other materials were separated simultaneously.

The project actions included seminars, pilot actions and studies that addressed the exploitation of side streams. Some of the tested models proved promising, but they still need to be further tested and developed to be implemented by the Grain Cluster companies. Based on the results, the use of grain-based residue material in package material production and forest fertiliser production will be further investigated.

The example shows how funding from the policy instrument developed the Grain Cluster companies' knowledge and capacities in increasing the value of their side streams. This can initiate new business models based on CE.



Spain, Castilla La-Mancha Region

The ERDF Castilla-La Mancha

The ERDF Programme for Castilla-La Mancha includes the priorities related to the ultimate aims determined in accordance to the development priority axes of the region, encouraging innovation and the knowledge economy by promoting R&D, the information society and a better coordination of the elements forming part of the regional innovation system.

The 2014-2020 Programme identifies several priorities to reach smart, sustainable and inclusive growth and to achieve economic, social and territorial cohesion. However, only the PA6 deals with environmental conservation and protection, and promoting resource efficiency. In relevance to the BIOREGIO project, PA 6 includes the specific objective 6.1.1.: to implement waste separation and treatment, including closing the loops actions; and both waste facilities and management plans.

A good practice presented from the Deputy Regional Ministry of Environment of Castilla-La Mancha, funded from the European Regional Development Fund (ERDF) through the Castilla-La Mancha Operational Programme 2014-2020 is presented below.

Example: A demonstration Level R&D Biorefinery - CLAMBER

At the end of 2013, the Governing Council of Castilla-La Mancha gave the green light to an agreement with the Ministry of Economy and Competitiveness with the aim of boosting the bioeconomy in Castilla-La Mancha and laying the foundations to turn the region into the reference for southern Europe in the field of biomass research. Thus, the CLAMber project was born (Castilla- La Mancha Bio-economy Region)



based on two main axes: a pilot scale biorefinery and the hiring of R&D services to help the development of applied research for the SMEs in the region.

In August 2014, the public tender was announced for the scientific-technical advisory service for the CLaMber project, which was finally awarded to Ciemat (Research Centre for Energy, Environment and Technology). This centre was in charge of guiding CLaMber in the conception, design and construction of the biorefinery pilot plant and in the definition, implementation and monitoring of an R&D&I program.

Specifically, the CLAMBER biorefinery has been financed by the Regional Administration itself and by ERDF funds. The final budget was 16.1 M€, 80% ERDF funds co-financed by the Ministry of Economy and Competitiveness (MINECO). Nowadays, CLAMBER Biorefinery has an annual investment of 1.4 M€ from the regional government and has 11 qualified workers.

The CLAMBER R&D Biorefinery has two main lines of research: valuation of lignocellulosic waste (vine shoots, olive branches, pruning, residual straw, etc.) and fermentable wet biomass (slurry, whey, sludge, meat meal, etc.).

Likewise, the CLAMBER R&D biorefinery has a pre-treatment method based on a Steam Explosion system which is capable of treating 1 ton per day (with the possibility of tripling its production if it works in 3 shifts) and which allows high added value bioproducts to be obtained from cheaper, abundant woody and herbaceous waste that does not compete with food production.

Finally, its business plan is based on providing its services to those companies or organisms that have developed at laboratory scale a new bioprocess for the valorization of biodegradable wet biomass or lignocellulosic biomass, who can perform scale-up experiments at a size very close to industrial to determine their technical and economic viability, as well as optimizing the operating parameters for the subsequent design and construction of the industrial plant.

CLAMBER R+D biorefinery acts as a Public Research Organisation. It can collaborate with companies either by providing paid, contract based, services or by participating as a partner in EU funded projects.

Greece, Region of Central Macedonia

The elaboration of a national CE strategy has been put forward, in view of the strong EU focus and the actual SME orientation towards CE applications and synergies, detected at national and regional level. In this respect the meantime Deputy Minister of environment and energy presented to the public the main topics of the national strategy for CE and announced a public consultation from 24th May until 26th June 2018. Currently the CE concept is not broadly addressed in the national legislation; a key reference is made in the Law for alternative management of packaging and other products (L.4496/2017).

