

ANALYSIS OF THE CURRENT SITUATION REGARDING THE CIRCULAR ECONOMY IN THE CENTER REGION



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INTRODUCTION

The COLOR CIRCLE project – “Connecting and endowing local administration with research capacities to capitalize on the full potential of the circular economy”, has the goal to sharing good practices on circular economy, involving research capacities to empower local authorities and to improve regional public policies. The project is implemented by the Regional Development Agency Centru in partnership with Hesam University, France (project leader); Van Hall Larenstein University of Applied Sciences, the Netherlands; Burgundy-Franche-Comté Regional Council, France; Agency for Regional Development Center, Romania; Central Bohemia Regional Innovation Center, Czech Republic and Granada Provincial Council, Spain.



This analysis of the COLOR CIRCLE project aims to support the development of the circular economy in small urban areas by creating strong partnerships between local authorities and the regional academic environment and by implementing innovative measures to increase the capacity of local authorities to realize their full potential of the circular economy.

Thus, the Institute for Research in Circular Economy and Environment „Ernest Lupan” – IRCSEM contracting party of the current analysis, will provide the necessary expertise to conduct an analysis of the current situation of the circular economy in the Center Region and develop an action plan to improve policy that contributes to the support and development of the circular economy in the Central Region.

ANALYSIS OF THE CURRENT SITUATION REGARDING THE CIRCULAR ECONOMY IN THE CENTER REGION

This document will include:

- *information on the existing situation at regional level;*
- *an inventory of projects;*
- *good practices identified at regional level;*
- *case studies – challenges and solutions regarding the implementation of the circular economy in the localities from the Central Region;*
- *regional needs and necessary/proposed measures for the development of the circular economy in the Central Region;*
- *possibilities for cooperation between regional actors to capitalize on the potential of the circular economy in the localities of the Central Region;*
- *proposals for projects/initiatives carried out in partnership with public authorities – academia and which can materialize at regional level.*

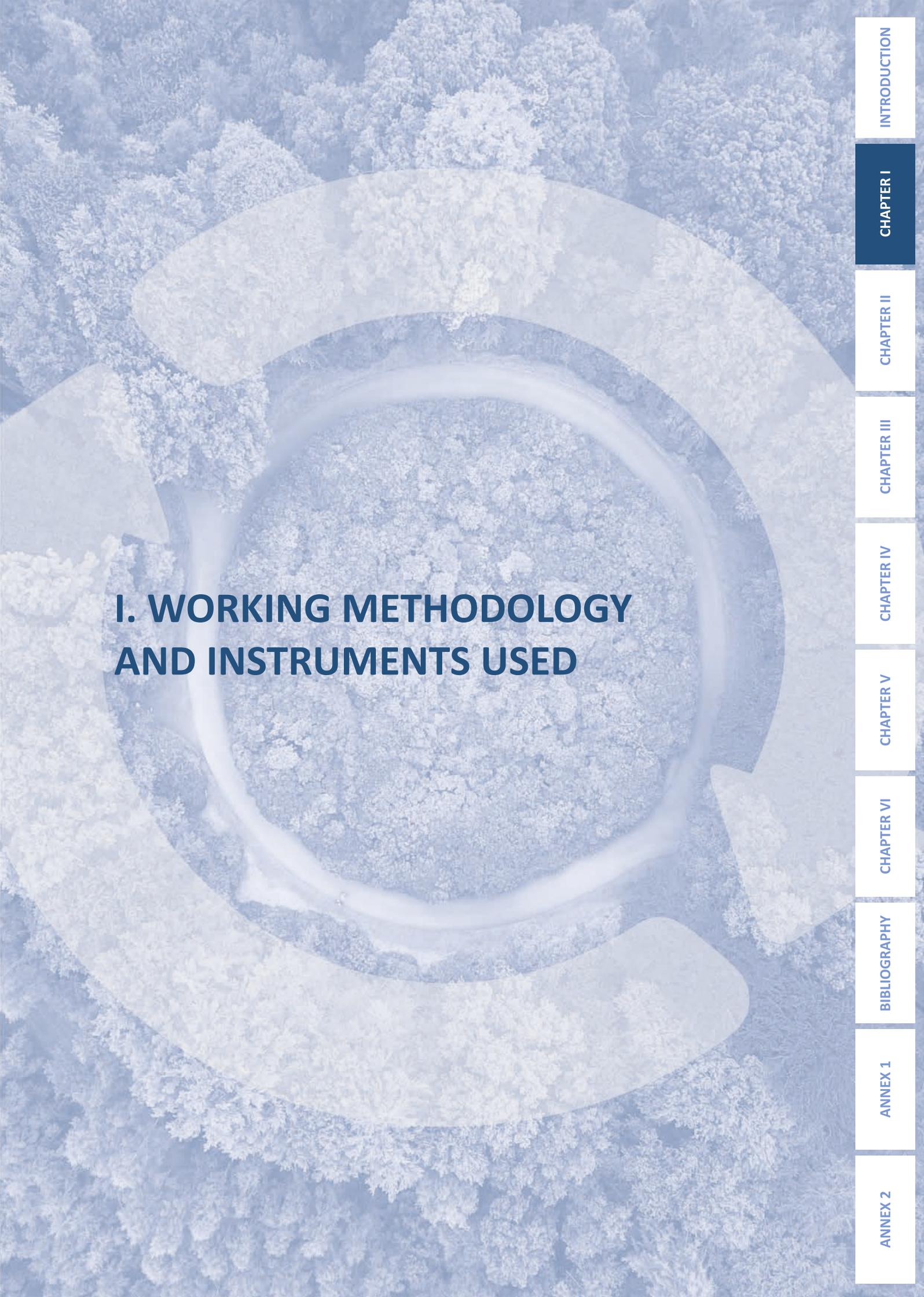
COLOR CIRCLE project

In order to carry out this analysis, in the first phase, the regional context and the existing situation regarding the circular economy were analyzed, an analysis of secondary and primary data was carried out, including the legislative framework, dedicated policy and financing instruments, which can contribute to the development of circular economy in the Central Region and beyond.



European Union
European Regional
Development Fund

2020-2021

An aerial photograph of a forest with a circular path and a central clearing. The path is a light-colored, winding line that forms a large circle around a central area of denser, darker trees. The surrounding forest is a mix of green and brown tones, suggesting a diverse ecosystem. The overall image has a blue-tinted overlay.

I. WORKING METHODOLOGY AND INSTRUMENTS USED

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I. WORKING METHODOLOGY AND INSTRUMENTS USED

In order to carry out the **REGIONAL STUDY ON THE CIRCULAR ECONOMY AND THE ACTION PLAN ON IMPROVING THE EXISTING POLICY INSTRUMENTS FOR THE VALORIZATION OF THE CIRCULAR ECONOMY IN THE CENTRAL REGION INSIDE THE PGI05896 COLOR CIRCLE PROJECT**, for the time horizon 2021-2027, both a quantitative analysis of the data and a qualitative analysis were approached.

The general preamble

Opening the horizon to the next stage of development of small urban localities (less than one hundred thousand inhabitants) involves awareness of the profile of urban settlement, inherited – localities are predominantly post-industrial, dried up by the active population and frozen in a stasis that generates activity restriction (shrinking cities) and discouragement initiatives. It is a phenomenon that affects the whole of Europe and broadly the entire Western post-industrial world.

The general concern at the U.E. In the direction of reviving this network of urban localities, it proposes and supports innovation (future thinking), recovery (green, circular etc.) and participation (active citizenship).

Cooperation between local actors to capitalize on local potential involves scanning and cataloging the existing (documentation, research, GIS etc.) identifying local needs in relation to opportunities (landscape, attractions, population, historical and built heritage etc.), and establishing an environment for fertilization of development solutions based on inter-community cooperation.

The administrative environment plays the role of catalyst, the academic one provides research and substantiation support while the business environment identifies the potential for growth and financial support. The civil society engaged through the contribution of NGOs has the role of participant in the monitoring of the implementation process. In the case of the Center Region, with a study focus on the localities of Făgăraș, Ocna Mureș and Cugir, we propose the identification of the sectors of immediate, medium and long interest:

- Energy efficiency;
- Urban regeneration (reconversion, rehabilitation, redevelopment);
- Reducing pollution and waste;
- Smart urban mobility;
- Adopting local smart city policies;
- Complete GIS portfolio and constant monitoring of emissions, light noise, heating etc. ;
- The green city – urban green space rehabilitation policies;
- Valorization of the accessible proximity natural environment;
- Active citizenship solutions – creating a citizen consciousness sensitive to the precepts of the sustainable economy, building a responsible and active NGO environment;
- Cores of education at all levels, from school children to neighborhood associations.

Thus, **in the first stage**, there was an **initial analysis of data and information from secondary sources as well as those provided by the** Regional Development Agency Centru (ADR Center), as

well as by other public institutions in Făgăraș, Ocna Mureș and Cugir. At the strategic level, information was analyzed about EC, 2015; Regional Development Agency Centru, 2014; Regional Development Agency Centru, 2019; Ellen MacArthur Foundation, 2018; Ellen MacArthur Foundation, 2019; ESPON, 2016; FIP Consulting, 2016; Material Flow Analysis, 2020):

- the existing situation at regional level mainly in Făgăraș Municipality, Ocna Mureș City and Cugir City (including information and statistical data on the implementation of the circular economy in the 3 cities, information on innovation capacities and existing partnerships, policy and financing instruments existing at regional level etc.);
- an inventory of projects implemented at regional level, especially in Făgăraș Municipality, Ocna Mureș City and Cugir City, prepared according to the format presented in Annex 2;
- good practices identified at regional level especially in Făgăraș Municipality, Ocna Mureș City and Cugir City;
- the integrated urban development strategy of the 3 cities;
- the sustainable urban mobility plan of the 3 cities;
- the strategic development plan of the 3 cities;
- annual reports on the state of the environment as well as other relevant information;
- other results obtained;
- encountered problems;
- procedures;
- regulations.

The data collection stage included aspects targeting the community as a whole: the capacity of local institutions to manage or initiate circular economy projects, support from the community, involvement of academia etc. For Stage 1, the main type of activity was to collect data to diagnose the situation for which the action plan is developed, to improve policy instruments that contribute to supporting and developing the circular economy in Făgăraș, Ocna Mureș and Cugir in the Region Center, with a focus on the policy instruments targeted by the COLOR CIRCLE project.

The actual analysis of data and information from areas of interest is structured on seven criteria considered relevant to assess the potential of the field to facilitate the transition to the circular economy in the region, namely: importance of the field in the regional economy, market, intensity of innovation in the field, the availability of qualified human resources in the field, the capitalization of some local resources (other than the human ones), the level of collaboration between the actors in the field, the degree of technological sophistication.

For each of these criteria, a series of arguments have been developed to allow an evidence-based assessment of the field. Thus, these arguments referred to both statistical information (such as number of firms, their turnover, value of exports), punctual performance (such as major investments, innovations or top products), relevant international trends (European market dynamics) or global, new technological waves), as well as to the opinions expressed by representatives of the business environment regarding the dynamics of the regional ecosystem related to the field.



Figure 1. Criteria used for the analysis of the selected domains

The establishment of development goals and criteria, the identification of possibilities for action, as well as the improvement of existing policy instruments for capitalizing on the circular economy will be achieved following the SWOT analysis.

Also, in this phase were included other researches promoted by IRCEM within the elaboration of the action plan regarding the improvement of the existing policy instruments for the capitalization of the circular economy in the Central Region and/or supported by new „zero waste” cities.

The above data and information were supplemented, in the **second stage**, by the quantitative data collected through **questionnaires** addressed to stakeholders, which aim to identify their behavior towards belonging to a circular city and meet the needs and challenges they have through development of stringent projects in directions such as:

- capitalization of organic waste;
- the integration of the principles of permaculture and sustainable agriculture in the action plan would produce visible and long-lasting effects in cities and generate an exponential increase in the quality of life of citizens (eg urban gardens: creating landscaped spaces where people collaborate for food production local, the risk of social exclusion will be reduced and the sense of belonging to the community will be stronger, organic waste would be composted on site, and overproduction (if any) will be collected by the food bank and redistributed;
- involving children and young people in urban regeneration activities and encouraging activities aimed at reducing or stopping pollution, with a view to settling long-term healthy

practices and creating a generation aware of the dangers of climate change and global warming;

- the addressability of cities to become areas of sustainable urban development and attracting new investment in cities;
- generating employment activity of the urban community in active citizenship projects. Encouraging the conscious and educated participation of citizens in urban development
- generating an urban mobility policy oriented towards means of public transport, alternative means of transport and pedestrianization in order to dominate pollution and encourage urbanism focused on avoiding fossil fuel consumers
- recovery of the existing urban fabric by redistribution and recovery of the buildings „on their feet“. The use by innovative means of the existing built fund in order to preserve the industrial memory, the reduction of construction waste and the economy of materials invested in new structures.
- concretization of activities with a value other than the financial one;
- creation of living laboratories in cities, in order to collect and analyze data on economic, social, environmental functions etc.;
- taking advantage of tourism in the region and attracting tourists to the city as well – stimulating eco-tourism and new neutral buildings in terms of carbon emissions;
- finding alternatives to current construction materials and recycling construction waste materials of superior value;
- educational units adopting the principles of the circular economy, where these principles will be put into practice in order to contribute to the efficiency of resource consumption;
- supporting the introduction of alternative energies in the 3 cities, including through the development of urban mobility by electric or hydrogen cars, for a completely carbon-neutral process;
- recovery of wastewater and rainwater by optimizing resource efficiency (reuse of wastewater, recovery of phosphorus from wastewater treatment, processing and disposal of sewage sludge, recycling of rainwater and gray water, as well as energy), opportunities for the circular economy that can bring long-term economic benefits;
- obtaining renewable energy from biomass where the raw material will be obtained from agricultural waste and residues, including plant and animal substances, public parks and related industries, as well as the biodegradable part of industrial and urban waste;
- in the end, the use of the power of example and the consolidation of the position as a leader in different sectors in the sustainable urban development of small settlements (example of “how it supposed to be” and “it is possible if desired”).

In the **third stage, interviews/workshops** were organized with **local public authorities, with the local public administration, the local community, private companies, academia and civil society representatives.**

During the workshops, semi-structured group interviews were conducted in the form of Focus-group with the aim of identifying the problems of socio-cultural, economic and environmental

interest of the communities in the 3 cities, so that we can collect data to meet the needs they present, as well as the development of measures for the development of the circular economy in the Central Region. The variant chosen due to the existing pandemic situation was online. After establishing the regional needs and the possibilities of cooperation, a list was made in which recommendations of concrete projects/initiatives that can be realized between partner organizations at the level of the Central Region (local public administration (LPA) -academic environment, as well as other partners) were made.

Summarizing the methodological approach followed in this approach, the below figure illustrates the main steps followed to perform the regional analysis.

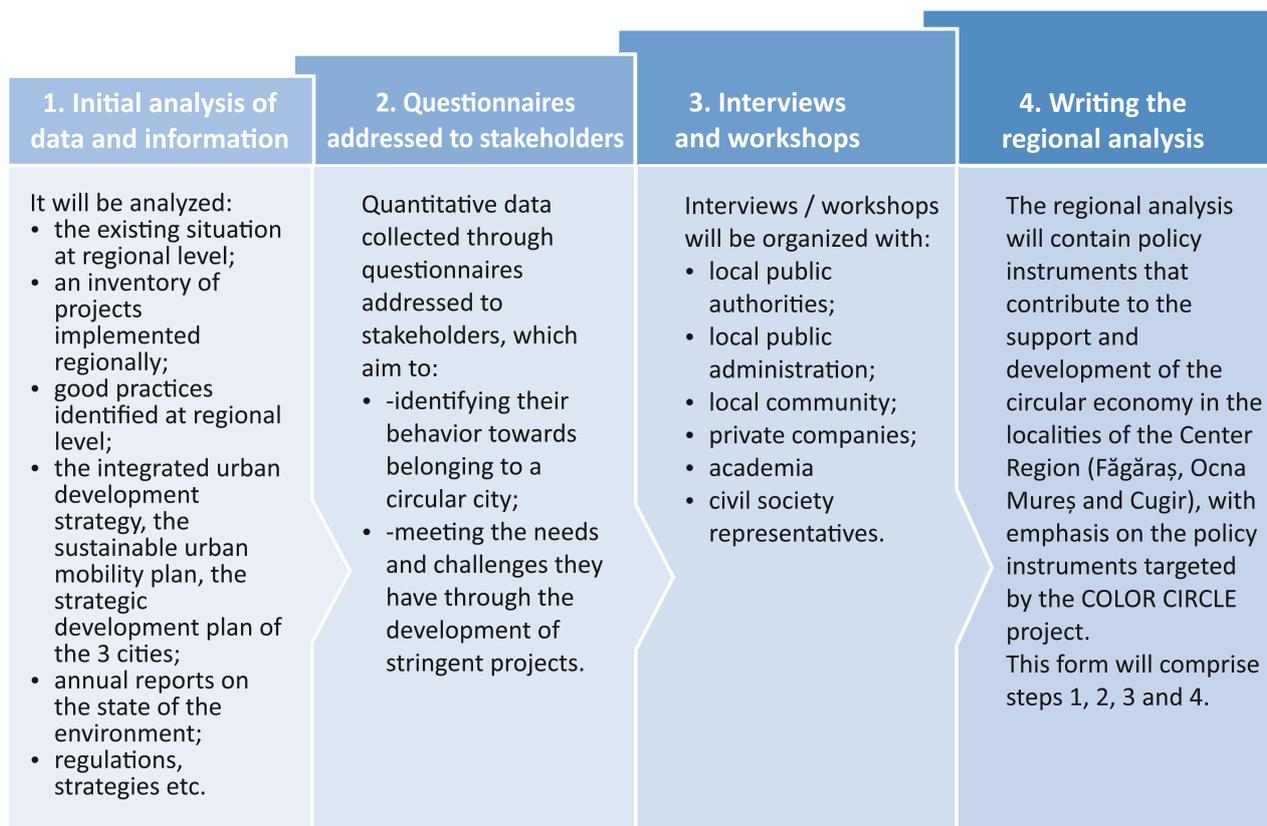
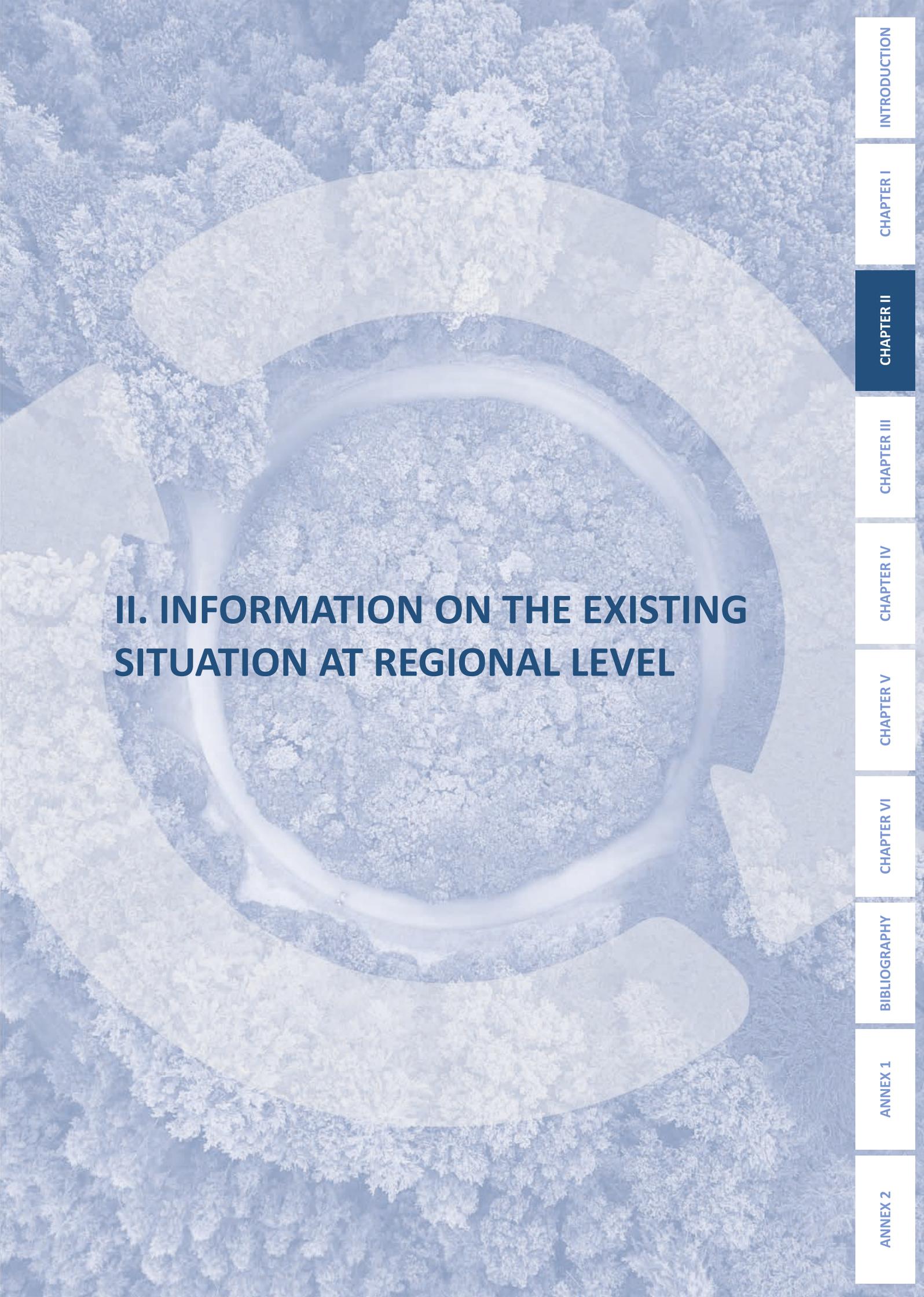


Figure 2. Stages of the methodological approach.

An aerial photograph of a dense forest with a winding river. A large, semi-transparent circular graphic is overlaid on the image, consisting of several concentric rings. The text 'II. INFORMATION ON THE EXISTING SITUATION AT REGIONAL LEVEL' is centered in the middle of the image.

II. INFORMATION ON THE EXISTING SITUATION AT REGIONAL LEVEL

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II. INFORMATION ON THE EXISTING SITUATION AT REGIONAL LEVEL

With a total population of 2,314,175 inhabitants at the beginning of 2020, the Central Region ranks 5th among the 8 development regions of Romania. It includes 6 counties (Alba, Braşov, Covasna, Harghita, Mureş and Sibiu), which totals a total area of 34,100 km², representing 14.3% of the country's territory. Of the total area of the Central Region, the largest area is occupied by Mureş County (17%), at the opposite pole being located Covasna County (10%). From a geographical point of view, the Central Region has a privileged position through its territorial relationship with other counties, at continental level being located in the southeastern part of Europe and the European Union (INS, 2020).