In a regional level, the Region of Central Macedonia has created an action plan for CE which composed of 3 main pillars:

- Integration of CE actions at the ROP 2014-2020. At the moment the Region of Central Macedonia (RCM) proposed the introduction of measures and activities at the ROP CM 2014-2020, through which SMEs will be financed for investments for the transition to CE. Specifically, the promotion of CE is proposed to be implemented in three dimensions: (1) Introduction of the "CE" criterion in the evaluation procedures of the ROP 2014-2020 to calls that concern funding of SMEs; (2) Creation of a structure to promote the idea and good practices on CE; (3) Innovation vouchers for SMEs for funding actions based on CE. At a public level, the public consultation for the National Strategy for CE has been concluded in June 2018.

- Integration of "CE" at the ROP RCM in the next programming period (2021-2027). CE will be explicitly reflected at the Region's of Central Macedonia financial priority axes.

- Targeted strategic actions of RIS3 at RCM to enforce CE. Specifically, RCM have concluded a Preliminary Action Plan that indicate relevant proposals for champions and horizontal support areas, which will be finalized after consultation between governance bodies and enterprises. In this plan, one of the sectors that will be included as a unique sector in our RIS3 strategy, is CE.

Regional Operational Programme of Central Macedonia

Regional Operational Programme (ROP) is the most important funding and development tool for the Region that include projects and regional scale actions and leverages local strengths. It is funded by the European Regional Development Fund (ERDF) and the European Social Fund (ESF). Its purpose is to strengthen the capacity of RCM to implement a full range of actions that aim to serve the RIS priorities. The Regional Operational Program of Central Macedonia was approved on 17.12.2014 by the European Commission and is the main programmatic and financial instrument supporting the development policy of the Region of Central Macedonia for the period 2014-2020. The programme was designed and submitted to the European Commission following an open consultation with the social and economic partners as well as with the citizens of the Region of Central Macedonia in line with the National Strategic Reference Framework for the period 2014-2020.

The Regional Operational Program of Central Macedonia is focusing in its transition to CE through the implementation of actions, as described in the following Priority Axis:

PRIORITY AXIS 1: Strengthening research, technological development and innovation

Within this axis will be implemented actions that are qualified by the Regional Strategy of Smart Specialization and concern:

- Promoting Applied Research in areas of interest for the MS.

- Promoting investments by SMEs to develop products and services in the areas of smart specialization. Strengthening the capacity of the MS business research and innovation production in priority sectors of the Regional Strategy Smart specialization (RIS3), through grant schemes and innovation vouchers.

- Creation of permanent cooperative mechanisms to support research ecosystem - Innovation - Entrepreneurship: creating lasting shareholder cooperation mechanisms of the "Triple Helix" regional RIS3 aimed at efficient production, dissemination and exploitation of the knowledge.

PRIORITY AXIS 3: Enhancing the competitiveness of small and medium-sized enterprises (SMEs)

The Axis targets Regional SMEs with a view to promote entrepreneurship, innovation, competitiveness and extroversion in the national and global context, as follows:

- Support to knowledge-intensive, innovative entrepreneurship: provision of grants for the creation of innovative start-up (including spin-offs, spin-outs)

- Increased supply of innovative products and services by SMEs -reinforcement of SME's capacity to innovate and introduce new products and services in the market

- Increase SME productivity and extroversion. The action will target individual SMEs or SMEs formations (Clusters) in the Region of Central Macedonia

PRIORITY AXIS 4: Supporting the move towards a low carbon economy in all sectors - more environmentally friendly.

In particular, the following interventions are envisaged:

- Increasing energy efficiency and utilizing renewable energy in public buildings and public infrastructures.

PRIORITY AXIS 6: Preserving and protecting the environment and promoting the efficiency of the use of natural resources

Projects and actions are foreseen, as follows:

- Improvement and protection of the natural environment with emphasis on the protection of biodiversity: Enhancement of Protected Areas Management Bodies for the management of natural environment and biodiversity in the Nature

- Rehabilitation and revitalization of deprived urban areas and improvement of the urban environment

In the Region of Central Macedonia CE is gaining momentum since numerous SMEs are already demonstrating considerable interest in developing synergies and implementing relevant projects. Successful CE applications and best practices are already evident in the region, and stakeholders are promptly participating in the Local Stakeholder Group meetings. The regional efforts are complemented by the region's participation in the RIS3 "agri-food" JRC platform.

The BIOREGIO project is currently advocating for a respective shift in the focus in the terms of circular bioeconomy of the Regional Operational Programme 2014-2020 of the Region of Central Macedonia. The endeavor is concentrated on influencing the contents of the "Call for Proposals" dossiers and -in particular- the Project Selection Criteria, in order to encourage and streamline interventions that promote the transition to a production model that is built around the CE principles.