The relevance of the Central Region at national level lies not only in its privileged position but also in the visible industrial economic profile (machine building and metalworking, chemical, building materials, wood, mining, textile and food) which can be highlighted both by the relatively high contribution of industry to the formation of the gross domestic product as well as the significant share of the population employed in the secondary sector of the economy. Not to be neglected is the contribution of the gross domestic product that the Central Region brings with the help of tourism through mountain tourism, spa tourism, cultural tourism and agrotourism. Starting with 2010, the Center Region occupies the first position in terms of the number of tourists attracted and the number of overnight stays (6,443,719 overnight stays in 2019) according to data provided by the National Institute of Statistics.

1.1. The current situation of the implementation of the circular economy in the central region

Implementing the vision of the circular economy in cities and towns can bring important economic, social and environmental benefits, promoting economic productivity and developing resilience, with a low dependence on raw materials by keeping products in use and balancing local production with global supply chains. Therefore, the vision of the circular economy on cities is to keep the resources used as long as possible and to extract the maximum value from them while they are being used, and finally the end-of-life products will be recovered and regenerated. This is a more efficient and environmentally friendly alternative to the traditional linear economy in which we produce, use and dispose of resources.

All these benefits can be achieved by changing the way urban systems are planned, designed and financed as well as the way they are made, used and reused. It can be seen that in recent years the Central Region has begun to enter the cycle of transition to a circular economy, with evidence of numerous projects and initiatives supported by local authorities, the private sector, academia and civil society. However, this transition is not an isolated phenomenon. Cities around the world are now addressing the concept of the circular economy, being recognized as a key factor for the much-desired green transition at European level, while enabling greater energy and material efficiency, reduced pollution and job creation.

With regard to the Central Region, it has a number of particular advantages that can facilitate the prolific emergence of the circular economy in the component localities and cities.

First of all, we refer to the continuous development, including at the level of 2020, of the environmental protection infrastructure: the degree of coverage of the population with sanitation services is over 30%, the share of the population connected to the sewage network is over 65%, and the share of the population with access to the water supply system reached 76% of the total resident population. In 2016, the most recent year for which there is information at the regional level, it is estimated that approximately 2.1 million inhabitants, representing 40% of the population of the Central Region benefited from sanitation services. The highest shares in relation to the total population of the county were registered in Covasna and Sibiu counties (77% and 66% respectively), and the lowest in Harghita county (82%) (INS, 2018). It is also noted that there is active support for the implementation of the measures within the APSECs adopted at the level of urban and rural communities in the Central Region. The signatories (Alba Iulia, Ocna Mureș, Brașov etc.) of the Convention of Mayors on Climate and Energy in the region are actively engaged in the preparation and implementation of the Action Plan on Sustainable Energy and Climate (APSEC), which addresses both mitigation and adaptation to climate change before 2030. However, the significant delays in the development of infrastructure projects in the field of environmental protection should not be neglected, especially those contracted by POIM 2014-2020, Axis 3, including those in the Central Region. Illegal deforestation and forest exploitation in an unsustainable manner also remain an issue that hinders the facilitation of the transition to a circular economy. A last relevant challenge in this field refers to the low degree of municipal waste recycling, this being a widespread problem at national level, the recycling rate being only 13%, according to the National Waste Management Plan for 2017 (ANPM, 2017).

Also, from the point of view of urban mobility, the Central Region is making progress in the transition to a circular system of urban mobility that focuses on effectively meeting the mobility needs of citizens by diversifying modes of transport. At the moment, there is a balanced spatial urban infrastructure, with real inter-relationships in the economic, social and administrative field. The degree of electrification of the railway network is higher than at national level, and urban transport services and urban road networks are experiencing a continuous modernization. However, growth has a much higher potential than these results, as road transport infrastructure remains underdeveloped. More precisely, out of the 11459 km of public roads in the Center Region, only 50% are modernized roads at the end of 2018. A strong point, however, is the fact that in recent years, at regional level, the number of passengers transported by bus and minibus is growing continuously and reached 2018 in 185,02 people, almost half more than in 2013 (47.5%) according to INS, 2019. Thus, in a future perspective, the approach of the circular economy in this field would reduce the consumption of virgin materials in the mobility sector, maximize the use of infrastructure and vehicles and reduce the costs of use and exploitation.

Regarding the consumption of resources and secondary raw materials, at regional level there is the possibility of developing complete value chains that strengthen sustainability. Currently there is interest in the sustainable use of forest and agricultural biomass due to favorable economic factors

(lower costs for energy production, revenues from the sale of raw materials, the growing number of SMEs operating in this sector) but also due to social factors (protection and job creation in rural areas of the region) and environmental (reduction of organic waste, diversification of energy supply sources and reduction of CO₂ emissions). The economic recovery of wood waste is already being done, and customers are increasingly interested in aspects of sustainability and environmental protection. The results of major research and innovation centers in the region can be used to overcome current technical constraints. All the listed aspects, together, can lead to the closing of the loop and the realization of a complete value chain.

It is also important to note that urban areas in the Central Region are home to more than half the population of the entire region, which generates increased energy and resource consumption, which in turn implicitly increases greenhouse gas emissions. For example, in the field of energy, according to the European Commission's Country Report for 2020, there is little progress in reducing energy consumption in public and residential buildings, which are responsible for 45% of national final energy consumption. Looking at the efficiency of resource use, operationalized through the economic value in GDP generated per kg of primary resources used, Romania is the poorest performing economy in the European Union. For every kg of primary resources extracted from the natural environment and used in the economy, an economic value of 0.34 € is generated, 6 times lower than the EU average and 1.5-4 times lower compared to the countries in the central bloc and Eastern European (Regional Development Agency Centru, 2020).

The economic profile reveals that the gross domestic product at regional level, according to the latest data provided by INS, has a value of 96.98 billion lei, representing 11.3% of the total GDP of Romania. By the value of GDP per capita (41,625 lei, in 2017, the Center Region was on the third position at national level, after the Bucharest-Ilfov Region and the West Region. Calculated at the standard purchase parity, GDP per capita of the Center Region represents 60% from the European Union average (2017). However, the economic progress and the accompanying development do not take the form of a uniform process, there are significant development disparities between the counties of the Central Region. For example, the value of the GDP per capita at the level of Braşov county it is 67.6% above the value of the indicator registered in Harghita county. Another strength of the Central Region is the balance of foreign direct investment, which reached the end of 2018, according to the National Bank of Romania, to 7.331 billion euros (10% of total foreign direct investment in Romania), the Central Region placing on the second position, after the Bucharest-Ilfov Region in terms of total foreign investments. Braşov County has attracted foreign investments totaling approximately 2.6 billion euros (INS, 2018). Thus, it is observed that the Central Region has a significant potential for graduating investments from external sources, which outlines the possibility of future investments for innovation in the circular economy. The labor resources at the level of the Central Region in 2017 were approximately 121 8.3 thousand people. Braşov County has the largest number of labor resources (34 2 thousand people), representing 63.3% of the county's population. A particularity of great interest for the development of the circular economy in terms of labor resources in the Central Region is the percentage of work involved in the technical and scientific fields. According to the latest data provided by Eurostat, 2 1% of the total workforce

in the region is active in the scientific and technological field, this being evident also through the activity of large university and research centers. The Center Region is surpassed only by the Bucharest-Ilfov Region, which has a percentage of 50.8 . Another advantage is the infrastructure and support systems present in the region. The positioning in the center of the country gives a high accessibility to and from the region which is also supported by the increase of the length of the road network by more than 800 km in the period 2007-2014 (INS, 2019). Also, the Center Region occupies the first position in terms of the area covered with Natura 2000 sites, 36.72 of the area being covered with protected areas. In the same framework of natural resources, it is worth mentioning that the wood industry is the best defined economic activity, involving a rich research and a large number of specialists at the university centers (Faculty of Wood Engineering at the University of Brasov). The 1264 thousand ha occupied by forest vegetation along with the developed economic activity (1303 companies engaged in wood processing, including the second largest producer in the country) and specialized university programs pave the way for the sustainable development of the wood industry (INS, 2019). Thus, it is observed that efficient infrastructure and support systems contribute to ensuring the sustainability of the Region.

1.2. Existing partnerships and innovation capacity at regional level on the circular economy

In order to accelerate the modernization of the industry and at the level of the Central Region, it is necessary to adopt product and service innovations, to approach innovative manufacturing technologies, as well as to introduce new business models. In other words, the innovation capabilities of a territorial unit are the main lever for economic progress and sustainable development.

At EU level, the most innovative regions are identified and quantified using the RSI 2019 indicator. This is an indicator of a production economy that is based on continuous innovation through creative and inventive step. The indicator is also based on a comparative assessment of regional innovation based on a rigorous standardized methodology that provides a more detailed breakdown of performance groups with contextual data that can be used to analyze and compare structural economic, business and structural differences socio-demographic structure. According to the data provided by the RIO Report 2019 (Research and Innovation Observatory), Romania is a modest innovator. After a sharp decline until 2014 – mainly due to the low performance of indicators using CIS data, performance remained stable until 2016 and increased slightly in 2017 and 2019. The Central Region also falls into the group of modest regions in terms of innovation, the only region that is above the national average being Bucharest-Ilfov, which is according to the data a moderate innovator.

NUTS	REGION	RII	RANK	GROUP	EVOLUTION
R012	CENTER	27.3	233	MODEST	-10.8
R032	BUCHAREST - ILFOV	51.6	200	MODERATE	-7.9
R011	NORTH WEST	29.7	232	MODEST	-9.8
R021	NORTH EAST	21.5	236	MODEST	-19.0
R022	SOUTH EAST	22.1	235	MODEST	-19.5
R031	SOUTH MUNTENIA	18.4	237	MODEST	-16.8
R041	SOUTH WEST OLTENIA	14.3	238	MODEST	-16.4
R042	WEST	32.8	230	MODEST	-5.7

Figure 3. Innovation capacity by regions *.

* RII: performance in 2019 compared to the EU in 2019, Rank: ranks performance in 2019 in all regions, Group: respective performance group, Evolution: change in performance over time calculated as the difference between performance in 2019 (RII2019) compared to of the EU in 2011 and performance in 2011 (RII2011) compared to the EU in 2011

Despite being a modest innovator, the Center Region ranked 2nd nationally in 2019 in terms of the number of active innovative start-ups. According to the European Commission's Report on the European Semester, the ICT and Automotive Sectors show signs of innovation potential, as both are export-oriented and well integrated into global value chains, thus being exposed to a competitive environment and high technological standards (European Commission, 2019). Discussions on innovation in the Central Region must also focus on the role of universities, without which the acceleration of innovation, technological growth and the prosperity of society cannot take place. University education has probably the greatest capacity for innovation, proving over time that it is an essential pillar of smart growth. The relationship between universities and public administration is essential for the innovative and sustainable development of the Central Region. Rapid and often unpredictable changes in technology and social media produce unprecedented structural changes, which create a gap between technological realities and what public authorities can offer society. In these situations, traditional approaches can no longer provide viable solutions, requiring approaches that include information, experience and well-trained people from academia and research centers. The following table shows the universities in the Central Region that operate in research fields relevant to the implementation of the circular economy.

The research and development system in the Central Region is a component part of the national RDI system which includes, according to the MECS website, 263 public RDI (Research-Development-Innovation) organizations and about 600 enterprises. Of the public organizations, 56 are authorized public universities, 46 are national research and development institutes (of which 43 are coordinated by MENCS), and 65 are research institutions and centers of the Romanian Academy. Some of the large multinational companies have created research and development centers, thus capitalizing on the local potential for research and innovation. Such

centers can be found in Braşov (Autoliv Engineering and Development Center and Siemens Research Center) and in Sibiu (Continental Research and Development Center and Kromberg & Schubert Research and Development Center).

Table no. 1 – Research fields relevant for the implementation of the circular economy

University	Research areas relevant to the Circular Economy
Transilvania University of Braşov	Renewable energies, high-tech products for vehicles, sustainable management of forest and hunting resources, advanced mechatronic systems, advanced manufacturing technologies and systems, ecobiotechnologies and equipment in agriculture and food, advanced electrical systems, advanced metallic, ceramic and MMC composite technologies and materials, process control systems, virtual and robotic industrial informatics, furniture ecodesign, restoration and certification in IL, advanced welding ecotechnologies etc.
Lucian Blaga University of Sibiu	Textile production, agriculture, food industry, environmental protection, unconventional technologies and electrotechnologies, integrated technologies, materials engineering, biotechnologies, ecology etc.
“1 Decembrie 1918” University of Alba Iulia	Geology, speleology, archeology, sociology, territorial development, legal sciences, education sciences etc.
George Emil Palade University of Medicine, Pharmacy and Technological Sciences, Tîrgu Mureş	Advanced design and assisted manufacturing technologies, energy management, electrical technologies, informatics, economics, organization performance optimization, urban planning and public policies.
Technical University of Cluj-Napoca – Alba Iulia extension: Faculty of Road Vehicles, Mechatronics and Mechanics	Fuels and biofuels, traffic and road safety, noise pollution control and reduction, fuel burning agricultural machinery, energy systems.
„Babeş-Bolyai” University of Cluj Napoca with academic extensions in 6 cities in the Center Region: Sfântu Gheorghe (3 faculties), Odorheiu Secuiesc (one faculty), Gheorgheni (1 faculty), Târgu Secuiesc (1 faculty), Sibiu (1 faculty) and Târgu Mureş (1 faculty)	Ecotourism and sustainable development, Economy of trade, tourism and services.

One of the local companies that carries out an important C-D activity is the company Compa from Sibiu, which constantly invests significant funds in research.

- Research – Development Institute – Innovation High-Tech Products for Sustainable Development in Braşov;
- National Research and Development Institute for Potato and Sugar Beet, Brasov County;
- Research – Development Institute for Meadows, Braşov County;
- Institute of Research and Organic Auxiliary Products Mediaş, Sibiu County;
- Research – Development Institute for Montanology, Cristian, Sibiu County;

- Research and Development Station for Viticulture and Vinification, Blaj;
- Braşov Experimental Forestry Resort – ICAS, Braşov County;
- Iernut Vegetable Research and Development Station, Mureş County;
- Iercaia Cattle Research and Development Station, Braşov County;
- Reghin Sheep and Goat Breeding Research and Development Station, Mureş County.

As a result, the Center Region remains a modest innovator and regional innovation performance has declined over time (down 10.8% from 2011), indicating that the industry's innovative potential is under-utilized (according to Regional Innovation Scoreboard). Universities in the region need to strengthen their position as a highly specialized workforce and as a partner and knowledge provider for the local community.

At the level of the Central Region we find partnerships at regional, national and international level (ex: Transnational – Program for South East Europe, Interregional – INTERREG IVC Program, URBACT II, ESPON 2013, INTERACT 2007-2013). Among the many partnerships that have taken place over the years in the Central Region, we mention the following:

- **Covenant of Mayors on Climate and Energy:** Commitments of the signatories to the Convention on the EU's climate and energy policy framework: those acceding to this convention must draw up an action plan on sustainable energy and climate in the first two years after accession. (Alba Iulia, Ocna Mureş, Aiud, Sfântu Gheorghe, Făgăraş etc.) The signatories assume a shared vision for the 2030-time horizon: accelerating the decarbonization of territories, strengthening the capacity to adapt to the inevitable effects of climate change, but also ensuring citizens' access to safe, sustainable, affordable energy sources.
- **Horizon 2020 Virtual Brokerage Event on the European Green Deal:** introduces calls for Green Deal project proposals, presentations and expectations from the European Commission, while providing a unique international networking experience to create the winning partnerships of the future, with over 1000 participants.
- **INTERACT III Cooperation Program 2014-2020:** this program serves the objective of European Territorial Cooperation, and is tailored to strengthen the effectiveness of cohesion policy by promoting the exchange of experience on identifying, transferring and disseminating good practices and innovative approaches to implementation territorial cooperation programs and actions relating to territorial cooperation and the use of the European Grouping of Territorial Cooperation (EGTC).
- **URBACT III Program:** facilitates the exchange of knowledge and good practice between cities and other levels of government with the aim of promoting integrated sustainable development and improving the effectiveness of regional and cohesion policy
- **Collaboration of regional SMEs with the academic environment:** led to the development of innovative thermal insulation systems and the development of new materials and products for energy efficiency in buildings (eg Folex project – passive house in Aiud, Alba County). At the level of the region, more precisely in Braşov County, energy efficient houses were built respecting the design principles of passive houses. In addition, the Romanian Passive House

Association (Miercurea Ciuc) carried out a project on the certification of future executors for the construction of buildings with a minimum energy consumption. The universities with which partnerships are usually made are: University 1 December 1918, Alba Iulia, Transilvania University Braşov, University of Medicine, Pharmacy, Science and Technology „George Emil Palade” from Târgu Mureş, Lucian Blaga University, Sibiu.

1.3. Existing policy and funding instruments

With the acquisition of the status of member country of the European Union, Romania began to have non-reimbursable financing, which significantly contributed to the development of the Central Region. To further support the development of several funding instruments are presented in this regard, as follows:

European Regional Development Fund and Cohesion Fund

The European Regional Development Fund (ERDF) aims to improve the economy and social cohesion in the European Union by correcting imbalances between regions and supporting sustainable growth that promotes green technologies, water and waste management and biodiversity and nature and aims to improve conservation of all-natural assets, nature and biodiversity, clean air, water and waste management. For the next funding period 2021-2027, the EU aims to modernize cohesion policy, which is the European Union's main investment policy. The main provisions of the European Commission's proposal to modernize cohesion policy involve focusing on key investment priorities, so a significant part of the funds will be allocated to innovation, supporting small businesses, modernizing industry, digitizing and supporting the transition to low carbon and towards a circular economy.

The Commission has also proposed a single set of rules covering 7 EU funds implemented, which will facilitate the work of the managers of these funds. This new framework provides the stability needed for long-term investment planning and provides an adequate degree of flexibility to deal with unforeseen situations.

For 2021-2027, the European Commission is proposing a modernized cohesion policy, with a focus on five main objectives:

- A smarter Europe through innovation, digitalisation, economic transformation and support for small and medium-sized enterprises
- A greener, carbon-free Europe, the implementation of the Paris Agreement and investments in the energy transition, renewables and the fight against climate change
- A connected Europe, with strategic transport and digital networks
- Social Europe, achieving the European Pillar of Social Rights and supporting quality employment, education, skills, social inclusion and equal access to healthcare
- Bringing Europe closer to its citizens by supporting locally led development strategies and sustainable urban development across the EU.

The summary of the central regional operational program 2021-2027, regarding the allocation by region is the following:

Allocation Center Region ROP 2021-2027	
ERDF allocation: 85	1.181.624.889 Euro
BS allocation – 15	208.522.039 Euro
Total	1.390.146.928 Euro

European Green Deal

Through the European Green Pact, the European Union reaffirms the Commission's commitment to addressing the climate and environmental challenges that are the defining challenges of our generation. The climate is changing, plants and animals are disappearing, the oceans and forests are more polluted every day.

The Europe Agreement addresses all these challenges and proposes a strategy to guide the European Union towards a modern, competitive and resource-efficient economy and proposes that the EU be climate neutral by 2050.

To achieve these goals, the European Union intends to fund the policies set out in the European Green Pact, estimated at around EUR 260 billion per year from 2020 to 2030. Policy areas: clean energy, sustainable industry, construction and renovation, from farm to fork , pollution elimination, sustainable mobility and biodiversity.

Horizont Europa

Horizon Europe is proposed by the European Union to pursue the objectives proposed by Horizon 2020. The program will run from 2021 to 2027 and will aim to ensure the scientific, economic, technological impact and improve the EU's technological and scientific basis and encourage competitiveness between Member States.

The budget of over EUR 100 billion makes Horizon Europe the largest research and development framework program and has the potential to generate important economic, social and scientific results. The Horizon Europe program will consist of 3 components or „pillars“:

- I. „Open Science“;
- II. „Global challenges and industrial competitiveness“;
- III. „Open innovation“.

LIFE Program

The LIFE program is the European Union's instrument that supports, at EU level, projects aimed at protecting the environment, nature conservation and climate action.

The program started in 1992 and benefited from a budget of EUR 3.4 billion in 2014-2020 and is divided into two sub-programs, one for the environment (representing 75 % of the budget) and one for climate action (representing 25 % of the budget).

Projects receive co-financing of up to 60%. The co-financing rate may be up to 75% if at least half of the total estimated costs of the project is used for actions to improve the conservation status of priority habitats or species listed in the EU Birds and Habitats Directives.

For 2021-2027, the Commission proposes an increase in the program budget to EUR 5.4 billion, and the program will be divided into four sub-programs: Nature and biodiversity, the circular economy and quality of life, climate change mitigation and adaptation; and the transition to clean energy.

Interreg Europa

Interreg Europe is a transnational cooperation program to support local and regional authorities in improving policy instruments. The main objectives of the program are to create a favorable environment to the exchange of good practice and policy learning, as well as to improve policy instruments to ensure government investment, innovation and implementation efforts that lead to an integrated and sustainable impact for people and place.

The Commission will continue to support interregional cooperation between regions across Europe for the next programming period 2021-2027, with a budget of € 8.43 billion at the 2018 exchange rate, which would represent 2.5% of the overall envelope available for economic cohesion, social and territorial. The three traditional components of cooperation will be reshaped. The cross-border cooperation component („component 1” of the Commission proposal) would focus on land borders, while cross-border cooperation at maritime borders would be integrated into an extended component of transnational cooperation and maritime cooperation („component 2”). The interregional cooperation component („component 4”) would be limited to two programs (there are currently four), one to allow for all kinds of experiences, innovative approaches and capacity building in connection with the implementation of the programs and to promote European territorial cooperation groups. (EGTC) and one to improve the analysis of development trends.

European Investment Bank

- *EU „CLIMATE BANK”*

In June 2019, the European Council called on the EIB to „step up its activities in support of climate action”. The EIB responded in November 2019 with a new climate strategy and an energy lending policy. The EIB is committed to aligning all its financing activities with the objectives of the Paris Agreement. In particular, the EIB will increase its share of investment in its „climate action and environmental sustainability” priority to 50% by 2025. The EIB will stop financing fossil fuel projects by the end of 2021.

Since March 2020, the EIB's subscribed capital has increased by a further EUR 5.5 billion, following the decision of two Member States to increase their capital subscriptions (Poland and Romania).

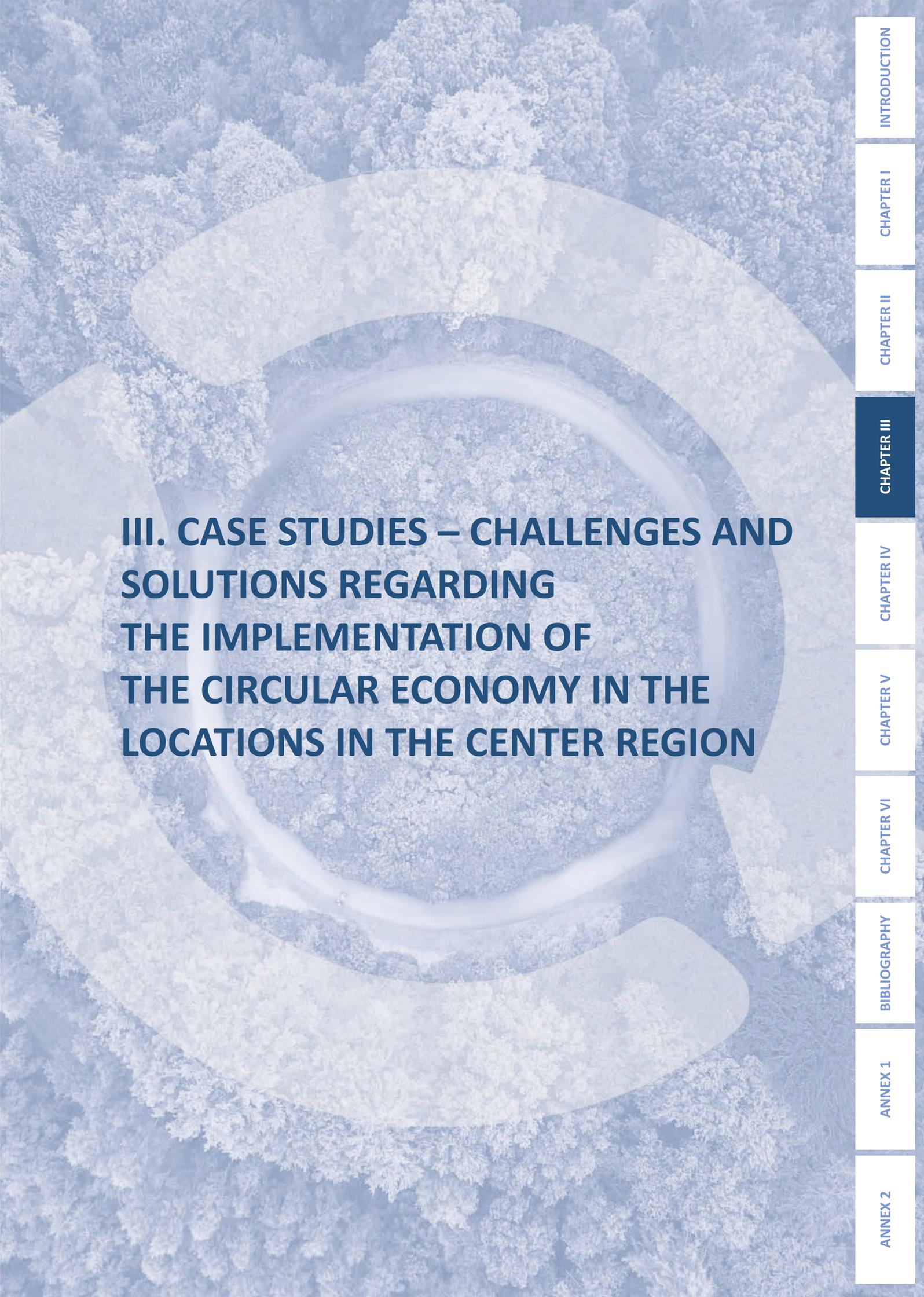
- *RESPONSE TO THE COVID-19 CRISIS*

In 2020, as part of the EU's response to the economic consequences of the COVID-19 crisis, the EIB set up a EUR 25 billion guarantee fund to enable the EIB Group to develop European Union

Fact Sheets – 2020 increases support for companies from all over the world EU Member States mobilizing an additional amount of up to EUR 200 billion.

This is in addition to an immediate assistance package of up to EUR 40 billion, consisting of:

- Dedicated guarantee schemes for banks based on existing programs, for immediate deployment, mobilizing up to EUR 20 billion in financing;
- Liquidity lines dedicated to banks to provide additional support of EUR 10 billion for working capital for SMEs and medium-sized capitals;
- Dedicated asset-backed securities (ABS) programs to enable banks to transfer risk to SME loan portfolios, mobilizing another € 10 billion in support.

The background of the page is an aerial photograph of a dense forest. A winding river or stream flows through the center of the forest. Overlaid on this image is a large, semi-transparent circular graphic that resembles a stylized gear or a circular path. The text is centered within this graphic.

III. CASE STUDIES – CHALLENGES AND SOLUTIONS REGARDING THE IMPLEMENTATION OF THE CIRCULAR ECONOMY IN THE LOCATIONS IN THE CENTER REGION

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III. CASE STUDIES – CHALLENGES AND SOLUTIONS REGARDING THE IMPLEMENTATION OF THE CIRCULAR ECONOMY IN THE LOCATIONS IN THE CENTER REGION

3.1. Qualitative and quantitative investigation of citizens' behaviors towards the circular economy in the Central Region

As mentioned in the presentation of the methodology, during the study we collected quantitative and qualitative data collected through questionnaires and interviews with stakeholders from public authorities, business, academia and civil society. The research took place between July and October 2020. The purpose of this data collection was to identify the behavior of citizens and organizations towards belonging to a circular city and to meet the needs and challenges they have by developing stringent projects in directions such as the recovery of organic waste; involving children and young people in urban regeneration activities and encouraging activities aimed at reducing or stopping pollution, addressing cities to become areas of sustainable urban development in attracting new investment in cities; generating activities to engage the urban community in active citizenship projects, encouraging conscious participation and educating citizens on urban development etc.

The citizen perspective on the circular economy in the Central Region

This research was attended by experts, and the interview technique was the focus group, which included between 5 and 15 participants depending on key areas such as production, consumption, waste management, secondary raw materials, competitiveness and sectors of activity such as agriculture , biomass recovery, food industry, water management, construction and infrastructure, plastics, energy, mobility, tourism and recreational activities, and education. This research was attended by 140 people who were part of the working groups addressed to the business environment, the educational environment, civil society and public authorities, to which the following questions were addressed.

Question 1: In 10 years, the circular economy market in your city will be in the top of the national suppliers of ..?

This question was an open one, and the main topics that emerged from the participants' answers were: eco-tourism, renewable energy, recyclable packaging waste and local products and services.

Question 2: What is your opinion on the objectives prioritized below?

To this question, the whole sample considered that the involvement of children and young people in urban regeneration activities is the first goal that must be set without delay in order to facilitate the transition to a circular economy. Subsequently, objectives such as the development of a food bank that would facilitate the reduction of food waste, schools to educate children in the direction of the circular economy and support for the introduction of green alternative energies in the city were equally considered by 78 % of participants, as the following stringent objectives that should be set at the level of the cities of origin. The opinion of the participants was quantified on a Likert scale where 1 = total disagreement respectively 5 = Total agreement.

	Total disagreement	Disagreement	Indifferent	Agreement	Total agreement
<i>A food bank that would facilitate the reduction of food waste.</i>	0	0	0	21	78
<i>Recovery of organic waste through biogas production.</i>	0	0	0	50	50
<i>Integrating the principles of permaculture and sustainable agriculture.</i>	0	0	0	38	61
<i>Involvement of children and young people in urban regeneration activities.</i>	0	0	0	0	100
<i>Transforming your city as a pole of small sustainable urban development in Romania and attracting investments in the city.</i>	0	0	0	7	2
<i>Creation of living laboratories in the city, in order to collect and analyze data on social and environmental functions etc.</i>	0	0	0	42	57
<i>Enhancing and stimulating ecotourism and new carbon-neutral buildings.</i>	0	0	0	42	57
<i>Schools to educate children in the direction of the circular economy.</i>	0	0	0	21	78
<i>Support the introduction of green alternative energies in your city.</i>	0	0	0	21	78
<i>Utilization of wastewater and stormwater by optimizing the efficiency of resources.</i>	0	0	0	28	71
<i>Obtaining renewable energy from biomass.</i>	0	0	7	28	64
<i>Eco-innovation by creating business incubators in your city.</i>	0	0	0	50	50
<i>Finding alternatives to current building materials and recycling construction waste.</i>	0	0	0	35	64

Question 3: Where do you think is the highest value lost in material flows in the city?

This question was open-ended, and the main issues that emerged from the participants' answers were: food waste, non-recycling of waste, construction and disposal waste, and the lack of an integrated public transport system.

Question 4: Where do you think are the best chances for new circular employment opportunities?

Open-ended question, and the main topics that emerged from the participants' answers were: construction waste recycling, eco-tourism, start-ups, the agri-food sector and the renewable energy production industry (photovoltaic, wind farms, biogas plants).

Question 5: Please provide data on your expectations regarding the city's circular economy initiative, as follows: ...

The aim of this question was to operationalize the opinion of the citizens regarding the expectations they have regarding the involvement and contribution of the different stakeholders in achieving the

desired objects regarding the implementation of the circular economy in the Central Region. Therefore, the public administration is the one with which the participants have the highest expectations regarding the circular economy initiatives, 78% of the participants considering that the public institutions must be a main stakeholder 71% of respondents considered that several stakeholders need to be involved in the success of circular economy initiatives, and 71% considered that the number of actions proposed must be substantial.

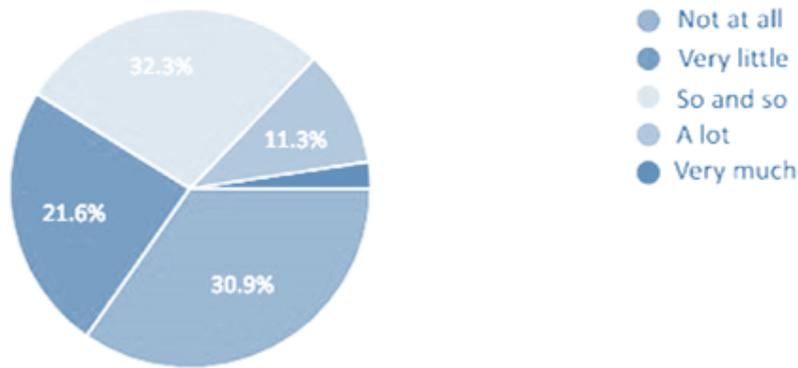
	1	2	3	4	5	6	7	8	9	10
No. public administrations involved	7	0	0	0	0	0	0	7	7	78
No. of stakeholders involved	0	7	0	0	0	0	0	14	7	71
No. of actions	7	0	7	0	0	0	7	7	7	64
No. projects	7	0	0	7	0	0	7	15	0	61
No. of projects financed by your city.	7	0	7	0	0	0	0	14	7	64
No. private sector funded projects	8	0	0	0	8	0	8	16	8	50
No. of staff employed for the initiative and implementation of the circular economy in your city.	7	0	0	0	0	7	0	23	15	46
of public investment in the circular economy initiative by your city	8	0	8	0	8	0	0	16	0	58
No. of new circular businesses created (eg companies, start-ups etc.)	7	0	0	7	7	0	7	7	7	53
No. of employees in the new circular business	7	0	0	7	0	0	0	7	23	53
No. of enterprises that adopt circular economy principles	15	0	0	0	0	0	15	7	0	61
No. of companies trained by the city to adopt the principles of the circular economy	8	8	0	0	0	0	8	25	0	50
No. of contracts awarded by the procurement department of the city, which include a criterion of the circular economy	6	6	0	0	0	6	0	18	25	37
N. of hubs that support the development of circular business	7	0	15	0	7	0	0	7	23	38

Organizational perspective on the circular economy in the Central Region

This questionnaire was answered by a sample of 307 participants (199 female, 108 male), aged between 18 and 71 years. Regarding their degree of schooling, 4.6% stated that they had completed doctoral studies, 12.4% master's studies, 23.8% undergraduate studies and 52.8% high school studies.

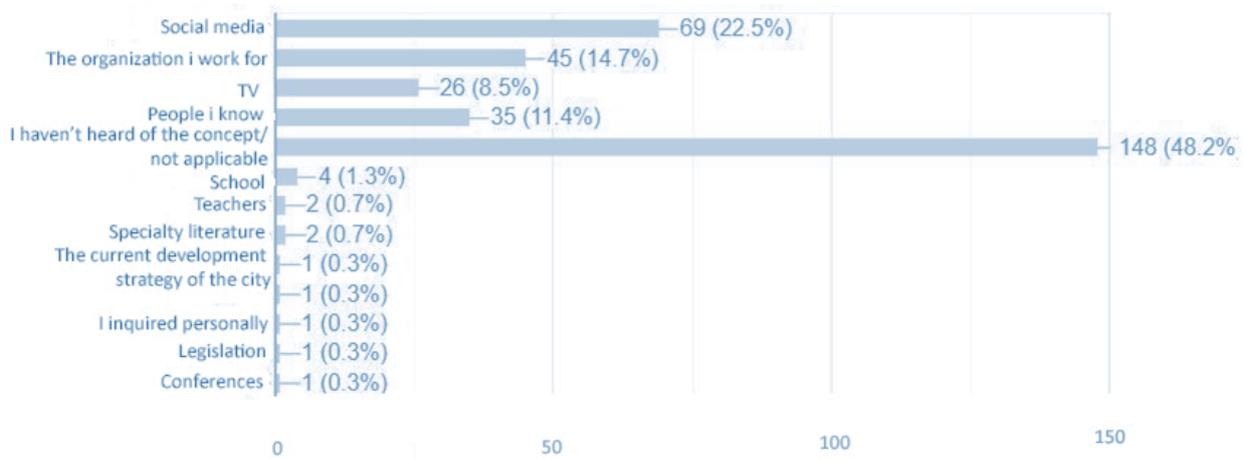
Question 6: Is your organization discussing its transition to a circular economy?

The answers to this question were operationalized on a Likert scale where 1 = Not at all and 5 = Very much. Only 3.8% of respondents indicated that in their organization this is a topic very often invoked, and 11.3% answered that in their organization there is still much talk about the transition to a circular economy. Most participants, however, answered that their organization discusses very little about this transition (21.6%) or not at all (30.3%).



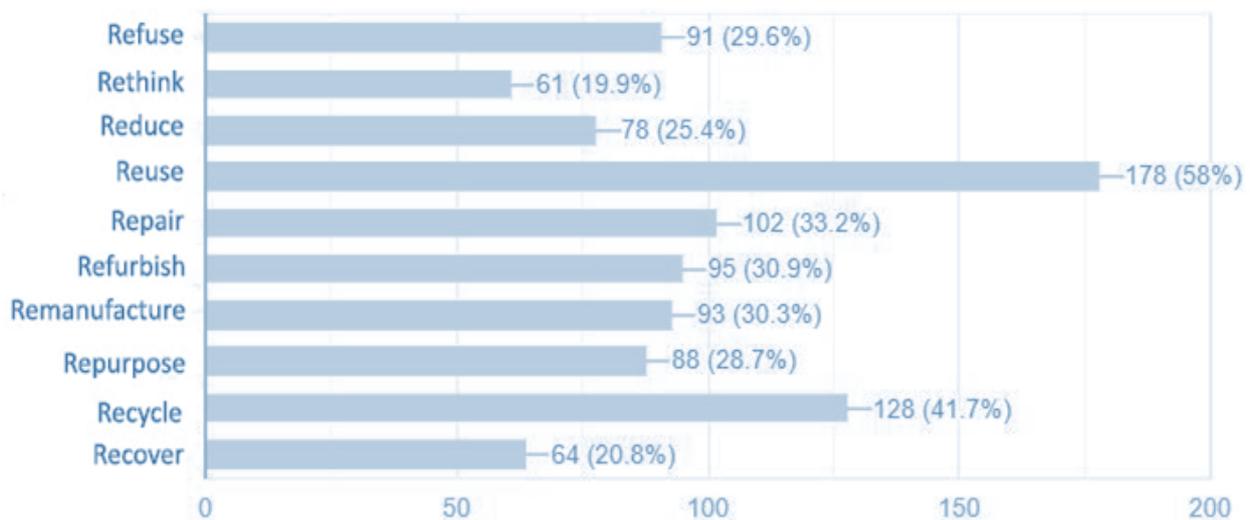
Question 7: Where did you hear about this concept (circular economy)?

Most participants (48.2%) have not heard of this concept. Instead, those who have heard of the circular economy so far, said that their source of information is social media (22.5%) followed by the organization in which they work (14.7%), people they know (11.4%) and TV (8.5%).



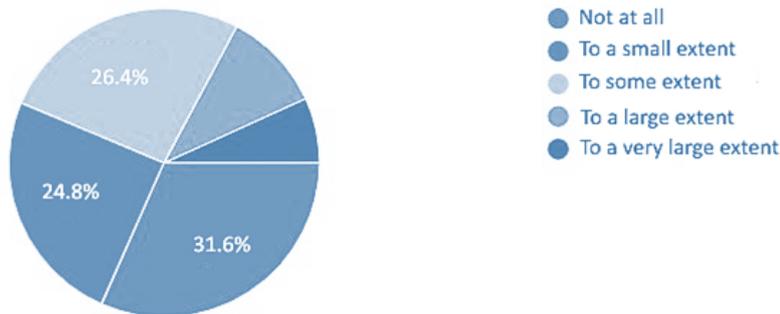
Question 8: What do you associate the concept of circular economy with?

A majority of 58% of respondents associate the concept with the term „reuse“, 41.7% associate it with recycling, followed by a percentage of 33.2% of respondents who associate it with the term repair.



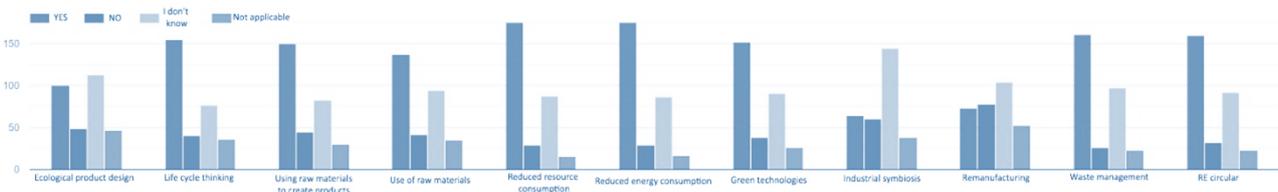
Question number 9: Do you know the reasons why we should develop circular organizations?

According to the illustrated diagram, the participants rather do not know what are the reasons why it is necessary to facilitate the emergence of circular organizations, 31.6% of the participants answering “not at all” to this question. The next majority category is that of respondents who know to some extent (26.4%) being close to those who said they know „to a small extent” (24.8%) the reasons why circular organizations should be developed.



Question number 10: What are the practices that are taken into account in your organization?

To this question, the main practices that respondents identified as being present in the organizations of origin were low energy consumption, recycling and product life cycle thinking.



3.2. Case studies

3.2.1. CASE STUDY 1: Cugir City, Alba County



3.2.1.1 Introductory Aspects

According to the data provided by the National Institute of Statistics, in 2019 the population of Cugir by home was 25,759, keeping the same downward trend (in 2018-26052 people, in 2017-26458 people). Population structure: according to sex: 13,222 women and 12,537 men, most of them of Romanian ethnicity, approximately 7 followed by Roma citizens and other nationalities (Hungarians)

The territorial area of Cugir City, with an area of 354.1 km², occupies the southwestern part of Alba County, at a distance of 40 km, south – west of Alba-Iulia – the county seat, south of Mureş Valley at a distance of 15 km, 25 km east of Orăştie municipality, Hunedoara county and 35 km east of Sebeş municipality. Compared to the urban system in Romania, according to Law No. 351/2001, the city of Cugir is an urban locality of rank III, small in size and has seven other component localities: Bocşitură, Bucuru, Călene, Feţeni, Goaşele, Mugeşti and Vinerea . The administrative-territorial area of the city covers an area of 34,577 ha, predominant as landforms, the hill and mountain area.

The territory of the city is crossed by two watercourses, respectively Râul Mic and Râul Mare which spring from Mount ũrianu and join at the entrance to the city. Along the Râului Mare, in the area called Canciu, about 28 km upstream from the city is built the Canciu dam, managed by Hidroelectrica Sebeş, and along the Râului Mic, 8 km from the city is built the drinking water supply dam of the city of Cugir which is administered by SC APA CTTA SA Alba Iulia-Cugir Branch (Cugir City Hall, 2014).

Regarding the economic side, the main economic agents that carry out activities are: SC Uzina Mecanică S.A. CUGIR, SC Fabrica de Arme Cugir S.A. where weapons and ammunition are manufactured, SC Star Transmission SRL, SC Bulbucan SRL, SC Elit SRL and S.C. New Module S.R.L.

Currently, 1,285 economic agents operate within the city of Cugir, of which 4 with state capital and 1,281 with private capital. There are 4 economic agents with state capital, of which: – armament and ammunition are 2, – commercial companies 552; -authorized individuals 113; -individual enterprises 589; -family enterprises 25. – family associations 6.

The location of the city in a special natural setting, in a mountain area with direct access to the ureanu ski area, gives it favorable conditions for the development of tourism. However, tourism has an insignificant share in the city's economy, limited to the practice of small-scale tourism.

In 201 , the city of Cugir registered an energy saving of 23. compared to the average of 2010-2012. This percentage is a great advantage for the city, given that in accordance with Law no. 121/2014 on energy efficiency, amended by Law no. 160/2016, it was established that the target of energy savings at the local level, resulting from energy policy measures must be 1 by 2020 compared to the average ten years ago. The 4 micro hydropower plants on the Cugir River, which have been producing since 2011 and which introduce green energy (electricity from SRE) of 22217 Mwh/year, brought a great contribution to exceeding this target. This exceeds by 34 the electricity consumed in the entire city, taken from the national system in 2019, and what was obtained last year is a saving of 23. Mhw/year compared to 2008 (PAED Cugir, 2020).

By signing the “Covenant of Mayors in 2010”, the City of Cugir has committed to achieve reductions in CO2 emissions by 2020 of 22.1 compared to the reference year 2008, and the reduction obtained in 201 was 26. .

In 2019, at the level of Cugir City, a total of 5625 Tons (6106 Tons in 2018) were collected from the population and from the public domain, out of which 3457 Tons were deposited in authorized landfills, recoverable in various forms 2168 Tons, from which waste paper, paperboard, plastics, PET, WEEE, iron, glass 2058 Tons, construction and demolition wastes reused for the consolidation of mountain roads 110 Tons. The recovery of the waste was done mainly through four specialized companies.

In accordance with the provisions of Law no. 458/2002, on drinking water quality and Government Decision no. 974/2004, on the approval of sanitary inspection and drinking water quality monitoring norms, the local authorities have concluded a Contract with DSP Alba for monitoring and the control of the quality of the drinking water from the springs and wells located on the public domain of the City of Cugir, having also the obligation to display on the spot information regarding the potability/non-potability of the water. According to the analyzes performed by DSP Alba during 2019, the only drinking spring is the one on M. Viteazu Street in Cindenii.

The water from the well on 1 Mai Street Nr. 25, can be made potable by disinfection, while the spring on S. Bărnuțiu requires monitoring. Otherwise, all other springs within the locality exceed the maximum limits of nitrites, nitrites and ammonium.