**Example:
Decentralised Energy Generation
through Biomass Gasification - BIO2CHP**

BIO2CHP in a example of decentralised bioenergy generation. It combines two established technologies, gasification and internal combustion engines, which are brought together through an automated control system, allowing energy production in small-scale applications at a price 3-4x lower than the grid (based on the average EU price). A working pilot was developed under EU LIFE08 ENV/GR/000576 financing with an overall budget of 947.287,00€ and has proved its potential for operation in real life conditions. LIFE is the EU's financial instrument supporting environmental, nature conservation and climate action projects throughout the EU. Since 1992, LIFE has co-financed more than 4500 projects.

BIO2CHP operated for more than 3,000 hours, using grape pomace, olive & peach kernels, almond shells, etc., producing heat & power



on-site. The whole system is included inside a container and operates automatically with minimum intervention. The system uses the raw residual biomass that is currently treated as waste or goes to low added-value channels, for the on-site heat and power production, minimizing both energy and waste handling costs. Results showed that for every 50kW_{el} unit, 156 tn CO₂eq per year can be saved which is equivalent to the electrification of 22 typical households. Compared to other waste-to-energy systems the main differentiating characteristic is the scale / size (<150kW electric), while also the ability to use untreated residual biomass focusing on agro-food industry wastes.

Slovakia, Nitra Region

Operational Programme Quality of Environment

The Operational Programme Quality of Environment (OPQE) is Slovakia's programming document for use of EU Structural Funds and the Cohesion Fund in the programming period 2014 – 2020 in the field of sustainable and efficient use of natural resources, protecting the environment, active adaptation to climate change and support energy-efficient and low-carbon economy. The Strategy of the OPQE, i.e. the selection of thematic objectives and the relevant investment priorities, as well as the definition of specific objectives, results and types of activities, was set out to be: (1) support the implementation of the priorities defined in Europe 2020 Strategy; and (2) to respect the needs and challenges of national and regional level, which need to be addressed in order to ensure the sustainable and efficient use of natural resources, including energy sources. The Strategy of the OPQE also has the potential to contribute to smart growth.

Priority axis addressing the issue of biological streams:

2.1 PRIORITY AXIS 1: SUSTAINABLE USE OF NATURAL RESOURCES THROUGH THE DEVELOPMENT OF ENVIRONMENTAL INFRASTRUCTURE

2.1.1 INVESTMENT PRIORITY 1 of the Priority Axis 1: 1.1 Investing in the waste management sector in order to meet the requirements of the EU environmental acquis and to meet the needs specified by Member States in relation to investments beyond those requirements

SPECIFIC OBJECTIVE 1.1.1: Improvement of waste recovery rates focusing on their preparation for re-use and recycling and support for the prevention of waste

This specific objective will be implemented through four activities, including Activity B: Preparing for re-use and recovery with a focus on non-dangerous waste recycling, including support for separated municipal waste collection systems and support for the prevention of biodegradable municipal waste. The

target groups are the entities of local government; government budgetary organizations, state contributory organizations; associations; non-profit organizations providing services of general interest to natural or legal persons who are eligible for business activities. Based on the broadest investment priorities, the largest share – 47.04% of the total financial share was allocated to Priority Axis 1. The total allocation for Priority Axis 1 is EUR 1,842,308,359, of which EUR 1,475,851,729 (i.e. 80.11%) represents an EU contribution. National co-financing consists of national public and private sources. The managing authority of the OPQE is the Ministry of the Environment of the Slovak Republic and the intermediary body is the Slovak Environmental Agency.

Example: Separate Collection and Recovery of Biodegradable Waste

In the previous programming period, the Operational Programme Environment (OPE) was the predecessor of the current OPQE. Experience with the implementation of the OPE in the 2007 – 2013 programming period shows its generally well-chosen strategy. The suitability of the OPE Strategy is also demonstrated by the continuous results of the implementation, i.e. from the point of view of fulfilling the set objectives as well as from the point of view of absorption capacity. The demand for applicants significantly exceeded the available allocation.

One of the projects that was financed from the OPE is also the very successful project "Separate Collection and Recovery of Biodegradable Waste" implemented by the Association for Separate Waste Collection of the Ponitrie Region for more than 80,000 inhabitants of 57 member municipalities in the Nitra Self-Governing Region. Project addresses waste man-



agement in municipalities in a unified way and is based on the principles of circular bioeconomy. The total investment expenditure of the Project is EUR 10,192,582.25. The OPE provided an amount of EUR 9,682,953.14, representing 95% of the total eligible expenditure. The project also represents an example of Good Practice published in the Interreg Europe database.