3.2.1.2. Challenges regarding the implementation of the circular economy in Cugir

Following the public consultations we had with the Public Authorities, the Educational Environment and the Civil Society, but also the analysis of the official documents, the following challenges stood out:

- P1.** One of the challenges of this city when it comes to implementing the circular economy is the fact that there is no place for storage of construction waste and vegetable waste, which often end up in riverbeds, thus polluting the environment at the edge of the forest. ;
- P2.** The need for complete and selective waste collection at source, ensuring proper transport, efficient sorting and processing, and as little as possible pollution, efficient recovery and recovery, increasing selective storage as it already exists, revaluation of hospital waste and other hazardous waste, strict monitoring of peripheral areas, riverbeds, forests to avoid spills and abusive storage in the natural environment;
- P3.** Also another challenge regarding waste is the fact that there is no collection system for DEE devices that represent a real danger to the environment;
- P4.** Lack of a modern infrastructure that takes into account the possible effects on the environment. In order to take advantage of the opportunities that the city could have from an economic point of view and not only, it is necessary to develop an infrastructure that covers all areas of the city, thus facilitating communication between economic agents, local authorities, NGOs and others. actors from the local community but also facilitating access to a series of services for the population;

Also in the same category is the fact that there are no bypass road (eg Vinerea locality) to decongest the traffic in the city, there is no bypass route for heavy traffic. There is also no connection to the European Corridor 4 Motorway (Arad-Deva-Sebeş-Sibiu) near the city. The geographical positioning of the city of Cugir, in the immediate vicinity of the Apuseni, Ţureanu and Cindrelului Mountains, respectively offers it a high tourist potential, which is currently insufficiently exploited. This is mainly due to the lack or high degree of degradation of the infrastructure that connects the city of Cugir to the Mountain Area, and also to the low degree of promotion of the existing tourist objectives in the area;

- P5.** Lack of renewable energy sources and energy efficiency. According to the data presented in the action plan for sustainable energy, the sectors responsible for CO₂ emissions are highlighted, namely, 53.7 % of the residential sector from the use of methane gas for heating, followed by the residential sector from the use of electricity 16,4 %. For the analyzed period 2008-2010, the production of energy of any kind from renewable sources was insignificant to be taken into account;
- P6.** Lack of water sources and irrigation that can decisively influence agricultural production. In order to be sustainable, wastewater could be collected and treated so that it can be reused for irrigation, thus being a free and easily accessible source that already contains significant levels of nutrients, no longer requiring chemical fertilizers. Also, this source can be used for irrigating parks, green spaces and other urban areas.

3.2.1.3. Measures and actions developed for the implementation of the circular economy in Cugir

When it comes to the measures and actions implemented to move to a greener economy, the city of Cugir is doing very well. We can already talk about the fact that there is a well-documented and up-to-date sustainable mobility plan and a sustainable energy action plan. Of course, in addition to these plans, several projects aimed at the transition to a circular economy have already been implemented or are being implemented. Measures include:

- M1.** Firstly, according to the sustainable mobility plan, the aim is to create an urban transport system that is efficient, sustainable and that can provide all citizens with transport options for all areas of the city, thus allowing access to essential destinations and services, this aspect following to reduce air pollution while also contributing to increasing the attractiveness and quality of the urban environment for the benefit of citizens, the economy and society in general;
- M2.** Also with a focus on energy and carbon reduction within the Cugir Sustainable Energy Action Plan (Cugir SEAP) the following directions of action have been established:
- Increasing the energy efficiency of public buildings, such as those under the own administration of public authorities, schools, the City Hospital and last but not least public lighting;
 - Encouraging and supporting the Owners' Associations in their action to reduce the expenses for the payment of utilities by increasing the energy efficiency of the residential buildings, with priority of those located in blocks of flats;

- Informing civil society and legal entities about ways to increase the energy efficiency of the buildings and facilities they manage and the possibility of using renewable energy sources (RES) appropriate and adaptable to their specific needs;
- Organizing information sessions on the possibility of energy production using RES, taking into account specific local energy sources such as good insolation and a morphology of the territory that allows the construction of micro hydropower plants (see study by ICEMENERG) and energy potential assessment of renewable energy sources in Romania;
- Orientation towards the realization of private and/or public-private investments for the production of energy through a pyrolysis process using as fuel the organic waste and/or the household waste from the area.
- The production of electricity using local resources, solar and wind energy, is a key factor in the policy of diversifying energy sources to maintain a clean environment.
- Encourage the production of electricity and/or heat using solar, wind and hydroelectric energy resulting in small developments, biomass or cogeneration and/or trigeneration installations, combined with the optimal use of available energy and an appropriate policy to encourage extended energy savings to as many consumption areas as possible, which can lead to a limited dependence on the national energy network with immediate positive effects on greenhouse gas emissions.
- Initiating information and involvement programs for the general public, organizing meetings for exchanges of ideas, encouraging private initiatives, training specialists through training and improvement courses aimed at saving energy and learning consumer habits, which should be the advantage of all.

One of the strategic objectives proposed in PAED Cugir 2012, aimed at the rehabilitation, modernization and development of schools I- Iosif Pervain, II, III, IV- Singidava, Ioan Mihu- Vinerea, David Prodan College and I.D. Lăzărescu, in order to make energy consumption more efficient.

According to the latest statistics presented in the new SEAP of the city of Cugir we can see in the tables below the real evolution of heat consumption of each school before and after the investments made. The values were compared with those established at the energy audit in 2007 and the evolution in 2019 compared to MEDIA 2010-2012.

Table no.2. Evolution of thermal energy consumption expressed in t.e.p./year for the period 2007 – 2019 at the 5 schools mentioned above

An OB.	2007	2008	2009	2010	2011	2012	MEDIA	2013	2014	2015	2016	2017	2018	2019	MEDIA 019
1 t.e.p./an	25,5	14,2	14,8	13,5	14,8	16,6	15,0	18,0	14,5	17,6	15,4	16,0	15,1	15,0	0
2 t.e.p./an	46,7	34,8	28,8	21,5	28,1	25,3	25,0	26,2	32,1	32,1	25,4	29,6	31,2	31,3	6,3
3 t.e.p./an	72,7	38,9	39,9	48,5	45,3	34,7	42,9	39,7	37,4	39,1	41,7	47,0	48,2	44,3	1,4
4 t.e.p./an	24,3	17,9	16,6	15,7	18,0	17,9	17,2	10,4	15,9	16,3	17,1	16,6	16,3	10,5	6,7
5 t.e.p./an	20,9	18,6	17,1	7,5	14,6	21,5	14,5	18,5	12,4	13,6	18,5	17,7	9,0	7,6	6,9
Total t.e.p./an	190,1	124,4	117,2	106,7	120,7	116,1	114,6	112,8	112,3	118,6	118,0	127,0	119,8	108,7	5,9
%	100	65,4	61,7	56,1	63,5	61,1	60,3	59,3	59,1	62,4	62,1	66,8	63,0	57,2	↓ 5,1%
P lanificat	Real	Real	Real	Real	Real	Real	Obținut	Real							
Ec. t.e.plan	76,0	65,7	72,9	83,3	69,3	74,0	75,5	77,3	77,8	71,5	72,1	63,1	70,3	81,4	5,9
%	100	86,4	95,9	109,6	91,2	97,4	99,3	101,7	102,4	94,1	94,9	83,0	92,5	107,1	↑ 7,8%

Table no.3. The evolution of thermal energy consumption expressed in t.e.p./year for the period 2007 – 2019 at the I.D. Lazarescu

An OB.	2007	2008	2009	2010	2011	2012	MEDIA	2013	2014	2015	2016	2017	2018	2019	MEDIA 2019
7 t.e.p./an	121,8	71,3	66,1	47,9	52,8	54,0	51,6	49,9	42,7	46,1	53,7	53,1	51,5	40,5	↓11,1
%	100	58,5	54,3	39,3	43,4	44,3	42,4	41,0	35,1	37,8	44,1	43,6	42,3	33,2	↓21,5%
	Plan,	Real	Real	Real	Real	Real	Obținut	Real	Real	Real	Real	Real	Real	Real	
Ec. t.e.p./an	78,2	50,5	55,7	73,9	68,9	67,8	70,2	71,9	79,1	75,7	68,0	68,7	70,3	81,3	↑11,1
%	100	64,6	71,2	94,6	88,2	86,7	89,8	91,9	101,1	96,9	87,0	87,9	89,9	104	↑15,8%

Table no.4. Evolution of thermal energy consumption expressed in t.e.p./year for the period 2007 – 2019 at David Prodan College

An OB.	2007	2008	2009	2010	2011	2012	MEDIA	2013	2014	2015	2016	2017	2018	2019	2020	2021	MEDIA 2019
6	684	331	279	381	383	572	445	395	333	399	466	468	472	388			↓57
100	100	48,4	40,8	55,7	56,0	83,6	65,1	57,7	48,7	58,3	68,1	68,4	68,4	56,7			↓128%
	Planificat	Real	Real	Real	Real	Real	Calculat	Real	Real	Real	Real	Real	Real	Real			
Economii	342	353	405	303	301	112	239	289	351	285	218	216	212	296			↑57
%	100	103,2	118,4	88,6	88,0	32,7	69,9	84,5	102,6	83,3	63,7	63,2	62,0	86,5			↓23,8%

In the administrative-territorial area of Cugir, in addition to the projects carried out for some of the city's buildings, 2 micro-hydropower plants on the „Râul Mare” were built between 2011 and 2013, and during 2012-2014 another 2 micro-hydropower plants on the „Râul Mic” , which produce together 22216.98 Mwh/year = 1768.5 toe/year 1 Mwh EE from RES = 0.0796 t.e.p.

Also in the city in about 15 households were installed solar panels for domestic hot water and photovoltaic panels, but no concrete data on the energy produced by them are known, not being registered at the town hall. Since 2017 they have been installed at the company S.C. STAR TRANSMISSION S.A. 30 photovoltaic panels for internal use.

Projects that support the approach to sustainable development:

1. A project in this regard is „Reduction of carbon emissions in the city of Cugir based on the Sustainable Urban Mobility Plan” – project in implementation was submitted on 19.03.2018, within the call for projects POR/186/3/2/Reduction carbon emissions in urban areas based on sustainable urban mobility plans, with SMIS CODE 121438. Transport – under the responsibility of public institutions, individuals and legal entities, by renewing the fleet with new cars with lower consumption or cars that use fuels obtained from RES (biomass) and the use of „Magnetic systems to reduce greenhouse gas emissions while reducing fuels”
2. To meet the objective proposed by SEAP, Cugir ATU has developed a funding application and is implementing the project „Increasing energy efficiency in public buildings Maternity and Pediatrics Section – Cugir City Hospital”, SMIS code 116153, Priority Axis 3 – Supporting the transition to an economy low carbon, Investment Priority 3.1 – Supporting energy efficiency, smart energy management and the use of renewable energy in public infrastructure, including public buildings, and in the housing sector, Operation B – Public Buildings under the Operational Program Regional (ROP) 2014-2020, was submitted on 26.09.2017.

Financing contract no. 2054 was signed on 10.05.2018. The general objective of the project is to increase the energy efficiency of the building – C2, section „Maternity and Pediatrics”, part of the pavilion of the Cugir City Hospital, by carrying out thermal rehabilitation works, modernization of utility networks and equipping the building with an automated system „smart building” type energy management.

3. Project „**Efficiency of the public lighting system in Cugir ATU**” – SMIS code 121577, project in implementation, submitted on 14.08.2018, within the Regional Operational Program 2014-2020/Priority Axis 3 – Supporting the transition to a low-emission economy carbon/Investment priority 3.1 – Supporting energy efficiency, smart energy management and the use of renewable energy in public infrastructure, including public buildings, and in the housing sector/Operation C – Street Lighting/Specific Objective – Increasing energy efficiency in residential buildings, public buildings and public lighting systems, especially those with high energy consumption, call for projects POR/2018/3/3.1/C/1/7 Regions. We can mention that the real evolution of electricity consumption related to the public lighting sector has exceeded the planned reduction in the entire city by 22.1 by 2020 compared to the reference year 2008, even in the conditions of expanding public lighting in 2013 – 2015 and spending smaller amounts than originally planned for the maintenance and improvement of the public lighting system.

M3. On the other hand, in order to reduce carbon emissions by 2019, approximately 3990 apartments and 141 houses were thermally rehabilitated, adding in the period 2017 – 2019, 33 apartments and 41 houses, which led to savings on the consumption of methane gas for domestic heating. Also another measure that the city wants to implement is related to the use of biomass for energy production;

M4. As we know, the city of Cugir has cultivated land with an area of 75 Km² (arable 15.8 Km², hayfields 14 Km², pastures 45 Km²) and a forest fund of approximately 252 Km², all of which represent an energy source, having a technical energy potential of biomass calculated for 2030 at a value of 767 TJ.

The amount of biosphere substance known as biomass is expected to be provided from the following types of resources:

- Plant resources: from agricultural crops, vineyards and orchards (16 Km²), parks and green areas (0.06 Km²) and last but not least urban waste, mainly biodegradable waste;
- Forest resources: forests, also called „green gold” spread over an area of 252 km, representing 73 of the administrative territory of Cugir. Most of the residues resulting from wood processing in our region are collected by a company for the production of chipboard, and another part is transformed into pellets, by local producers, to be used as fuel in thermal power plants.
- Pastoral resources: pastures and hayfields, used for raising animals, occupy 59 km² and represent 17 of the administrative territory of Cugir. These are the source of food for the animals in the area, for which sheepfolds and summer shelters have been built, where

animal products can be prepared directly and ecologically, respecting as much as possible the tradition inherited from our ancestors.

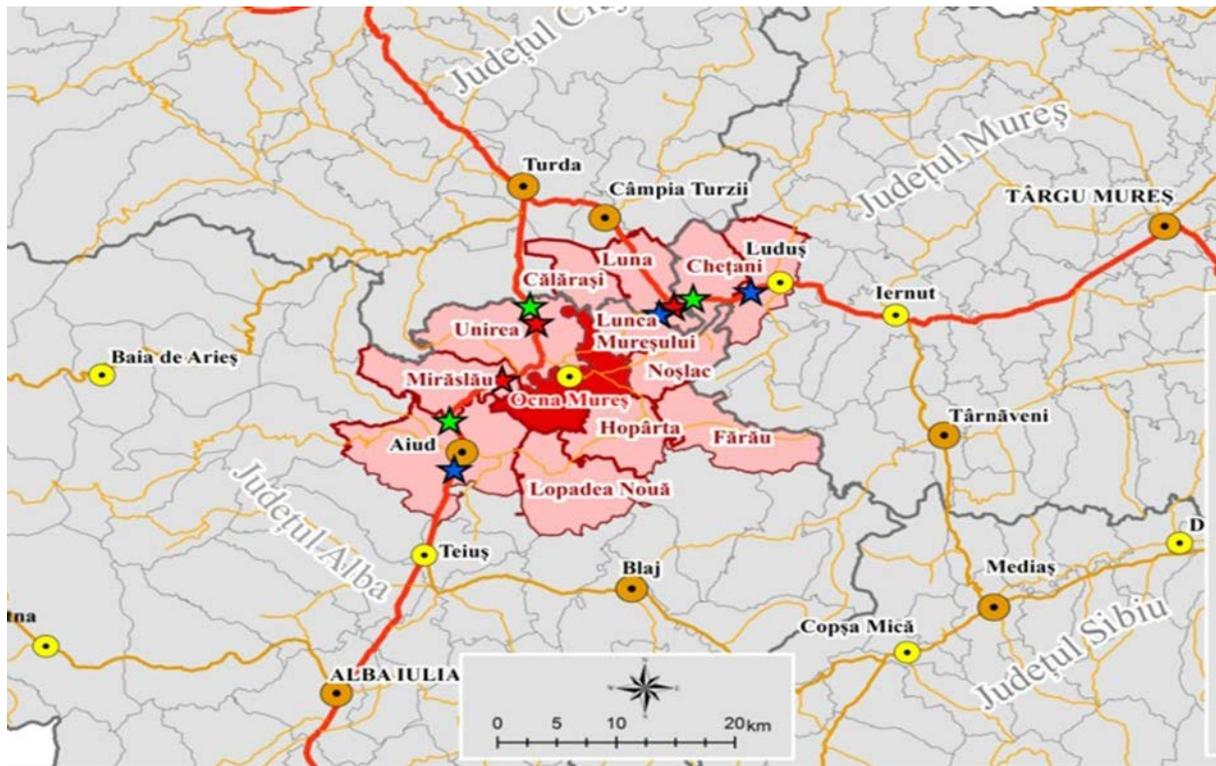
- The faunal resources, as useful to man as the plants, in the area being registered ~ 9000 animal heads, for their growth still keeping the old traditions.
- Of the energy potential that could be provided by biomass, most, respectively 1 could come directly from plant biomass, the rest being divided almost equally between the potential given by biogas and municipal waste.

3.2.1.4. Solutions to the challenges identified in Cugir

Among the solutions we recommend regarding the challenges identified in the city of Cugir are:

- Equipping with utilities and public services of general interest, in conditions of environmental protection and efficient use of resources, in order to increase the attractiveness and functionality of the territory;
- Reducing the amount of household and vegetable waste by composting. This has two benefits. One is that waste will be collected for recovery, and the second is that all biodegradable waste will be an environmentally friendly natural fertilizer that can be recovered;
- Reducing greenhouse gas emissions from the transport sector, by increasing the operational capacity of public transport, with a low degree of pollution;
- Creating an adequate road infrastructure for vehicles;
- Reducing the impact on biodiversity by ensuring measures for the protection and conservation of biodiversity as well as ensuring the coherence of the national network of protected natural areas;
- Streamlining the waste collection system towards an integrated waste management system;
- Implementation of an ecological education and information system in order to educate the population on issues related to environmental protection and circular economy;
- Stimulating alternative transport favorable to environmental protection (construction of bicycle routes, pedestrian areas);
- Realization of bicycle routes;
- Capitalizing on the potential of renewable, solar, water, wind resources;
- Decreasing uncontrolled deforestation and increasing the recovery of the forest fund through replanting actions.

3.2.2. CASE STUDY 2: OCNA MUREȘ CITY, ALBA COUNTY



3.2.2.1. Introductory aspects

Ocna Mureș is located in the northwestern extremity of Alba County, on the middle course of the Mureș River, in the hilly area of the Subcarpathians, between the Transylvanian Plain and the Târnavelor Plateau. With a total population of 14,671 inhabitants, Ocna Mureș has five localities: Uioara de Sus, Uioara de Jos, (Ciunga) Războieni-Cetate, Cisteiu de Mureș (Cistei) and Micoșlaca.

The profile and recent history of Ocna Mureș are definitely marked by the exploitation of salt, which led to a prolific economic and social development, but also to a series of catastrophes as a result of anthropogenic activity, which affected the viability of the town and the quality of life. Ocna Mureș was therefore an industrial city, even mono-industrial, based on the extraction and processing of salt from the well field. Also, due to the use for medical purposes of chlorosodium waters present on the territory of the locality, Ocna Mureș was also considered a spa resort. Both valences of the city disappeared with the cessation of salt exploitation and the disappearance of the „Salt Baths” Complex. However, Ocna Mureș has natural and climatic factors that can be capitalized for the development of economic sectors such as tourism, animal husbandry, agriculture, also benefiting from human resources with a medium level qualification. Now, the industrial sector has become relatively diversified, with activities specific to garment manufacturing, civil and industrial construction, milling and bakery. However, the most important economic aspect remains the major potential (natural resources and labor force) for the industrial sector of salt extraction and processing and all derivatives (Ocna Mureș City Hall, 2016).

At the moment, as it appears in the most recent strategic document, the vision of the city's development in terms of urban regeneration, environmental protection and greening, follows two main directions:

- Areas polluted over time or those degraded as a result of natural or anthropogenic processes, have double the potential of rational use to contribute to stopping urban dispersion, but also to an ecological and economic balance of the area. Some of them, such as the central area of the salt lakes formed after the collapse of the former mining galleries or Banța hill have the potential to be transformed into a network of welcoming public spaces, with green areas and leisure facilities, with integrated cycling and pedestrian routes.
- The other category of land, such as the battles on the banks of the Mureș River, can be capitalized, economically exploited and transformed into productive areas, ecologically equipped (either by installing photovoltaic panels, given the solar potential of the region, or agricultural).

3.2.2.2. Challenges regarding the implementation of the circular economy in Ocna Mureș

- P1.** Insufficiently treated wastewater: In 2015, in the city of Ocna Mureș and its component localities, the simple length of the drinking water distribution network was 76. km, 31.73 higher than in 2012 (52.5 km) and 42.65 higher than a decade ago (44.1 km in 2004). However, the lack of efficient treatment plants as well as the physical and chemical pollution of the Mureș River water in Ocna Mureș and in the related localities of Cisteiu de Mureș and Micoșlaca puts additional pressure on the water quality management system. The insufficiency of water purification is an important aspect that deepens the linear approach of the produce-use-throw type of the man-made water use present at the moment. Thus, a circular approach should take into account primarily the design of waste outside the system (by optimizing the amount of energy, minerals and chemicals used in the operation of water systems), the conservation of resources in continuous use (by optimizing the efficiency of resources- the use and reuse of water, energy, minerals and chemicals within the system as well as by optimizing the extraction of energy or resources from the water system);
- P2.** Lack of an integrated waste management system: The former landfill of Ocna Mureș is currently closed and in the process of greening. After being collected, all the waste is transported to Cristian locality, in Sibiu county. The lack of a storage space, located in the vicinity of the citizens of Ocna Mureș, favored the appearance of inappropriate urban waste landfills, which still affects the quality of life. Also, it is necessary and opportune the economic capitalization (covering the battles with vegetation, building a photovoltaic park on the battle area etc.) of the bats of the former GHCL Upsom Combine.
- P3.** Irrational exploitation of salt deposits: The drainage of water on the slope determines a susceptibility of the lands in the area to landslides. There are black holes that have been filled with water forming salt lakes, from a mixture of oils and diesel with salt. The irrational exploitation also led to the accelerated degradation of the salt massif;

- P4.** Historically polluted industrial area: Combat battles pollute a large number of hectares in the city, requiring a greening of the area, followed by the identification of ways to capitalize. Over the years, in the industrial area, chemicals have been released into the environment as a result of normal operation and accidental spills. Once released, these chemicals have moved to nearby areas by various means (including air, dust and/or water) and even contribute to the complex nature of pollution in Ocna Mureş. The most common chemicals handled in most industrial sites are chlorinated solvents, organic chemicals that do not form naturally;
- P5.** Deficient public transport: Public transport is carried out through the Public Passenger Transport Service within Ocna Mureş City Hall. It has 3 Iveco minibuses of 3000 cc diesel each. Approximately 1,400 km are carried out weekly in total with the 3 minibuses with a total consumption of approximately 8,000 l of fuel. However, the three minibuses are not enough. There is an acute lack of public transport for people who want to travel the distance between Ocna Mureş and neighboring towns. The rehabilitation of the major transport axes related to the city of Ocna Mureş that connect the entrances and exits of the locality with the central area, (inclusive), the arrangement of bicycle lanes and access ramps on the sidewalks of people with disabilities would be all necessary. Smart, green and integrated means of transport can be an answer to the problem of pollution and a catalyst for smart urban mobility;
- P6.** Correlation of strategies: inclusion/assimilation of the strategy of Ocna Mureş city in the strategy of the county, region and at national level;
- P7.** The lack of a strategy for improving energy efficiency and the collection of data on energy consumption recorded in the territory is sporadic, without continuity, there is no catalog of indicators to be monitored, clear reference periods or a periodicity of their reporting.

3.2.2.3. Measures and actions developed for the implementation of the circular economy in Ocna Mureş

Among the measures intended to be taken into account for future projects developed by Ocna Mureş are:

M1. Reducing the number of non-compliant landfills and increasing the readiness for recycling

In order to protect and improve the quality of the environment and the comfort of the local residential habitat, Ocna Mureş City Hall wants to contract through the Great Infrastructure program the implementation of selective collection systems, funds for an integrated waste management system, which is currently missing. The aim is therefore the construction of transfer and recovery/treatment facilities, including composting platforms and individual composting units, the construction of sorting and mechano-biological treatment stations but also the closure and rehabilitation of non-compliant landfills, which affect the quality of urban habitat and citizens ;

M2. Maintaining and restoring degraded ecosystems

Ocna Mureş City Hall also proposed in its development strategy, measures for decontamination and greening of historically polluted sites, including the restoration of natural ecosystems and ensuring soil quality in order to protect human health. Following the decontamination, the demolition of degraded buildings located on the lands subject to interventions, the construction of pedestrian alleys, bicycle lanes, and landscaping (deforestation of existing vegetation; land modeling; planting perennials/lawning of surfaces, including tree planting and bushes);

M3. Energetic efficiency

An example of a measure taken in the field of energy efficiency is the installation of a photovoltaic power plant to produce electricity to cover the own consumption of the City Hall of Ocna Mureş. This ensures the energy independence of the town hall from the electricity supplier and at the same time the efficient use of a vacant land that did not have a useful use. Also, in the field of public lighting, local authorities have been concerned with replacing lamps with high electricity consumption with lighting with lamps with high energy efficiency, long life and which can ensure proper comfort (eg LED).

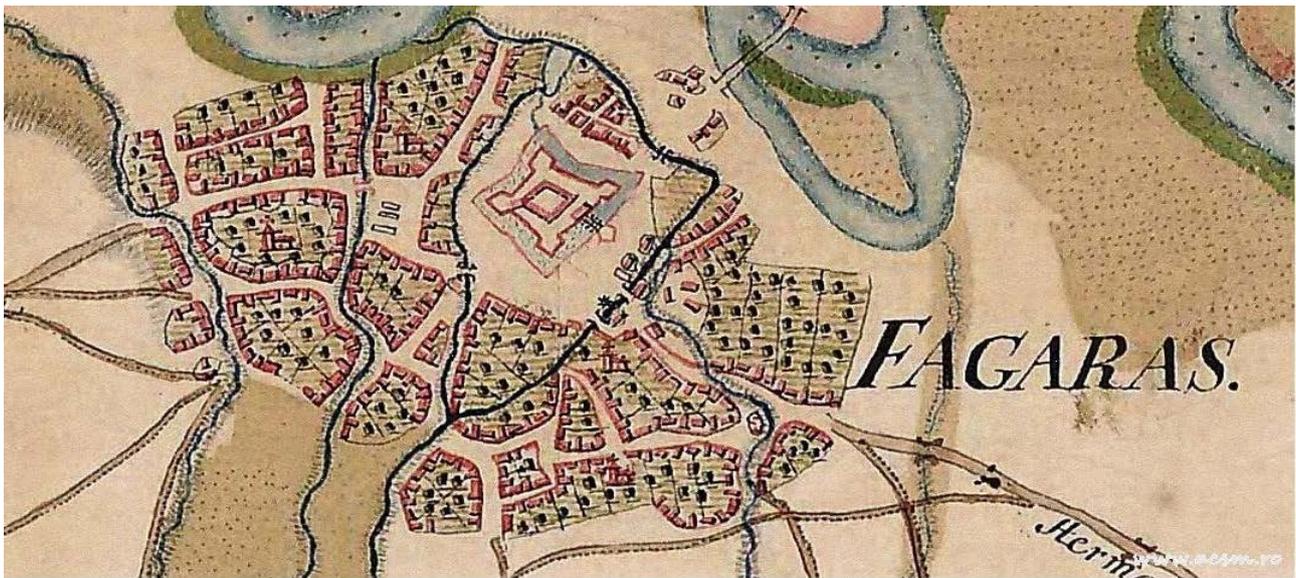
3.2.2.4. Solutions to the challenges identified in Ocna Mureş

Solutions that can contribute to the sustainable development of the city and the community, at the same time, can focus on the following directions:

- Improving and developing intersectoral partnerships at the level of non-governmental, academic, associative and public administration environment, in order to develop joint projects aimed at developing the local community, improving the quality of life and image of Ocna Mureş, as well as training human resources at community;
- Rehabilitation of the water supply system of Ocna Mureş city (capture, supply, distribution, water metering in Războieni – Cetate) in order to reduce water losses and energy consumption;
- Thermal rehabilitation of buildings serving public institutions and blocks of flats through building enveloping interventions, non-renovated that have a high energy consumption index, which favors energy losses;
- Utilizing the potential of renewable sources in Ocna Mureş, the greatest potential having solar energy and biomass production;
- Development of sustainable urban transport systems, with low CO₂ emissions, which promotes intelligent management of sustainable urban mobility and which connects Ocna Mureş with satellite localities, with the major benefit of facilitating the commute of students and other citizens moving from the locality to go to school or work;
- Greening the areas related to industrial battles and identifying ways to capitalize (planting willow energy, urban regeneration, industrial museum etc.);

- Afforestation of hills to stop and prevent landslides, Dealul Banța can be transformed into a forest with a dual role, recreational and avoiding the risks of landslides and flooding at the base of the hill;
- Construction of underground platforms for selective waste collection from the population and economic agents.

3.2.3. CASE STUDY 3: Făgăraș Municipality, Brașov County



3.2.3.1. Introductory aspects

Făgăraș is the second largest city in Brașov County. It is located in the center of Romania being positioned between 45° 23 '13 „- 46° 12' 12” northern latitude and 24° 39 '44 „- 26° 6' 11” eastern longitude and at an altitude of 424-441 m from the Black Sea . The total area is 3544 ha, of which urban, ha: 1648 ha urban and 1896 ha extra-urban. The administrative territory of Făgăraș municipality borders: to the North with oarș commune, Sona, Felmer, Calbor, to the East with Mândra village, to the South the villages Râușor, Ileni, Hurez and to the West with Beclean village.

The city had a commercial profile based on capitalizing on the products of guilds and agriculture in the area. In the second half of the twentieth century the city became an industrial one and the built fund also increased with the increase of the population. The post-industrial era changed the economic profile returning to the commercial profile, the service sector and that of small industry

The economic sector is made up mostly of small and medium enterprises, totaling a turnover of 700 million lei. Industry and constructions represent most of the companies from Făgăraș. The chemical, machine building, textile and food industries contracted, leaving the leading role in hiring metal construction and agriculture. The number of employees decreased but economic efficiency and productivity increased. The tourism sector is also growing.

State of the environment in 2018 excerpt from the Development Strategy 2014-2020:

- Area of green spaces (ha): 70.6
- Number of parks in the locality (units): and their area (ha): 13.32
- Degree of coverage with forests and other types of forest vegetation (): 2.
- Quantity collected of household and similar waste collected from the population, in mixture (kg): 3,339,718
- Quantity of household and similar waste collected from mixed institutions and economic agents (kg): 4,054,811
- Quantity of household and similar waste collected per capita (kg/inhabitant): 86.7
- Recovery rate of household and similar waste (): 0
- Company authorized for waste collection and transport in the locality: SC SALCO SERV SA.
- Investments in renewable energy in the locality: 0

3.2.3.2. Challenges regarding the implementation of the circular economy in Făgăraș

The challenges identified for different sectors in Făgăraș Municipality are:

- P1.** From the analysis of the traffic flows, for the three reviewed sectors, it resulted that the service level falls into category D for 2-lane roads, a flow close to instability and service flows with considerable fluctuations. The service level of the national road sectors representing a quantitative estimate of the operational conditions of traffic expressed by traffic speed, duration of travel, comfort and traffic safety. In practice, 6 service levels marked with letters A to F are used;
- P2.** Capital interventions are necessary to the road network through rehabilitation or modernization works that must be performed after the completion of the works on the drinking water distribution network and sewage sewerage. Modernization work should also include sidewalks and curbs to increase pedestrian mobility and accessibility for people with reduced mobility or wheelchairs;
- P3.** The lack of the bypass leads to high values of traffic volume (including heavy traffic) but also to a noise level above the allowed limits;
- P4.** The technical condition of the streets inside the municipality is a weak point regarding its development potential;
- P5.** Non-adaptation of public transport to the requirements of all categories of passengers;
- P6.** Underdeveloped and insufficiently supported transport alternatives (eg bicycle transport);
- P7.** The age of water supply and sewerage networks leads to the provision of these services at sub-standard standards; the distribution and collection system does not technically correspond to the current parameters, being necessary both the implementation of the rehabilitation projects and the connection of all the areas of the municipality to it;
- P8.** Punctual physical wear of the elements related to the natural gas, district heating and electricity distribution systems can lead to blockages and interruptions throughout the system;

- P9.** The public lighting network and the distribution network require modernization and rehabilitation due to the physical aging of the wiring and line transformers whose technical insufficiency produces low efficiency;
- P10.** The lack of a municipal waste sorting station and an ecological waste landfill in the vicinity of Făgăraș Municipality leads to negative effects from the perspective of environmental protection and fuel consumption;
- P11.** Degradation of the built environment related to living areas leads to high values of thermal and electrical energy consumption;
- P12.** the health infrastructure needs modernizations, not being aligned with the needs of the community (buildings and medical equipment);
- P13.** The cultural activity in the city is underfunded and centers around events organized by institutions such as the Municipal House of Culture, the Făgăraș Country Museum and the Făgăraș City Hall. The lack of significant investments is felt in the quality of the existing infrastructure and limited offer of such activities. The Municipal House of Culture requires investments to modernize the spaces inside it, for the big hall there is already an ongoing modernization initiative;
- P14.** Parks and green spaces do not cover the needs of the population, especially in residential areas. The main park of the city, located on the southern edge, near the industrial site, is not properly arranged and consequently underused, despite the great potential;
- P15.** Social fractures between various components of the city's population, especially a segregation of Roma communities, the largest being located on the outskirts of the city, in the neighborhoods of Combinat and Galati, the interactions between these neighborhoods and neighboring areas are very low;
- P16.** City hall social services and non-governmental environmental interventions do not cover all community needs, as human and financial resources are limited. Thus, the needs of disadvantaged groups such as the Roma, or people who do not have a stable financial situation are not properly addressed;
- P17.** There is a lack of cultural, commercial and tourist enhancement of the local identity and natural features.

3.2.3.3. Measures and actions developed for the implementation of the circular economy in Făgăraș

The measures that are recommended to be taken into account for the sustainable development of Făgăraș Municipality are:

- M1.** The need to implement the Brașov-Bar highway project, an aspect that will generate better connectivity for Făgăraș;

- M2.** Development of an alternative transport network – both for bicycles and for vehicles traveling under 25 km/h alternatively to link points of interest. Development of car parks and other facilities to serve this network;
- M3.** Implementation of a network of bypasses to take over from traffic mainly for heavy traffic;
- M4.** Rehabilitation of degraded streets and their modernization in an integrated program that provides for the development of the road in harmony with the networks of technical and municipal utilities;
- M5.** Development and modernization of the public transport network and completion with lines with seasonal program;
- M6.** Arrangement of dedicated lanes and roads for bicycle transport;
- M7.** Modernization and extension of the wastewater treatment plant;
- M8.** Development of an investment program in renewable energy installations and from non-consuming fossil fuel sources or dependent on the national supply network;
- M9.** Construction of a „Station for sorting and mechano-biological treatment of household waste” that will serve the entire Făgăraș Country, with the possibility of expansion in the county. In this new station, the construction and demolition waste of both the buildings and the road repairs will be recovered. The location of the new sorting platform in the vicinity of the city will generate a reduction in waste transportation costs;
- M10.** Improving the collection and transport of urban waste mainly by imposing the rules of selective collection;
- M11.** Development, extension and modernization of health and social assistance services;
- M12.** Completing the offer base in social services with units that will take care of seniors and units that will serve the needs of the youth (psychology offices for teenagers, support line for suicides etc.);
- M13.** Encouraging entrepreneurial initiatives built on the principles of the social economy;
- M14.** Development and support of non-profit organizations and diversification of the offer of cultural services for the population both in the city and in Făgăraș Country;
- M15.** Development of projects based on social economy.

Projects that support the approach towards a sustainable development of Făgăraș municipality are:

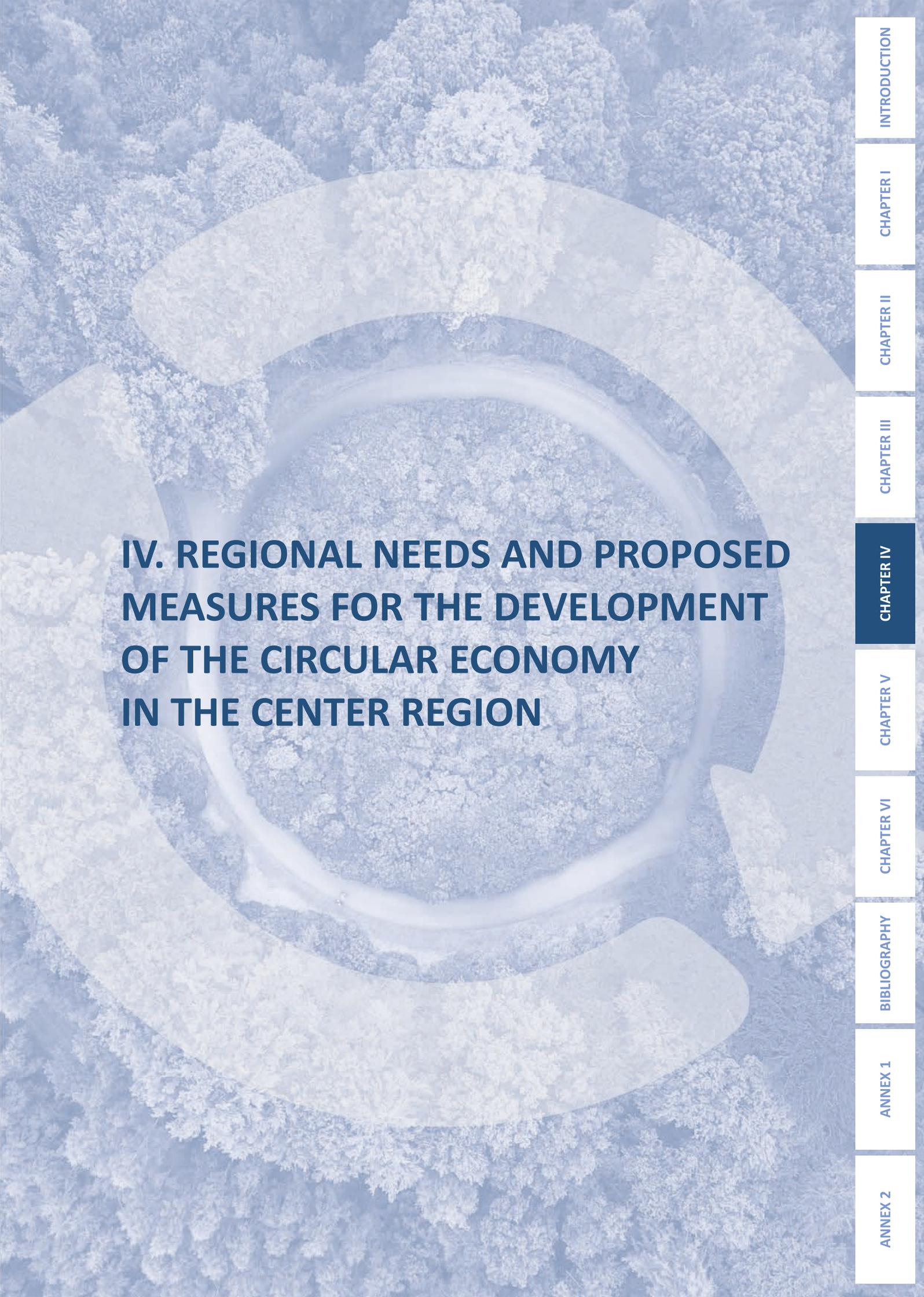
1. „Asphalting and modernization of roads of local interest in Făgăraș Municipality”, project addressed to road infrastructure, implementation year 2015-2019;
2. „Sewerage extension in Făgăraș Municipality”, project addressed to sewerage infrastructure, year of implementation, 2017-2020;

3. „Restoration and sustainable capitalization of the cultural heritage of Făgăraș Municipality – Făgăraș Fortress”, a project addressed to tourism, in implementation;
4. „Modernization and pedestrianization of the central area of Făgăraș”, project addressed to the investment Brasov-Făgăraș in the transport network, implementation year 2019-2023, ATU Brașov;
5. „Modernization of the integrated urban mobility corridor in the central area of Făgăraș municipality”, project addressed to the Brasov-Făgăraș investment in the transport network, implementation year 2019-2023, ATU Brașov;
6. „Modernization of the integrated urban mobility corridor in the industrial area of Făgăraș municipality”, project addressed to the Brasov-Făgăraș investment in the transport network, implementation year 2019-2023, ATU Brașov.

3.2.3.4. Solutions to the challenges identified in Făgăraș

Solutions that can contribute to the sustainable development of the city and the community, at the same time, can focus on the following directions:

- It is necessary to implement the rehabilitation and extension projects of the water and sewerage networks, including the catchment wells and the supply system in Făgăraș;
- It is necessary to implement an integrated waste management system, including the construction of the sorting and mechanical-biological dehydration station that will serve the Municipality of Făgăraș but also the neighboring communes;
- Promoting solutions for thermal enveloping of residential buildings;
- improving the prevention function of social assistance services could reduce the cost and extent of social services needed;
- Promoting and supporting the public-private partnership on social services;
- investments in modernization and adaptation of public space to meet the needs of the urban community;
- It is very important to ensure a favorable environment for social interaction, both through public spaces and for the activities supported in the city;
- Encouraging communication and partnership between various local actors;
- Supporting local non-governmental initiatives and collaboration with partners from outside Făgăraș;
- Supporting social inclusion and community development initiatives for disadvantaged groups in the city;
- For example, the enhancement of the Mill area, the building of the former People's Baths, the old Synagogue, the Republic Square, seems to be a fortress – Tăbăcari Street;
- Moreover, at the regional level it is important to recognize the circuit of which these objectives are part: for example, Fagăraș fortress in relation to Bran, Râșnov, Rupea, Feldioara, Negru Vodă or „Sf. Nicolae” Brâncoveanu Church in Făgăraș in relation to Brâncoveanu Monastery from Sâmbăta de Sus
- Initiatives from local public institutions and authorities are still needed to strengthen local identity and a sense of belonging to the community.



IV. REGIONAL NEEDS AND PROPOSED MEASURES FOR THE DEVELOPMENT OF THE CIRCULAR ECONOMY IN THE CENTER REGION

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IV. REGIONAL NEEDS AND PROPOSED MEASURES FOR THE DEVELOPMENT OF THE CIRCULAR ECONOMY IN THE CENTER REGION

Following the analysis of the current situation regarding the circular economy in the Central Region, as well as the quantitative and qualitative data obtained from questionnaires and interviews addressed to stakeholders from the public, business, academic and civil society, a set of regional needs was identified, that require the involvement of public authorities, academia and society in general. The three case studies discussed above also allowed for a more detailed and refined analysis of the regional situation, thus increasing the accuracy of identifying needs for the transition to a circular economy, as set out below:

1. Lack of an integrated strategy for recycling, sorting and recovery of waste

- M1.** Implementing effective measures to penalize companies that do not comply with legal rules in the field of environmental protection;
- M2.** Development and expansion of separate waste collection systems in order to promote high quality recycling; Capitalization operations by which materials are transformed into products, raw materials or substances, that will be used for the same purpose for which they were designed or for another purpose. This includes the reprocessing of organic materials, but does not include energy recovery and conversion for the use of materials as fuel or for filling operations;
- M3.** Recovery of household and vegetable waste by composting, which is thus recovered in the form of ecological natural fertilizer;
- M4.** Education: Encouraging the prevention of waste generation and reuse for greater resource efficiency.

2. The need to reduce the impact of pollution produced by former industrial platforms or mining operations in urban areas

- M1.** Decontamination of industrial sites: Specific activities for the rehabilitation and greening of historical contaminated sites such as the release of contaminated surface and decontamination of soil, including affected groundwater where necessary, with a focus on biodecontamination or bioremediation;
- M2.** Urban regeneration: Remediation of facility sites, such as exploration and production battles, refining sites by eliminating or, if not entirely possible, reducing on-site contamination in order to restore the land to its original state in accordance with legal provisions in the field of environmental protection;
- M3.** Environmental quality monitoring: Once decontamination and regeneration measures are implemented, monitoring of environmental quality indices is essential to maintain progress.

This can be achieved by installing air quality monitoring panels but also by constant and consistent water and soil quality checks.

3. The need to expand the dimension of green spaces in urban areas in order to comply with the European minimum standard and the recommendations of the WHO (World Health Organization)

- M1.** Creation of urban gardens, parks and recreational areas. This will contribute to improving air quality;
- M2.** Afforestation actions. Through this type of action it will be prevented soil erosion and the absorption of rainwater will be improved;
- M3.** Surveillance measures and the constant and consistent application of legislative measures on the destruction of green spaces;
- M4.** Reintroduction of unused green spaces in urban areas

4. The need to develop a modern road and rail transport infrastructure

- M1.** Modernization, extension and optimization of roads in successive stages depending on their degree of service, thus reducing the carbon footprint and greenhouse gas emissions from the transport sector;
- M2.** Promoting transport investment projects that contribute to the achievement of a sustainable transport system, with measures to avoid and reduce adverse effects, such as pollutant emissions into the atmosphere, noise pollution in urban areas and on busy roads and the impact on landscape and cultural heritage;
- M3.** Ensuring an environmentally friendly transport network, by implementing bypass projects and alternative routes.

5. The need to reduce the high number of old and polluting vehicles

- M1.** Facilitating the use of public transport by citizens and increasing the attractiveness of public transport by creating dedicated lanes;
- M2.** Creating a bicycle infrastructure in order to facilitate the safe movement of cyclists, thus increasing the number of users;
- M3.** Promoting car sharing services: creating or using already existing car sharing platforms in order to reduce the number of vehicles participating in traffic.