Programme of the Economic and Social Development of the Nitra Self-governing Region 2016 – 2022

The Nitra Self-Governing Region (NSGR) is a dynamically developing region whose priority is to build an efficient and competitive economy, based primarily on industries using modern technology and producing high added value. NSGR has a long-term cooperation with the Slovak University of Agriculture and the Constantine the Philosopher University in Nitra.

The region has still problem with high waste production with a low recovery rate. Its aim is therefore to introduce ecological waste management systems for separated municipal waste collection and to increase its recovery rate.

The Programme of the Economic and Social Development of the NSGR (PESD) is part of the complex of strategic and programme documents of the Slovak Republic, drafted at the state level and at the level of the regions for the use of the European structural and investment funds. It is one of the main instruments through which the region ensures regional development. The document was elaborated on a partnership basis and with the possibility of involving partners such as representatives of cities, municipalities, entrepreneurs, educational institutions and non-profit organizations. PESD includes 4 priority development areas: Economy; Human Resources; Environment and; Transport and Technical Infrastructure. Each priority area has its Strategic objective. Each Strategic objective consists of several Specific objectives, which are implemented through specific Actions and framework activities.

Example: Programme to Support Integrated Rural Development LEADER NSK

Programme to Support Integrated Rural Development LEADER NSK (hereinafter LEADER NSK) is a unique instrument that provides funding for small-scale projects in the NSGR. It is based on the principles of the generally-known EU initiative LEADER, but it does not use any EU funding; it is funded entirely from

the budget of the NSGR. LEADER NSK provides funding also for small-scale projects supporting CE in rural areas. It is as an innovative instrument reflecting local needs through the “bottom-up” principle and represents also an example of a Good Practice in terms of the Interreg Europe Programme. Its implementation is guided by the Guideline for Administration of Funding from the Budget of the Nitra Self-governing Region to Support Implementation of Community Led Local Development – CLLD Strategies of Local Action Groups. In line with the structure of the PESD, LEADER NSK can be used to support activities under Priority Area 1 Economy and Priority Area 3 Environment.



In 2017, the Supplement to the Guideline was adopted, which extended eligible activities to the elaboration of a concept on the use of energy from biowaste and the promotion of biowaste processing technologies. In 2017, amount of EUR 550,000 was allocated for LEADER NSK of which EUR 13,000 was used for environmentally focused projects. Subsidies were used to carry out the activities such as construction of collection points for separated waste, treatment of watercourses, educational activities, etc. Projects must be completed within one year and the calls for proposals are announced annually.

Specifically, subsidies from LEADER NSK were allocated to the following environmental projects in 2017: (1) Collection point for the separate waste from the flat houses in the municipality Trávnica (EUR 3,500); (2) Cleaning and treatment of surrounding water bodies and watercourses (EUR 1,000); (3) Drainage of the public roads in the Local Action Group Cedron-Nitrava (EUR 1,100); (4) Collection point for waste in the municipality Mudroňovo (EUR 2,680); (5) Cleaning and treatment of rainwater ditches in the municipality Podhorany (EUR 2,915.79); (6) Educational project “Do not separate yourself and start to separate!” in the youth educational centre in municipality Kuzmice (EUR 1,530,61).

Romania, South Muntenia Region

According to the European Innovation Scoreboard 2018, Romania is ranked as the most modest innovator in the European Union (EU), spending only 0.48% of its Gross Domestic Product (GDP) in research and development in 2016, while the EU average was 2.03%. At a national level, several instruments have been developed to support cooperation between research and enterprises, such as the innovation vouchers, implemented since 2012.

The regional development strategy of the South-Muntenia region has identified CE bio-based as one of the smart specialisation priorities, however one of the weaknesses of the region is the low cooperation between research and industry. The Regional Operational Programme has developed an instrument to address this issue (one of the instruments in focus of the BIOREGIO project) by supporting the establishment of technology transfer entities in the fields of the smart specialisation strategy. Although the need was correctly identified, the instrument lacks attractiveness for reasons such as high co-funding rates and non-eligibility of certain types of expenses (e.g. administrative and operation costs).

In the following part, we present two other instruments that have a much higher potential to support the development of circular bioeconomy in Romania.

Competitiveness Operational Programme

The Competitiveness Operational Programme (POC) of Romania 2014-2020 is funding investments in economy to address the limited support for research, development and innovation and the underdeveloped information technology (IT) sector, in order to achieve growth and sustainability.