6. The need to stop or significantly reduce illegal deforestation and the unsustainable exploit of forests

- M1.** Reducing the land footprint of consumption in the Central Region and encouraging the consumption of products from supply chains that do not involve deforestation. However, in order to intensify the emergence of this type of consumption, it must be easier to identify,

promote and purchase these products for suppliers, producers, distributors, consumers and public authorities;

- M2.** Starting ecological tourism projects based on natural forests with a rich biodiversity;
- M3.** Obtaining wood from sustainable sources: recycling wood and wood fibers is a valid solution for logging. Recycled materials are increasingly used for the production of both paper and wood products. The recovered wood and fibers come from building materials, pallets, paper and cardboard.

7. The need to reduce anthropogenic pressures on the environment affecting watercourses, lakes and regional biodiversity

- M1.** Creating a system of economic activity in which it becomes inconvenient to cause any damage to the environment;
- M2.** Replantation of wrongly placed or degraded plants, replacement of existing trees and planting species resistant to environmental conditions and specific urban microclimate;
- M3.** Stimulating the construction and operation of pollutant capture and neutralization systems, and the development of other measures that would reduce the volume of pollutant emissions (discharges) into the environment and the formation of production waste.

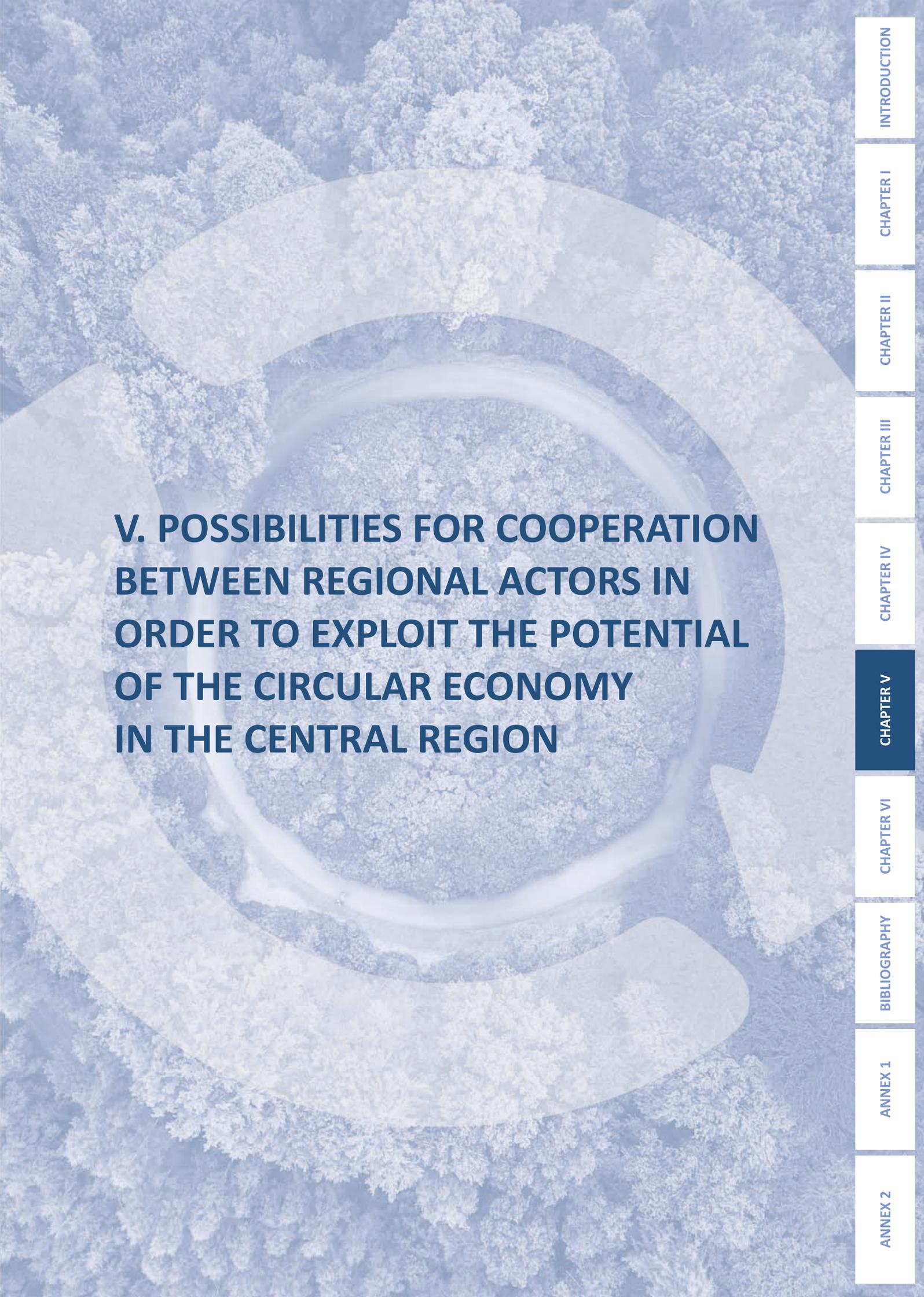
8. The need for innovation at regional level

- M1.** Promoting access to funds for innovative enterprises and research focused on the circular economy;
- M2.** Facilitate the integration of existing research centers and universities to create regional structures dedicated to innovation together with the business environment;
- M3.** Increasing the awareness of the role of innovation in the development of the regional economy;
- M4.** Creating a hub for circular enterprises in order to facilitate communication between important factors thus helping to develop the concept and these types of enterprises in the Central Region.

9. The need of organization and cooperation between small agricultural producers in order to reduce food waste

- M1.** Stimulating local supply: cities can procure substantial quantities of food produced in peri-urban areas (up to 20 km from cities), thus forming more circular food systems for the city. The partnerships between the city and the distribution chain (producers, distributors, processors, sellers and food processors) will lead to the development of an action plan to promote regional food consumption;

- M2.** Establishment of food banks: Reduction of food waste could be achieved by recovering the safe surplus of food from interested collaborators (producers, supermarkets, restaurants and other private companies) and free redistribution in the community, to NGOs, charities that contribute for them to get there is needed;
- M3.** Incentives for low-impact urban agriculture: Certain types of urban agriculture can have a very high productivity per square meter and can help reduce or even eliminate a wide range of negative effects related to food waste. Vertical farming systems can have significant impact reductions, although these technologies are still under development and strongly depend on the type of agriculture chosen. The transition from traditional to hydroponic agriculture for vegetable production can save up to 0 of water consumption.



**V. POSSIBILITIES FOR COOPERATION
BETWEEN REGIONAL ACTORS IN
ORDER TO EXPLOIT THE POTENTIAL
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V. POSSIBILITIES FOR COOPERATION BETWEEN REGIONAL ACTORS IN ORDER TO EXPLOIT THE POTENTIAL OF THE CIRCULAR ECONOMY IN THE CENTRAL REGION

5.1. Examples of good practices of COLOR CIRCLE project partners, transferable to the Center Region

Within the COLOR CIRCLE project, IRCEM also analyzed the possibility of transferring the good practices identified by the project partners so that they support the development of the circular economy in small urban localities by creating strong partnerships between local authorities and the regional academic institutions and also by implementing innovative measures to increase the capacity of local authorities to realize the full potential of the circular economy. Therefore, below are some examples of good practice, which can be replicated in the Central Region.

EGP (example of good practice) 1: Following the Spanish and European initiatives, Andalusia adopted in 2018 its own **Circular Bioeconomy Strategy**

Proposed project 1: Adoption of a **Circular Bioeconomic Strategy** at the level of the Central Region. This strategy could support sustainable growth at regional level, adapting its solutions to current societal challenges in a cross-cutting, multidisciplinary and multisectoral way; ensuring the sustainable exploitation of resources, minimizing the negative effects on the climate, conserving biodiversity and stimulating the use of renewable energy sources are in addition to reducing dependence on fossil fuels and obtaining new products with high added value.

EGP 2: The Andalusia Energy Agency published on its website **The Map of Resources and Biomass Facilities, Andalusia**

Proposed project 2: Online publication of a **Map of Biomass Resources and Installations in the Central Region**. Its purpose is to support and stimulate the development of biomass by providing sectoral information on the existing biomass potential in the region, as well as knowledge of the facilities that process and capitalize on it.

EGP 3: KOMA Modular, Modular houses preventing waste creation, Boemia.

Proposed project 3: Initiation of a Modular Housing Program. The principle is that all products, materials and raw materials can be reused. Their value must be exploited to the fullest. This is called closed loop – circular structure. However, it is not just about reusing materials – it is also about where they come from. The project aims to reduce the environmental impact of modular construction (including CO2 emissions and waste treatment) throughout the life cycle of that construction. Municipal modular constructions are becoming increasingly popular among decision-makers at all institutional and governmental levels. Thus, permanent modular apartment

buildings can be a sustainable solution to the challenge of building social housing in small localities. They are also an opportunity for investors in the Central Region. Demand for affordable housing is leading investors and developers to look for ways to set up homes quickly and efficiently, and modular construction has proven to be a way to build affordable housing facilities where they are rare. More and more investors use this method for the topicality, the professional approach of the production and the proven quality of the modular structures.

EGP 4: Cyrkl, Waste to Resource Marketplace, Boemia

Proposed project 4: Create a reuse market that in turn facilitates the transformation of waste into resources.

EGP 5: Food Waste Market, Noordoost Frisland

Proposed Project 5: Creating a Recovered Food Market. The role of this public policy instrument is to investigate residual flows and secondary flows that can be used to create and market new products. This encourages circular agriculture, the organization of regional markets, new products and business plans.

EGP 6: BOWINN, Campus For Sustainable Circular Building.

Proposed project 6: A meeting place for knowledge and innovation, which brings together specialists with volunteers, and all citizens passionate about innovative constructions. The construction campus should be an open environment of specialization and communication. Knowledge and experience are brought and shared. The collaboration aims to create a better built environment, more sustainable and more friendly to the natural one, in order to develop the region.

EGP 7: Opportunity for training organizations to meet high societal expectations, Bourgogne-Franche-Comté

Proposed project 7: Creation of a cluster in order to facilitate a network of organizations that meet societal requirements. Here the precepts of environment and ecology could be combined with those of developing a culture of business innovation and at the same time the development of new economic models and job creation are encouraged.

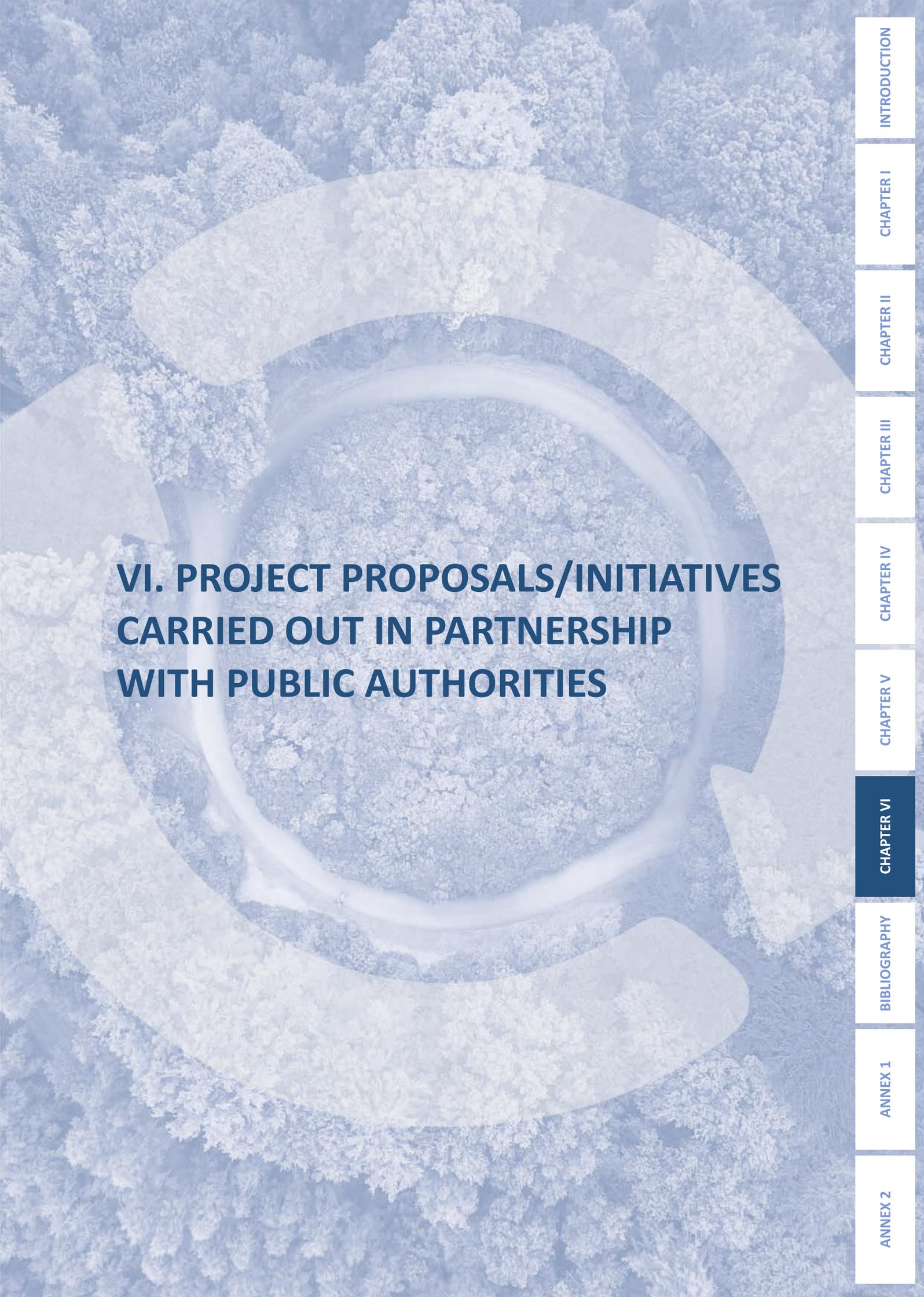
EGP 8: The call for projects for circular economy by Bourgogne-Franche-Comté Agency of energy management (ADEME BFC) and Bourgogne-Franche-Comté Region, Bourgogne-Franche-Comté

Proposed project 8: Initiation by Regional Development Agency of a Call for Circular Economy Projects to stimulate creativity and at the same time to identify opportunities in the region.

5.2. Possibilities for cooperation in the Central Region

Based on the examples of good practice identified by the COLOR CIRCLE project partners and the sectoral consultations carried out by IRCEM with stakeholders, the following possibilities for cooperation between regional actors were identified, as follows:

- In Romania, the separate collection of municipal waste for their recovery (paper, cardboard, glass, metals, plastics) is too little practiced. Therefore, locally, projects can be developed to encourage the transition to a circular economy by forming collaborations between sanitation companies and town halls, but also collaboration with residents' associations (for the population), schools, institutions and economic operators. These aspects can be extended depending on the needs and funds available for cities in the Central Region; Collaboration between the City Hall of Ocna Mureș and the National Salt Society (SALROM) in order to capitalize on the potential of a spa resort of the administrative unit;
- Collaboration with local public administration authorities and the business sector to improve waste collection systems;
- Collaboration between the Agency for Environmental Protection Alba and the academic environment in Cugir (ex: David Prodan National College, I.D. Lăzărescu Technical College) for increasing the degree of ecological literacy of the young population in the Center Region;
- Collaboration between Făgăraș City Hall Carpathia Foundation and the academic environment (Lucian Blaga University – Economy of Commerce, Tourism and Services) to encourage green tourism in Făgăraș Country;
- Contribution of non-governmental civil society organizations in order to increase the level of awareness of environmental issues by collecting data, information, mobilizing the necessary resources and proposing solutions to these problems in partnership with public authorities to formulate public policies and select appropriate solutions to the problems of the Central Region;
- Collaboration with the extensions of the Technical University located in the Center Region in order to develop laboratories and educational programs that focus on the circular economy (e.g. rethinking each stage of the product life cycle in a sustainable way);
- Sectoral collaboration between the construction environment and private sanitation companies, as a solution to the problem of inadequate storage of construction waste identified in many urban areas.

An aerial photograph of a dense forest with a winding river. A large, semi-transparent circular graphic is overlaid on the image, centered on the river. The text is positioned in the center of this graphic.

VI. PROJECT PROPOSALS/INITIATIVES CARRIED OUT IN PARTNERSHIP WITH PUBLIC AUTHORITIES

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VI. PROJECT PROPOSALS/INITIATIVES CARRIED OUT IN PARTNERSHIP WITH PUBLIC AUTHORITIES

Following the establishment of regional needs and the state of the circular economy in the Central Region, we propose the following projects that could be materialized through partnerships between public authorities and stakeholders at the regional level:

1. Type of intervention: Bio-fermentation

Project title: Recovery of organic waste through biogas production

The Project necessity:

The need for alternative sources of green energy in order to reduce the negative impact on the environment by capitalizing on waste to produce biogas, thus helping to reduce waste disposal costs. The matter resulting from anaerobic digestion can supplement the best quality organic fertilizers with similar properties.

Purpose, General objective:

Recovery of organic waste through the production of biogas, thus increasing the percentage of renewable energy used

Specific objectives:

1. Creating alternative energy sources;
2. Recovery of organic waste;
3. Reducing logistics costs in terms of waste management;
4. Production of organic fertilizers necessary for agriculture especially local producers through the production of biogas.

Expected Results:

1. Additional production capacity for energy from renewable sources (of which: electricity, heat);
2. Number of agricultural associations and energy communities from renewable sources receiving support;
3. Number of fertilizer beneficiaries resulting from waste processing.

Type of applicants, involvement, LPA role, possible source of funding:

Applicants – Direct beneficiaries: local agricultural associations, units whose purpose is to obtain energy from renewable sources. The indirect beneficiaries are the local producers.

The role of the **Local Public Authorities** is to disseminate the advantages resulting from the application of this new way of capitalization by initiating promotional actions – courses, conferences, networking events and know-how exchange.

Sources of funding through the European Regional Development Fund (ERDF), European Green Deal or Horizon Europe

2. Type of intervention: Urban Regeneration and Technology Transfer Facilitation

Project title: Establishment of a Technology Transfer Park with an emphasis on circular economy in Cugir

The project necessity:

The need for such a park results primarily from the lack of technology transfer opportunities in small urban areas, but with potential for the development of circular products and services but also from the presence of non-functional and unproductive land that could have an important economic purpose.

Purpose, General objective:

Construction of a Technology Transfer Park on a circular economy consisting of technology transfer and innovation infrastructures, using unproductive land, reclaimed to facilitate innovation in research and to ensure technology transfer from research to private companies and other institutions, so that they can benefit from the latest information for the purpose of their economic development.

Specific objectives:

1. Stimulating the innovative and technical-scientific potential of academic and university staff, researchers and students in the field of eco-innovation by building modern laboratories capable of capitalizing on the market of research results in energy, green productions, reducing the CO2 footprint, and so on;
2. Facilitating the networking of specialists, teachers and researchers in various fields by building conference rooms, organizing creative workshops for pupils and students and making laboratories available to them;
3. Attracting investments of Romanian and foreign companies in technology transfer activities;
4. Arrangement of a complex with multiple functions, intended for workshops (repair coffee) and workshops. This equipment will be accessible to citizens in the FabLab system, by subscription;
5. Stimulating the economic agents for the active participation of the private sector in the development and capitalization of research and innovation in the field of circular economy, by realization of commercial and high technical products;
6. The location of a photovoltaic park intended to cover as high a percentage as possible of the energy consumption needs of the entire park.

Expected results:

1. SMEs that introduce innovations in products or processes;
2. Researchers working in research centers that receive support;
3. Research institutions participating in joint research projects;
4. Enterprises cooperating with research institutions;
5. Interregional investments in EU projects.

Type of applicants, involvement, LPA role, possible source of funding:

Applicants – Direct beneficiaries: Local and regional, national and international enterprises that find space for the development of specific EC technologies in a comfortable environment that facilitates the exchange and promotion of their activity, The whole local community by increasing the opportunity for employment and specialization.

Indirect beneficiaries: local entrepreneurial market to which new opportunities for business development and communication are opened.

The role of the **Local Public Authorities** is to engage in the provision of land and its endowment with access infrastructure and municipal technology, concept creation, implementation and monitoring of the development over time of the whole.

Sources of funding through the European Regional Development Fund (ERDF), European Green Deal or Horizon Europe.

3. Type of intervention: Capitalization of local/regional heritage through Tourism

Project title: Green Tourism in Făgăraș Country

The project necessity:

At the level of the functional area of Făgăraș municipality, the insufficient development of the opportunities offered by the natural and the cultural-historical context was identified.

Purpose, General Objective:

The project aims to conserve biological and cultural diversity by protecting the ecosystem; to promote the sustainable use of biodiversity by providing jobs in the local community; and to promote observational tourism of untouched natural resources that involve a minimal negative impact on the environment.

Specific objectives:

1. Development of a network of operators from various economic sectors, focused on capitalizing on the potential of Făgăraș Country and its core, Făgăraș Municipality;
2. Creation of a transport network to facilitate the most efficient access to tourist objectives and their connection in routes;
3. Creating a network of accommodation and food points to mobilize these tourist routes ensuring the comfort of tourists
4. Ensuring the necessary infrastructure (facilities, roads etc.) to support these routes ensuring the comfort of living to a European standard;
5. Increasing the number of tourists to enjoy the offer of Făgăraș Country, in conditions of both comfortable and healthy accessibility;
6. Development of a local economy to ensure the integration of labor in sectors of the circular economy and to ensure the prosperity of the area;
7. Brand consolidation and wide promotion of local identity.



Brief justification of the need to make the investment:

This project is designed to ensure the tourist accessibility of the area through sustainable and ecological solutions (preferential pedestrian and bicycle travel, supply of green energy sources of accommodation points, labor integration etc.).

Transferability of the project on a regional scale:

This initiative proposes a model of good practice that can be replicated in any area with tourism potential in the Central Region. Adaptation to specific conditions (type of existing attractions, chosen “Storytelling” model etc. can be done by modifying the specific details of the project action plan).

Budget: 20,350,000 euros

Implementation period: 2021 – 2027

Beneficiary: Făgăraș City Hall

The integrated character of the project idea with other projects:

The project integrates with all other projects aimed at developing the local economy, both productive and service. Also, with all the tourism development projects of the tour operators on a national and European scale by including them in the continental grand tour routes.

From a territorial point of view, the integrated character of the project idea is achieved through an integrated approach at the level of Făgăraș municipality and Făgăraș country, in terms of encouraging ecological tourism, nature protection and promoting the circular economy as methods of sustainable development.

Type of applicants, involvement, LPA role, possible source of funding:

Applicants – Direct beneficiaries: public administration, local operators from various economic sectors – transport, hotels, restaurants, local production, tourism, civil engineering, roads and technical-urban networks and at the same time non-profit associations specialized in protecting and capitalizing on the cultural tourism potential of area. Local family associations or independent investors.