The smart specialization areas identified in the National Strategy for Research and Innovation, which are supported by POC include bioeconomy, IT, energy, environment and climate change, eco-nano-technologies and advanced materials.

The first axis of POC is dedicated to improving research and innovation (R&I) infrastructures in order to boost competence in the supported fields and promote excellence centers by connecting them to existing or emerging networks for innovation and economic growth according to the specific needs of the communities where they are located.

Action no. 1.2.3. Knowledge Transfer Partnerships supports investment in R&I and the creation of connections and synergies between enterprises and research or higher education centers, in order to develop new products and technologies, social innovation and ecoinnovation, transfer and upscaling of technologies, increasing production capacities etc.

Example: A Project in Bio-based Circular Economy - SECVENT

One of the projects funded under this instrument is Sequential procedures for closing the loops of side-flows from bioeconomy and innovative (bio)products based on them SECVENT (2016-2021), implemented by the National Institute for Research and Development in Chemistry and Petrochemistry - ICECHIM, Bucharest. The project has a total budget of ~3.4 mil Euros, and it is expected that at least 25 enterprises will be supported to develop added value products from biological flows that otherwise would be wasted or used only as animal feed, like vinasse, whey, marc, draff etc. Possible products that could be obtained are nutraceuticals, cosmetics, food and feed ad-

ditives, biostimulants, fibres, biopolimers, enzymes, dyes, pigments etc.

This action offers very good funding conditions for companies, since they have to pay only 20-50% of the services provided by the research entities (depending on the type of service and size of the enterprise), the rest being supported by ERDF funds and the Romanian state budget. The companies also have the opportunity to receive funding for their own research and innovation activities carried out together with the research entity.

The managing authority of the contract is the Ministry of European Funds and the intermediate body is the Ministry of Research and Innovation.

National Rural Development Programme (PNDR) 2014-2020

Under measures 16.1 and 16.1a – Support for establishing and operating operational groups (GO) in order to develop pilot projects, products and processes in agriculture and orchards.

The operational groups are set up in order to carry out together a new development-innovation project that addresses specific problems and seizes existing opportunities in agriculture, agri-food and forestry. The objectives are to promote innovation and cooperation in the agri-food sector, including orchards, by developing pilot projects, new products, practices and technologies. They will promote cooperation between farmers, research centers, universities, consultants and other relevant stakeholders from the agri-food sector, in order to boost innovation and adapt research results to sectorial needs.

The operational groups are non-legal entities comprising at least of one farmer/ producer/ processor and one research entity. The selection criteria for these projects include, among others, the valorization of biomass (biowaste) from the agricultural sector, and developing products, techniques, processes for organic farming.

The call for expressions of interest was launched

at the national level and proposals are under evaluation. Maximum budget for a project is 500.000 Euros, eligible expenses are 100% grants. PNDR is managed by the Ministry of Agriculture and rural development. The available budget for the calls at national level ~12 mil. Euro.

This is a good example of how an operational programme can promote cooperation between research and producers/ enterprises in circular bioeconomy by making the partnership compulsory and setting selection criteria to encourage recycling of biowaste and ecological farming.

France, Pays de la Loire Region

Regional Policy Framework

Energy Transition Roadmap for Pays de la Loire 2017-2021 (Feuille de route régionale sur la transition énergétique Pays de la Loire 2017/2021) comprises 52 concrete measures organized around 5 thematic and 5 transversal pillars and has its own budget of 121 million €, including 51 million € of regional funds and 71 million € of European funds. The five thematic pillars of the third industrial and agricultural revolution are:

- Develop the production of renewable energies – wind, solar, marine, biomass, geothermal.
- Transform real estate and amplify the efficiency of enterprises, which means investing massively in high energy performance and energy savings in buildings.
- Develop sustainable transport, for example through natural gas fuel systems, and thus favoring biogas production via anaerobic digestion (AD).
- Store energy and carbon and implement innovative methods to use them.
- Establish Smart Grids that will be capable of optimally connecting multiple electricity and gas production and consumption sites.

Transversal pillars include: raise awareness to change behavior, develop and promote training programs for jobs related to energy transition, accompany local authorities in the implementation of their projects, guarantee shared governance, and be an exemplary regional collectivity. Supplementary funding for the implementation of the measures highlighted by the roadmap comes from the departmental energy associations (114 million €) and from the French Agency for the Environment and Energy Management (ADEME) (15 million €).