Indirect beneficiaries: local producers, construction sector, locals.

The **Local Public Authorities** have the role of supporting the development and promotion of the concept both on a local and zonal and national scale through sustained advertising campaigns. Urban regulation conforms to the concept of environmental protection and built heritage and in accordance with the specific thinking of a sustainable and harmonious development. development of infrastructure projects necessary for accessibility and modern and environmentally friendly municipal equipment. Elaboration of opportunity studies and development and spatial planning plans in this direction by specific order addressed to expert entities. Elaboration of the integrated master plan for long-term development of the project and its monitoring.

Sources of funding through the European Regional Development Fund (ERDF), European Green Deal or Horizon Europe.

4. Type of intervention: Capitalization of local/regional heritage through Tourism

Project title: The cultural heritage of Ocna Mureș

The project necessity:

At the level of Ocna Mures locality, the insufficient development of both brand and economic development opportunities offered by the cultural-historical context was identified.

Purpose, General Objective:

The project aims to capitalize on the tourist potential of the city (classical history, industrial archeology, the story of salt etc.) through programs to rebuild the cultural tradition (Teleki Castle), industrial and spa tradition and to promote tourism and its support through a platform of operators to ensure specific services and local production. This project will be realized as a partnership between the Ministry of Culture, International associations of European localities with the same industrial profile, local entrepreneurship based on tourism, NGOs, cultural associations.

Specific objectives:

1. Creating a network of local operators;
2. Creating a network of local producers;
3. Elaboration of a promotion program and short, medium and long term action plan;
4. Increasing the number of tourists to enjoy the offer of Ocna Mures City, in conditions of both comfortable and healthy accessibility;
5. Development of a local economy to ensure the integration of labor in sectors of the circular economy and to ensure the prosperity of the area;
6. Brand consolidation and wide promotion of local identity;
7. Putting on the map the tourist objectives with post-industrial and spa specifics of Ocna Mures city.



Brief justification of the need to make the investment:

This project is designed to ensure the tourist integration of the city in the continental network of post-industrial and spa interest.

Transferability of the project on a regional scale:

This initiative proposes a model of good practice transferable to any city with industrial or spa history in the Central Region. Adaptation to the specific profile of the locality (type of existing attractions, chosen "Storytelling" model etc. can be done by modifying the specific details of the project action plan.

Budget: 7,500,000 euros

Implementation period: 2021 – 2027

Beneficiary: Ocna Mures City Hall

The integrated character of the project idea with other projects:

The project integrates with all other projects aimed at developing the local economy, both productive and service.

Also, with all the tourism development projects of the tour operators on a national and European scale by including them in the continental grand tour routes.

Type of applicants, involvement, LPA role, possible source of funding:

Applicants – Direct beneficiaries: local public administration, local operators from various economic sectors – hotels, restaurants, local production, tourism, non-profit associations specialized in protecting and capitalizing on the cultural tourism potential of the city. Local family associations or independent investors. Indirect beneficiaries: local producers, cultural sector, locals.

The **Local Public Authorities role** is to support the development and promotion of the concept through sustained advertising campaigns. Urban regulation conforms to the concept of environmental protection and built heritage and in accordance with the specific thinking of a sustainable and harmonious development. Elaboration of opportunity studies and urban plans through the specific order addressed to the expert entities. Elaboration of the integrated master plan for long-term development of the project and its monitoring.

Sources of funding through the European Regional Development Fund (ERDF), European Green Deal or Horizon Europe.

5.Type of intervention: Sustainable urban mobility. Ecological energy. Dedieselation and decarbonization. Pollution reduction

Project title: Cugir city. Development of the green public transport system through the development of the electric bus park and the service area, as well as the network of alternative fuel supply points (electric current), both in the urban and peri-urban perimeter.

The project necessity:

At the level of the functional area of Cugir, a problem was identified regarding urban mobility based on public transport and private transport.

Purpose, General objective:

The project aims to encourage the purchase and use of alternative and electric transport means by the population, by providing the necessary infrastructure for alternative fuel supply, aiming at the gradual dedieselation and gradual replacement of thermal engines with those using green energy according to the EU directive. In this way it will be possible to reduce pollution and decarbonization in order to increase air quality and the quality of life, as well as to discourage school dropout by facilitating access to school for children in rural areas disadvantaged by lack of transport.

Specific objectives:

1. Creation of a network of alternative fuel supply points (electricity) located at nodal points of traffic, intended to facilitate the supply of electric vehicles;
2. Increasing the number of public transport users by expanding the road network, with new routes to ensure green mobility in urban and peri-urban areas under urban development;
3. Ensuring the management of parking lots through intelligent solutions, modernization, surveillance, monitoring, endowment with ANPR system and announcing the available places on electronic display panels located in the city or on mobile applications;
4. Location of electronic display panels for air quality monitoring.

Expected results:

1. Users of newly built, rebuilt or modernized roads: 25,759 people;
2. Time gained due to the improvement of the road infrastructure: it will be approximately between the values of 1.5-2 h;
3. Annual number of public transport passengers: 436,576.50 passengers;
4. Population benefiting from air quality measures: 25,759 people.

This project will take into account the following **indicators of immediate implementation**:

- Ecological rolling stock for public transport: 6 means of transport purchased;
- Supported alternative fuel infrastructure (refueling/recharging points): 20 refueling points;
- Length of new roads receiving support – other: 20 km;
- Cities and towns with new or modernized digitized urban transport systems: 1;
- Length of roads rebuilt or modernized – other: 20 km.

The project is part of the Cugir Sustainable Urban Mobility Plan considering the 4 strategic objectives outlined within it, respectively:

- Strategic objective 1: Safe and progressive urban mobility;
- Strategic objective 2: Urban mobility oriented towards the urban environment;
- Strategic objective 3: Efficiency and balance between modes of transport;
- Strategic objective 4: Integrated management and efficiency of urban mobility.

Within the strategic objectives mentioned above there are directions for action, which in turn propose a list of operational projects that are intended to be carried out. Thus, in terms of Strategic Objective 3, it is proposed as Action Directorate D1 Improving connectivity with the peri-urban area. In this case, the proposed projects include:

- O3.D1.PO1.P2 “Modernization of existing connections and realization of new connections between the component localities Mugești, Călene in order to ensure the interconnectivity of the peri-urban area „;

- O3.D1.PO1.P3 “Modernization of existing connections and realization of new connections between the component localities Goășele, Bocșitura, Bucuru, in order to ensure the interconnectivity of the peri-urban area;
- O3.D1.PO1.P4 “Modernization of the existing connections and realization of new connections between the component localities of Frasină, Fețeni, in order to ensure the interconnectivity of the peri-urban area”;
- O3.D1.PO1.P14 Development of urban mobility on the corridor: component locality Friday – Cîndeni residential area – component locality mountain area”.



Brief justification of the need to make the investment:

This project is designed to ensure the transition to clean energy-based mobility in both public and private transport.

Transferability of the project on a regional scale:

This initiative proposes a model of good practice replicable in any locality similar in urban scope to that of the city of Cugir. Adapting the specific conditions (number of electric buses, number of charging stations, number of display panels etc. can be done by modifying the budget plan and the time required for implementation.

Budget: 17,850,000 euros

Implementation period: 2021 – 2027

Beneficiary: Cugir City Hall

The integrated character of the project idea with other projects:

Project title: Reducing carbon emissions in the city of Cugir based on the Sustainable Urban Mobility Plan – Code issued 121438

OS1 – Increasing fair mobility and accessibility in the city of Cugir by developing an attractive and efficient public passenger transport system;

OS2 – Reducing travel time and response time in case of accident, by developing and implementing a modern traffic management system for public passenger transport;

OS3 – Ensuring a complete and complex control over the acquisition and use of tickets and season tickets for means of passenger transport in ATU Cugir, by creating an integrated „e-ticketing” system;

OS4 – Increase the accessibility of bicycle users to the functions of the city of Cugir and improve safety and the perception of safety when cycling, by creating a coherent network of bike lanes and routes and creating a „bike-sharing” system.

OS5 – Increasing pedestrian accessibility by rehabilitating and extending sidewalks.

From a territorial point of view, the integrated character of the project idea is achieved through an integrated approach at the level of Cugir City in terms of encouraging public transport, encouraging the use of alternative means of transport (pedestrian, electric, bicycle) at the expense of personal cars. The project idea proposed by the file has an extended territorial approach through the possibility of continuing these projects in the neighboring areas of Cugir.

Type of applicants, involvement, LPA role, possible source of funding:

Applicants – Direct beneficiaries: local public administration. Indirect beneficiaries: local community
The **Local Public Authorities** role is to elaborate and carry out until the implementation and elaboration of opportunity studies and urban plans by specific order addressed to expert entities.

Sources of funding through the European Regional Development Fund (ERDF), European Green Deal or Horizon Europe.

6. Type of intervention: Capitalization of cultural heritage

Project title: Revitalization of the cultural heritage “Cugir, Active History”

The project necessity:

In Cugir, the insufficient development of both brand and economic development opportunities offered by the cultural-historical context was identified.

General objective:

Revitalizing the historical and cultural memory of the city, both by rehabilitating the Dacian Citadel site and by using an innovative approach, based on the constant involvement of the local community by developing a „Living Museum” and a public space for outdoor events.

Objective specific:

At the Singidava Fortress:

1. Works for the reconstruction-historical restoration of the Dacian fortress and necropolis. To these is added an educational exhibition center for both temporary and permanent exhibitions, equipped with meeting rooms for both practical courses for students and cultural events, seminars, conferences, round tables etc. On the Plateau at the foot of the Citadel:
2. Arranging a „Public Meeting Space” (meeting place for tourists and the community with history) with an area of 12,800 square meters that will function as a laboratory for direct interaction of tourists and the local community. Responding to the need of the event (fairs of local producers, celebrations, summer fairs, popular gatherings etc.) and at the same time providing a necessary basis for organizing cultural-historical or traditional events (military history festival, traditional gathering of border towns etc.) or trade (international military equipment, regional/national fair of agricultural equipment, construction materials etc.) music festivals, shows and concerts of local, national or even international scale. a platform space specifically designed to meet endurance demands will be set up: intensive ironing, heavy goods transport – 480 daN/cm, outdoor lawn coverings, rainwater collection systems, permanent and event street lighting, supply network for temporary equipment – boxes, waste collection points, household points, hydrant network etc.). The complex will be equipped with a permanent administrative body to house the warehouses, hosts social groups, locker rooms and showers, first aid office, PSI facilities, administrative offices, security and surveillance services, logistics warehouses, repair and maintenance workshops, warehouses logistics necessary for future events (mobile kiosks, tables, tents and stage scaffolding, lights, sound etc.);
3. Establishment of an information center to inform and educate the general public, including tourists, on the elements of the cultural and tourist profile of Cugir. through media means specific to new technologies, digital etc.;
4. Construction of a “living museum” that will reproduce scenographically, on a real scale, endowments from historical epochs (Dacian village, Roman camp, medieval village, craft workshop from the time of the industrial revolution etc.), These are intended for workshops, activities and courses experimental archeology, thus facilitating the direct interaction of citizens, students and tourists with period life (cooking, forging, manufacturing, crafts etc.). This living museum will facilitate proactive living education through direct learning laboratories and experimental archeology, and will include at the same time and digital and media technological components to allow the connection with other such cores worldwide. It will be considered the rehabilitation of the access roads to the objectives.

In this regard, we mention as relevant the following:

- Establishment of a tourist information center in the city center in Romanian and English and creation of a complete database on the tourist offer;
- Development of the Dacian earth fortress from Cugir;
- Development of ecotourism;
- Development of event tourism;

- Development of weekend and short-term tourism;
- Arranging and modernizing access spaces for leisure.



Brief justification of the need to make the investment:

This project is designed to ensure the capitalization and promotion of historical and cultural heritage through alternative and innovative means.

Transferability of the project on a regional scale:

This initiative proposes a model of good practice transferable to any city that benefits from archaeological remains in the Center region. Adaptation to the specific profile of the locality (type of existing attractions, chosen “Storytelling” model etc.) can be done by modifying the specific details of the project action plan.

Budget: 21,500,000 euros

Implementation period: 2021 – 2027

Beneficiary: Cugir City Hall

The **integrated character** of the project idea with other projects:

- The project integrates with all other targeted projects;
- Protecting, developing and promoting public tourism assets and related tourism services;
- Protecting, developing and promoting cultural heritage and cultural services;
- Protection, development and promotion of natural heritage and ecotourism;
- Physical regeneration and security of public spaces.

Type of applicants, involvement, LPA role, possible source of funding:

Applicants – Direct beneficiaries: local public administration, local operators from various economic sectors – Horeca, local production, tourism, non-profit associations specialized in protecting and capitalizing on the cultural tourism potential of the city. Indirect beneficiaries: local producers, cultural sector, locals

The role of the **Local Public Authorities** is to support the structure of the project, to make the land available and to provide the necessary infrastructure. Urban regulation conforms to the concept of environmental protection and built heritage and in accordance with the specific thinking of a sustainable and harmonious development. Elaboration of opportunity studies and urban plans by specific order addressed to expert entities. Elaboration of the integrated master plan for long-term development of the project and its monitoring.

Sources of funding through the European Regional Development Fund (ERDF), the European Green Deal or Horizon Europe

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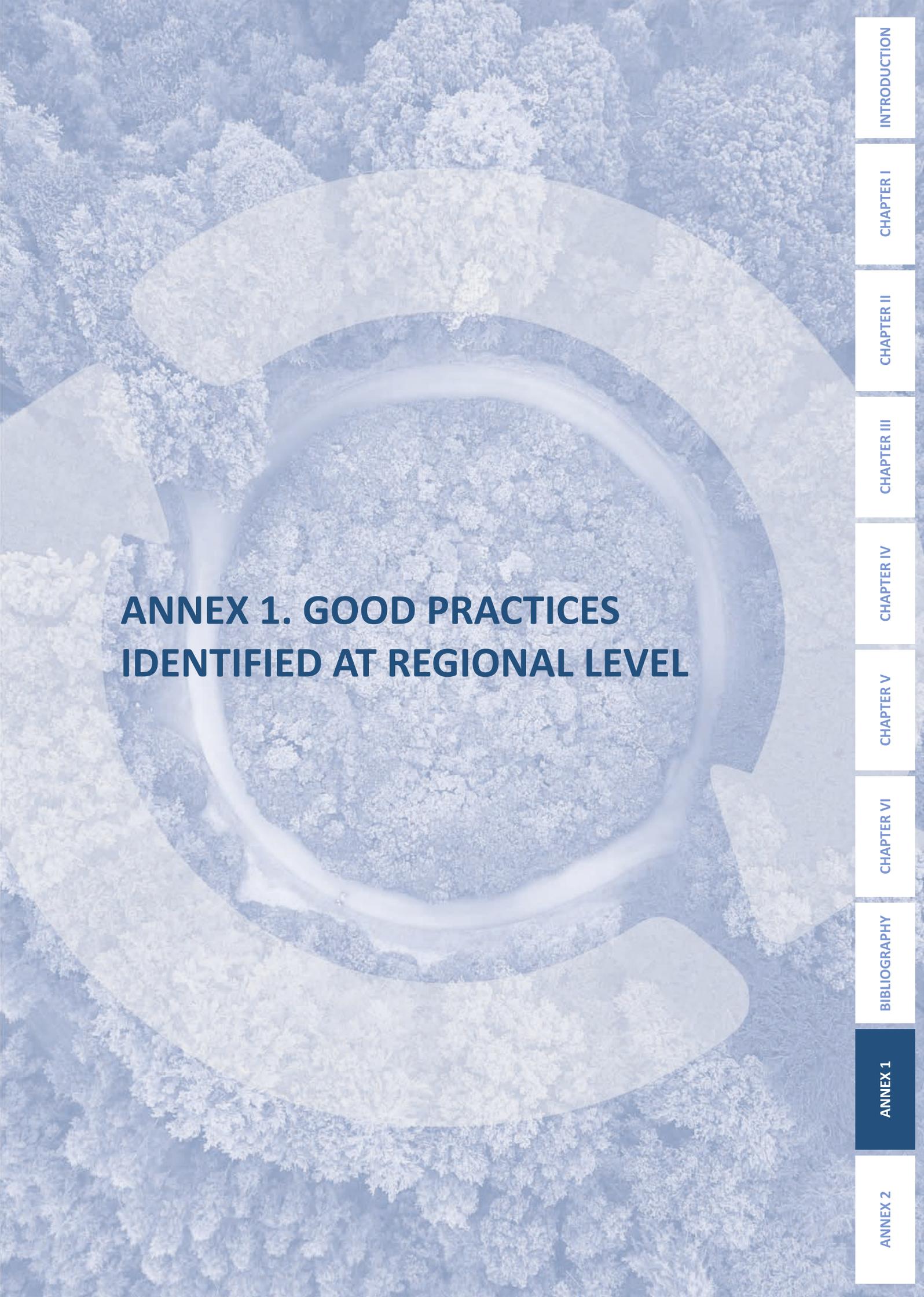
CHAPTER I

INTRODUCTION

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An aerial photograph of a dense forest. A large, semi-transparent circular area is highlighted in the center of the image, containing a smaller, more detailed view of the forest floor. The overall color palette is a muted blue-grey.

ANNEX 1. GOOD PRACTICES IDENTIFIED AT REGIONAL LEVEL

ANNEX 2

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INTRODUCTION

ANNEX 1. GOOD PRACTICES IDENTIFIED AT REGIONAL LEVEL

Regarding examples of initiatives in the field of circular economy in the development region Center of Romania were mapped and shown in the tables below:

SECTION 1: GENERAL INFORMATION	
➤ Name of the applicant organization/Initiator (project, activity, business etc.)	
<i>Green Energy Innovative Biomass Cluster Bioenergy Villages (BioVill) – Increasing the Market Uptake of Sustainable Bioenergy</i>	
➤ Country	➤ Year of establishment
<i>România</i>	<i>2016</i>
➤ Logo	➤ Number of employees
	<i>3</i>
➤ The address of the organization	➤ Contact details
<i>RO 520064 Sfântu Gheorghe, județul Covasna, str. Presei 4</i>	<i>Tel: +40 751 090 944, +40 749 096 726 e-mail: info@greencluster.ro</i>
➤ The field of activity to which the good practice is addressed?	➤ Practice location/Practice space
<i>Inovare, servicii</i>	
➤ Form of organization	➤ Website
<i>Association</i>	<i>https://www.greencluster.ro/romana/biovill.html</i>
➤ Social Objective	
<p>The objective of the BioVill project is to transfer and adapt the experience gained in countries where bioenergy villages already exist (Germany and Austria) to countries with fewer examples in this sector (Slovenia, Serbia, Croatia, Macedonia and Romania). The project stimulates the development of the bioenergy sector in the selected target countries by strengthening the role of local biomass as a factor that contributes decisively to energy supply, taking into account existing market absorption opportunities or the expansion of local farmers, wood producers or SMEs.</p>	
➤ Economic Objective	
<p>BioVill's core activities include technological and economic assessment of target villages, involvement and active participation of stakeholders and citizens, development of local bioenergy technology and value chains, and capacity building on financing systems and</p>	

business models. The result of BioVill will materialize in the opening of five bioenergy villages in Slovenia, Serbia, Croatia, Macedonia and Romania up to the investment stage

SECTION 2: DESCRIPTION OF GOOD PRACTICE

➤ General Presentation of the model

Biomass obtained from forest resources and agriculture is an important source of renewable energy in many regions of Europe. It can be used to supply electricity and heat to households, industry and public buildings. Consequently, also it stimulates local economic development, especially in rural areas, and contributes to slowing down climate change. In Europe, there are a growing number of so-called bioenergy-based villages, which help reduce costs and ensure the energy security of that locality. A village based on bioenergy can be a rural settlement (village, commune, group of villages etc.) where the main source of energy comes from biomass or other renewable energy sources. Usually, various technical solutions are used such as sawdust-based boilers, pellet ovens, log-based boilers, biogas plants, sawdust-based cogeneration plants.

Villages such as Jühnde in Germany, Güssing in Austria and Samsø in Denmark were pioneers in this endeavor and today these countries have several hundred such villages. It is time to transfer these examples of good practice to SE Europe.

➤ Title of good practice

Bioenergy Villages (BioVill) – Increasing the Market Uptake of Sustainable Bioenergy

➤ Identified need

Lack of renewable and sustainable energy sources in rural areas in Romania.

➤ The solution developed by good practice

A „bioenergetic village” is a village, municipality, settlement or community or part of it that produces and uses most of its energy demand from local biomass sources, e.g. agriculture, forestry and waste, as well as other renewable energies. To ensure a sufficient source of heat and energy, bioenergy villages usually use several technologies of different sizes, such as:

- boiler chips,
- pellet stoves,
- wood boilers,
- biogas plants, combined heat and power plants using wood chips or biogas etc.

In order to distribute the heat to the consumers, most of the village households are connected to a small district heating network.

At present, the planning and installation of renewable energy technologies is often accompanied by energy efficiency measures in villages.

In addition to supporting increased use of renewable energy and its positive effects on climate and environmental protection, a central goal of a bioenergy village is to strengthen the local and regional economy, as energy spending remains in the region.

➤ Plus value

The project allows the transfer of know-how and international cooperation for the development of bioenergy. This project is a good practice in terms of public acceptance of bioenergy projects and capacity building of relevant stakeholders and key actors. Different

types of biomass sources and renewable energies can be applied in different ways in bioenergy villages.

The evaluation of technical solutions usually follows technical, economic and environmental metrics. Three main operating models are applied (the citizen model, the ESCO model and a combination of both).

➤ Impact/Benefits/Results

Major results of the BioVill project:

- initiation of five bioenergy villages in the target partner countries up to the stage of investments for physical infrastructure (Croatia, Macedonia, Romania, Serbia and Slovenia)
- increase public acceptance and awareness of sustainable bioenergy production and its business opportunities, as well as increase the capacity of users and key business and legislative actors to sustainably manage bioenergy villages and enact national and EU legislation.
- Overall, the BioVill project will contribute to the expansion and sustainability of bioenergy markets in the European Union.

➤ Financing Grants

Project funded by the European Union's Horizon 2020 Research and Innovation Program.
Financing Agreement No. 691661
1,998,917.50 Euro

➤ Partners / collaborators within the project

- GIZ – Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Germany
- GIZ – Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, Germany
- WIP – Wirtschaft und Infrastruktur GmbH & CO Planungs KG, Germany
- KEA – Klimaschutz und Energieagentur Baden-Württemberg GmbH, Germany
- AEA – Austrian Energy Agency, Austria
- REGEA –Regional Energy Agency of North-West Croatia, Croatia
- SDEWES-Skopje – International Centre for Sustainable Development of Energy, Water and Environment Systems Zagreb – Office Skopje, Macedonia
- GEA – Green Energy Agency, Romania
- SKGO – Standing Conference of Towns and Municipalities, Serbia
- GIS – Slovenian Forestry Institute, Slovenia

➤ Period of implementation

01/03/2016 – 02/2019

➤ Total budget

1.998.917,50 Euro

➤ Convergence with POR/Interreg Europe axis

H2020-LCE-2015-3

➤ Target groups, Direct and Indirect beneficiaries

Ghelița, Estelnic Villages

➤ Resource involved in the project implementation

SECTION 3: SECTORIAL CHARACTERISTICS

➤ Limits/Barriers

-

➤ Replicability conditions

-

➤ Your organization is a social enterprise

NO

➤ You are accredited as a social enterprise or social insertion enterprise

NO

➤ Select a maximum of 3 keywords or define others so that they represent your model of good practice

Recycling, Materials recovery, Renewable energy

➤ Specific factors that determine good practice

-

➤ Project sustainability

If the political framework is taken into account, the bioenergetic village can be successfully implemented in any European region.