In order to finance projects corresponding to the implementation of the regional energy transition roadmap, there will be created a regional investment fund that will accompany at least 25 projects until 2021. This fund will have its own budget of at least 10 million €, half of it will be financed by the regional authority and the remaining funds will come from energy associations, the European Investment Bank, and other

banks. The region of Pays de la Loire will additionally accompany project leaders in terms of project management.

Since 2013, Pays de la Loire is partners with CEA Tech, driving and coordinating the French government's innovation-led industrial regeneration policy. The CEA Tech branch office, serving as a regional technology-transfer platform for Pays de la Loire, aims at making manufacturers more competitive, using the findings of basic research and making Key Enabling Technologies available to a broad range of industries. Within the framework of the roadmap, the region developed a specific partnership with CEA Tech, which allows for the implementation of renewable energy production technologies. The objective, among others, is to focus on AD technologies in order to create a strong AD sector in the region and country.

Example: Reduction of Biowaste as Share of Domestic Waste

The problem addressed by this practice is a quantifiable reduction of biowaste as a share of domestic waste of all households present on the territory of Mauges in Pays de la Loire. The context, which triggered the introduction of this practice, was the political will to offer an integrated service to manage waste of every single household on the territory of Mauges and to reduce the operating costs. Mauges Communauté, a “zero-waste territory,” has therefore implemented a waste management program, providing trash bins to every household on the territory, which allows for harmonization of services and simplified follow-up of the quantity and type of waste. The role of research in the implementation of this initiative was primordial. ADEME has proven through their study that only 10% of households would take their trash bins outside for weekly disposal and that trash bins would often only be half-full. In order to mini-

mize the costs, waste is now collected every 15 days in an automated way and households are invoiced per number of trash bins treated and their volume, which financially incites them to reduce the quantity of waste they produce. One of the ways to do this is to reduce the share of biowaste in household domestic waste. Mauges Communauté provides collective and individual composters that allow for separation and treatment of biowaste at the source.

Financial: Bins: 2009-1730000€, 2010-1850000€. Bin distribution: 2010-780000€, 2011-1000000€

HR: creation: 0.5FTE general management and invoicing. 3.25FTE phone and physical reception, updating the list of liable households. 1FTE distribution and maintenance of trash bins for 50 000 households.

Thanks to this initiative, households of the territory produce 20kg of fermentable matter/inhab/yr, while the national average is 60kg. Installed composters: 20 collective and over 10 000 individual composters (distributed at 250/yr). Inhabitants do not need more incentive to be willing to have one. Additionally, ADEME expresses the will for other territories to implement such measures in order to reduce the share of biowaste and the amount of domestic waste.

This type of good practice would not have been possible without close cooperation among the regional and local authority, research organisation to implement a baseline analysis and prognosis according to various scenarios, and the waste disposal industry that also had to implement internal reforms in order to adjust to the new practice.

Example: Bringing together the Anaerobic Digestion Actors in Pays de la Loire - Cluster Méthatlantique

Méthatlantique is an association bringing together the AD actors in Pays de la Loire – VSEs, SMEs, private and public sector – with a mission to create a new dynamic in the AD sector. AD potential in the region is strong, and resources are available. Thanks to the Biogas Plan of Brittany and Pays de la Loire, animated by the association AILE and managed by ADEME and the Regional Councils, there are numerous dynamic actors of the AD sector in the region. The creation of Méthatlantique cluster addresses the need for a dynamic network of companies and industry. This leads to fulfilling of an important regional objective of developing a strong industrial AD sector in the region all along the entire value chain. It is in this logic that the Regional Council of Pays de la Loire gives its political support to the Méthatlantique cluster.



The principal ambition of the cluster is to support AD projects and provide expertise and information on any domain related to thereof. In order to reach its objectives, the cluster has multiple activities, such as communication campaigns to spread knowledge and information on AD and to raise awareness. It also provides expertise on AD, contributing to the professionalisation of the sector. The cluster accompanies development projects for new AD sites and provides knowledge to maintain and improve existing sites, while maximising economic benefits on the territory. The cluster also gives new value to the sector, preparing the technologies for export. Thanks to close collaboration with the delegates of the Pays de la Loire region and its political support, it is possible to achieve in parallel the creation of a dynamic regional network in order to give new value to AD and render it more attractive and efficient.



**For more information about BIOREGIO please visit the project site:
www.interregeurope.eu/bioregio/**

This report reflects the BIOREGIO project's view; the Interreg Europe programme authorities are not liable for any use that may be made of the information contained therein.