Initiatives such as Jühnde in Germany, Güssing in Austria and Samsø in Denmark are well-known bioenergy villages that initiated and contributed to this development. Today, there are several hundred bioenergetic villages in Europe.

Structures need to be put in place to enable a broad process of citizen participation and the integration of all relevant stakeholders and decision-makers. When energy conservation package (ECM) packages are modeled, the results need to be reviewed on the synergistic effects between the ECM and the energy supply measures. High energy savings from building measures decrease energy demand and reduce viability e.g. a district heating system

➤ Reproducibility of good practice

-

➤ Success Factors

The involvement and participation of a wide range of stakeholders and local consumers is crucial for the success of a bioenergetic village. Ideally, biomass suppliers and energy consumers are joint owners of the necessary facilities. The concept of setting up bioenergy villages has been developed by the movements of concerned citizens, which aim at a greener energy sector.

➤ Learned Lessons

Many countries in South East Europe have high biomass potentials, but are often not or are only used inefficiently for local energy supply and regional economic development.

- The main challenge during the implementation of the whole project was the motivation of each social actor (residents, farmers, foresters and municipal authorities) to reach the desired energy transition. The implementation of the project was decisive for the municipality.

➤ Project transferability

Yes, this is an important element of the project given that the project is being transferred to the 7 partner countries

SECTION 1: GENERAL INFORMATION

➤ Name of the applicant organization/Initiator (project, activity, business etc.)

ECOTIC Association

➤ Country

România

➤ Year of establishment

2006

➤ Logo



➤ Number of employees

144

➤ The address of the organization

*Bucharest,
Splaiul Unirii,
no. 86, floor
4, Sector 4*

➤ Contact details

*Ema CUMPATA
Email: ema.cumpata@ecotic.ro*

➤ The field of activity to which good practice is addressed?

➤ Practice location/Practice space

Services Braşov City

➤ Form of organization

Association

➤ Website

*Pagina web: <https://www.ecotic.ro/contact-ecotic/>
Modelul de bună practică:
<https://www.ecotic.ro/stiri/campania-brasov-recicleaza-revine-alaturi-de-caravana-ecotic/>*

➤ Social Objective

The actions of the project aimed to change the attitude of the population regarding the conservation, protection and improvement of the quality of the environment, the protection of human health and the prudent and rational use of natural resources, in particular by handing WEEE to authorized entities for proper recycling.

➤ Economic Objective

-

SECTION 2: DESCRIPTION OF GOOD PRACTICE

➤ General Presentation of the model

The ECOTIC caravan is an information and awareness vehicle that aims to draw attention to the importance of separate collection of waste electrical and electronic equipment (WEEE) and urge the people of Braşov to hand over used equipment for recycling. Through awareness-raising activities, addressed to both adults and young people, and the provision of collection solutions are made in order to promote a responsible attitude towards the environment. The caravan was present in the high schools of Braşov between May 6 and 9, where it held open lessons with the students of about the importance of recycling and selective waste collection. From Friday, May 10, until Sunday, May 12, the ECOTIC Caravan parked in the Post Office Orchard. Through the mobile exhibition, he presented 10 types of electrical and electronic equipment disassembled in order to highlight recyclable content, along with other useful information on the importance of recycling and recovery of raw materials. Also, large objects (automatic washing machines, TVs, stoves, refrigerators and refrigerators or central heating) could be taken from the home of each citizen who requested this, based on a prior appointment. It has been designated by the European Commission as the Best Environment LIFE Project within GREEN WEEK 2018.

➤ Title of good practice

“Braşov recycles” campaign

➤ Identified need

Lack of a separate waste collection system for electrical and electronic equipment

➤ The solution developed by good practice

Establishment of a collection caravan and 16 other points for the collection of waste electrical and electronic equipment and a service for their collection.

➤ Added Value

Collection points for electrical and electronic waste

➤ Impact/Benefits/Results

*2006 schools visited through the „Eco Days at your school” campaigns
85,000 students visited the caravan and participated in 765 eco activities
36,000 visitors were informed*

➤ Grant financing

Co-financed by **the European Commission** through the LIFE + program
Total budget: € 361,321.00
EU contribution: € 159,711.00

➤ Partners/collaborators

Braşov City Hall and Eco Civica Center

Period of implementation	Period of implementation
6-12 may 2019	6-12 may 2019
➤ Convergence with POR/Interreg Europe axis	-
➤ Target group, direct and indirect beneficiaries	Citizens of Braşov City
➤ Resources involved in the implementation of the project	<i>A team fomed of 15 members</i>
SECTION 3: SECTORIAL CHARACTERISTICS	
➤ Barriers/Limits	-
➤ Replicability conditions	<i>The replication took place in the current form of the project in several cities in Romania.</i>
➤ Your organization is a social enterprise	<i>No</i>
➤ You are accredited as a social enterprise or social insertion enterprise	<i>No</i>
➤ Select a maximum of 3 keywords or define others so that they represent your model of good practice	<i>waste recycling, intelligence communities, informing the public</i>
➤ Specific factors that determine the good practice	<p>The caravan was made as a mobile exhibition – a novelty in Romania, at least in terms of social impact. Very few environmental campaigns have benefited from such exposure at national level, mainly due to a large number of organizations involved in the project.</p> <p>The novelty of the project was the use of the mobile caravan both for public information and for the proper collection of electronic waste; the use of the two components – information and collection infrastructure – has significantly increased the impact of the project. In fact, the use of these two components should be implemented in any project aimed at promoting proper waste management and a circular economy.</p> <p>Powering the Caravan with energy from the solar panels mounted on its roof not only reduced the costs of supplying the Caravan, but was a form of promoting urban metabolism and resource efficiency.</p>
➤ Project sustainability	-

➤ Reproducibility of good practice

yes

➤ Succes Factors

The main attraction of the project was Caravan – the mobile exhibition of WEEE, where 10 disassembled items of equipment were presented and exhibited (CRT monitor, refrigerator, washing machine, landline, mobile phones, laptop, computer, toy and iron) cases; their role was to convey the message of WEEE recycling, highlighting their content of hazardous substances, but also their potential for reuse as secondary raw materials. Also, on 3 LCD monitors inside the caravan ran an animation meant to provide essential information about the recycling of electronic equipment.

➤ Learned Lessons

In Romania, the quantities of WEEE collected are far below average for EU countries (source: Eurostat 2010), and the collection is significantly less efficient than recommended by EU best practices. As most of the electrical and electronic items currently disposed of with ordinary waste can be recycled, there is a huge potential to increase collection rates and more could be done to raise awareness and thus stimulate separate collection.

This situation also resulted from the answers given by people during the 2014 survey (conducted at the beginning of the ECOTIC Caravan project):

- 64% did not hand over WEEE to authorized entities
- 60% did not know what hazardous substances can be found in WEEE
- 40% did not know where to dispose of WEEE correctly.

In 2015, statistics showed that 1.5/2 kg per capita were collected on average in Romania, while at that time the target was 4 kg of WEEE per capita.

➤ Project transferability

Yes

SECTION 1: GENERAL INFORMATION

➤ Name of the applicant organization/Initiator (project, activity, business etc.)

➤ PLASTICIRCLE ALBA IULIA

The project „Improvement of the plastic recovery network using circular economy techniques”, acronym PlastiCircle („Improvement of the plastic packaging waste chain from a circular economy approach”) is a project declared eligible for funding by the European Union under the European program HORIZON 2020.

➤ Country

Romania

➤ Year of establishment

2020

➤ Logo



➤ Number of employees

-

➤ The address of the organization	➤ Contact Person
<i>Calea Moșilor no. 5A, 510134 Alba Iulia, Romania</i>	<ul style="list-style-type: none"> • <i>E-mail: contact@plasticircle-albaiulia.ro</i> • <i>Telefon: 0258 819462</i>
➤ The field of activity to which good practice is addressed?	➤ Practice location/Practice space
<i>Services Alba Iulia</i>	
➤ Form of organization	➤ Form of organization
<i>Project funded by the European Union</i>	<i>Project funded by the European Union</i>
➤ Social Objective	
<ul style="list-style-type: none"> • <i>Information, involvement and awareness of citizens on how to properly recycle plastics and the importance of recycling for the environment, health and the economy;</i> • <i>Testing innovative collection methods (citizen platform, smart containers, optimization of collection routes, driving style) able to increase the efficiency of plastic collection and recycling, as well as conclusions on the degree of adoption and use by citizens, together with their suggestions that will be used in further developments of the waste collection processes in the municipality;</i> • <i>Collecting data on quantities, types of plastics and the possibility of recycling them, applying the concepts of the circular economy.</i> 	
➤ Economic Objective	
<p><i>More than 26.8 million tons of plastic waste are produced each year in the European Union, with a recycling percentage of only 29.7%. Thus, the main objective of the PlastiCircle project is to improve the circular economy of plastic (closing the plastic loop in Europe), which involves the development of a vast treatment process in order to reintroduce plastic obtained from plastic waste in its circuit, through the four pillars: collection, transport, sorting and recycling.</i></p>	
SECTION 2: DESCRIPTION OF GOOD PRACTICE	
➤ General Presentation of the model	
<p><i>The PlastiCircle project aims to develop and implement a holistic process to increase the recycling rates of packaging waste in Europe. This allows the reprocessing of plastic waste in the same value chain. This process envisages four axes: collection (to increase the amount of packaging collected), transport (to reduce the costs of recovered plastic), sorting (to increase the quality of recovered plastic) and recovery by making value-added products, respectively: automotive components (eg engine covers/bumpers/dashboards), bituminous roofing membranes, asphalt sheets, roofing felt, street furniture (eg fences/benches/protective walls).</i></p>	
➤ Title of good practice	
<p><i>„Improving the plastic recovery network using circular economy techniques”, acronym PlastiCircle</i></p>	
➤ Identified need	
<p><i>PlastiCircle started from the need to improve the collection and reuse rate of plastic in the European Union. Currently, over 25 million tons of plastic waste are produced annually, of which only 29.7% is efficiently recycled. The economic impact of improving recycling is estimated at over € 10 billion per year, plus environmental impact.</i></p>	

➤ The solution developed by good practice	
<ul style="list-style-type: none"> • <i>Development of an innovative integrated plastic waste collection system, validated by experts at the level of partner municipalities, which will contribute to increasing the amount of plastic packaging waste collected.</i> • <i>Development of an innovative integrated process for the transport of plastic waste, validated by experts at the level of partner municipalities, which translates at the end of the project into the efficiency of resources used for transport (eg reduction of fuel consumption and costs related to transport of this waste)</i> • <i>Development of an innovative integrated system for sorting plastic waste in optimal fractions to be recovered and recovered later, validated by experts at the level of partner municipalities.</i> • <i>Development of an innovative integrated system for recovery and recovery of plastic fractions, validated by experts at the level of partner municipalities.</i> • <i>Stimulating the transfer of experience at the level of project partners in terms of: the use of turnkey solutions for the development of a smart container, route optimization, optimization of sorting technologies and products obtained from recycled waste.</i> 	
➤ Plus value	
<i>Brings together 20 European partners, coordinated by the Research and Innovation Center for Packaging and Logistics (ITENE, Spain) are working to reinvent plastic packaging treatment processes so that recycling becomes more accessible, more cost-effective and more profitable for both citizens and professionals in the field</i>	
➤ Impact /Benefits/Results	
-	
➤ Grant financing	
Project declared eligible for funding by the European Union under the European program HORIZON 2020. EU financial contribution: EUR 163 625	
➤ Partners/collaborators within the project	
<ul style="list-style-type: none"> • Polaris M Holding • ITENE Research Institute (Instituto Tecnológico del Embalaje, Transporte y Logística) from Valencia – Spain, as coordinator, 18 other partners from: Belgium, Germany, Italy, Great Britain, Norway, the Netherlands, Slovenia, Spain. 	
➤ Period of implementation	➤ Period of implementation
06.01.2017 – 05.31.2021	06.01.2017 – 05.31.2021
➤ Convergence with POR/Interreg Europe	
-	
➤ Target group, direct and indirect beneficiaries	
Citizens of Alba Iulia	
➤ Resources involved in the implementation of project	
-	

SECTION 3: SECTORIAL CHARACTERISTICS

➤ Barriers/Limits

Citizens' reluctance and source of funding

➤ Replicability conditions

The infrastructure

➤ Your organization is a social enterprise

No

➤ You are accredited as a social enterprise or social insertion enterprise

No

➤ Select a maximum of 3 keywords or define others so that they represent your model of good practice

Recycling, Material recovery, active citizenship

➤ Specific factors that determine good practice

-

➤ Project sustainability

Recycling extends the life of plastic by recreating plastic waste in new plastic items

➤ Reproducibility of good practice

Coming from eight European countries, they use their extensive multidisciplinary and complementary expertise to make recycling more accessible, more cost-effective and cost-effective for both citizens and professionals. Thus, the reproducibility of the good practice can be easily implemented in other cities within the 8 countries involved in the project.

➤ Success Factors

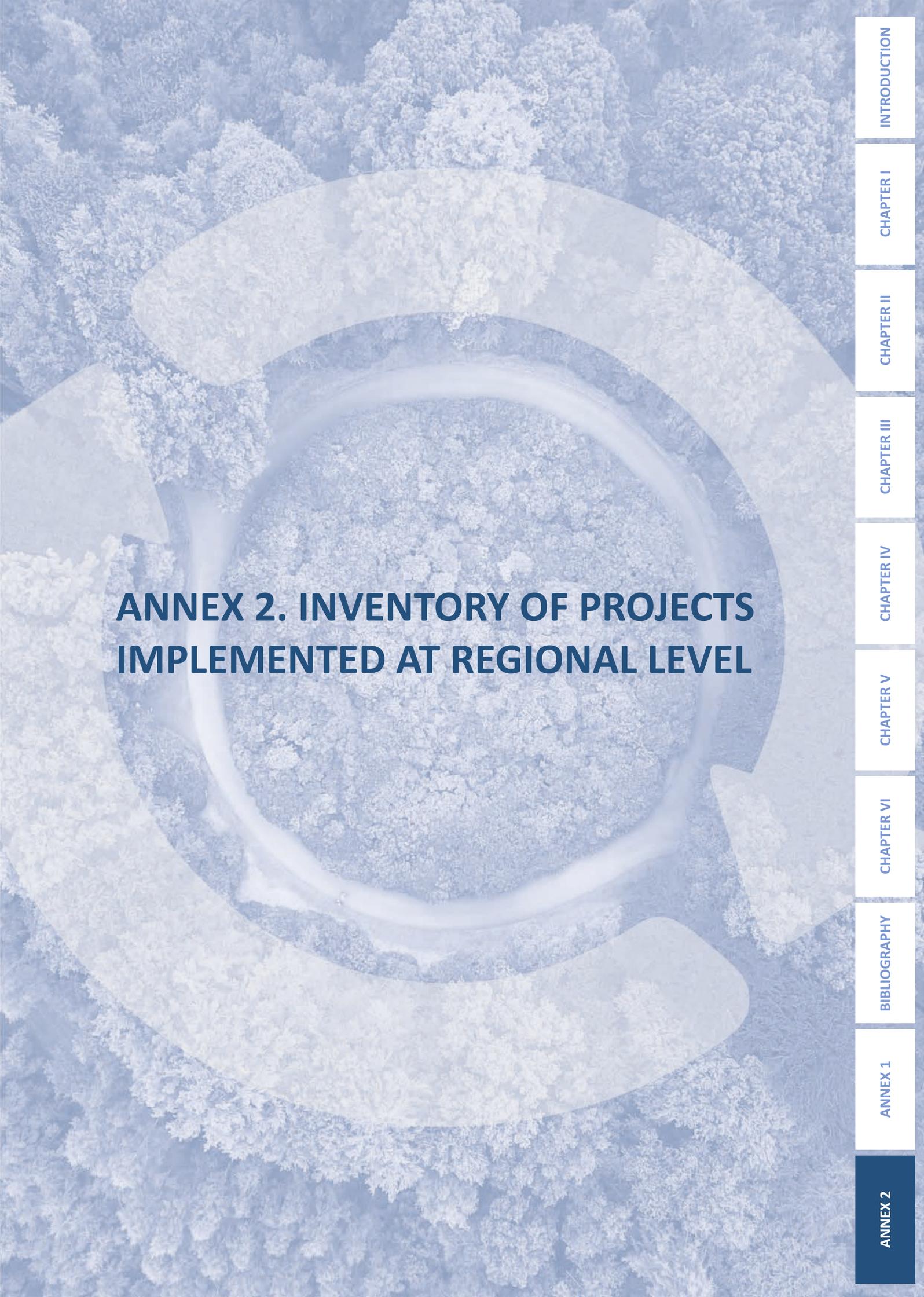
The PlastiCircle Alba Iulia pilot project aims to inform and involve citizens in the correct recycling of waste, to test smart containers, to identify the quantities and types of plastic that can be recycled, to optimize collection routes according to the degree of filling of containers, so as to contribute to the development and future implementation of the most efficient waste collection methods for Alba Iulia, ensuring the sustainable development of the city

➤ Lessons Learned

-

➤ Project Transferability

Yes, 20 European partners, led by the Center for Research and Innovation for Packaging and Logistics (ITENE), are working to reinvent the process of treating plastic packaging, an aspect that can then be easily transferred.

An aerial photograph of a dense forest with a winding river. A large, semi-transparent circular graphic is overlaid on the image, centered on the river. The text 'ANNEX 2. INVENTORY OF PROJECTS IMPLEMENTED AT REGIONAL LEVEL' is centered in the middle of the image.

ANNEX 2. INVENTORY OF PROJECTS IMPLEMENTED AT REGIONAL LEVEL

ANNEX 2. INVENTORY OF PROJECTS IMPLEMENTED AT REGIONAL LEVEL

Regarding the projects implemented at regional level that have demonstrated that they can contribute to the development of the circular economy at regional level and to a better exploitation of its potential, we mention the following:

Project/practice/methodology title	1. Increasing energy efficiency in the public building Maternity and Pediatrics Section
Short description	<p>The general objective of the project is to maximize the energy efficiency of the building of the Maternity and Pediatrics Department, part of the Cugir City Hospital, by starting and performing thermal rehabilitation works, modernization of utility networks and equipping the hospital with an automated management system.</p> <p>The project contributes to the local implementation of the circular economy concept by:</p> <ol style="list-style-type: none"> 1. Reducing the energy consumption through the thermal rehabilitation works of both the envelope and the heating system and by installing an energy monitoring, control and management system; 2. Reduction of losses and consumptions of thermal, electric and water energy by modernizing/rehabilitating indoor and outdoor installations and networks (electrical, thermal, ventilation-conditioning, water supply, sewerage); 3. decrease in the annual primary energy consumption of public buildings; 4. reduction of greenhouse gases.
Contact Person	Cugir City Hall
Localization	Centre Region no.7, Alba County, Cugir City, Str. I.L Caragiale, no. 1
Period of implementation	44 months, between 02.06.2017 and 09.30.2020
Types of actor involved	Cugir City Hall (public authorities) and the Center Development Agency
Public authorities role	<ul style="list-style-type: none"> • Improving the living conditions of citizens by rehabilitating other streets in the city, • Thermal rehabilitation of buildings, to streamline electricity and gas consumption, as well as to reduce public costs.

Financing	The value of the non-reimbursable financing allocated by MDRAPFE – AM POR: 11,067,961.81 lei (98.00% of the eligible value of the project), approximately: 2,450,181.93 euros
Domain	Energy consumption
Sector of activity	Energie
Transferability	It is possible the transfer of project results with the aim of maximizing energy efficiency to other economic sectors and other similar or similar buildings in terms of operating profile under public or private administration, as well as guaranteeing their future operation by developing a Transferability Plan that involves attracting/retaining the party decision-makers and other partners who remain involved after the completion of the project.
Advantages identified in relation to existing policy instruments	In addition to the rehabilitation and enveloping of the hospital, this project also aims to repair and replace the air conditioning systems and modernize the lighting installations of the hospital in question.
Identified gaps/lack of policy instruments	No identified gaps
Project/practice/methodology title	2. Reducing carbon emissions in the city of Cugir based on the Sustainable Urban Mobility Plan
Short Description	<p>The objective of this project is to reduce carbon emissions in the city of Cugir based on the directions identified in the Sustainable Urban Mobility Plan in 2017, by increasing fair mobility and accessibility, so as to develop an attractive and quality public transport system.</p> <p>It also aims to reduce travel time and response time in case of accident, by developing and implementing a modern traffic management system for public passenger transport. The project contributes to the local implementation of the circular economy concept by:</p> <ol style="list-style-type: none"> 1. improving environmental conditions by improving air quality; 1. increasing urban comfort by increasing green mobility adopting public transport management that encourages accessibility and at the same time reduces pollution;

	2. Increasing the share of pedestrian and bicycle mobility by adopting solutions (bike-sharing, track system, pedestrian alleys, sidewalk extension etc.) this encourage at the safety of green transport.
Contact Person	Cugir City Hall- Projects Department
Localization	Centre Region no.7 , Alba County, Cugir City
Period of implementation	The financing agreement was signed on 24.06. 2019, and the project will be finishes on 04.30.2022
Types of actor involved	Cugir City Hall and Center Development Agency
The role of public authorities	The Regional Operational Program is implemented at national level by the Ministry of Public Works, Development and Administration, as Managing Authority, and at regional level by Regional Development Agency Centru, an intermediate body of the program that monitors the implementation of this project.
Financing	The total value is 57,217,241.47 lei, of which 37,814,832.80 lei is non-reimbursable financing
Domain	Construction and Infrastructure
Sector of activity	Mobilitate
Transferability	Transfer of project results with the aim of reducing carbon emissions to other economic sectors and other similar or similar investments in terms of exploitation profile, as well as guaranteeing their future exploitation, by developing a Transferability Plan that involves attracting/retaining decision makers on the project side and other partners to remain involved after the project is completed.
Advantages identified in relation to Existing policy instruments	In addition to reducing carbon emissions in the city of Cugir, the project also solves the reduction of travel time and response time in case of accident, all this encouraging the use of public transport that becomes attractive and high quality.
Identified gaps/lack of policy instruments	No gaps identified

Project/practice/methodology title	3. Rehabilitation, modernization, and equipping with educational infrastructure for preschool education at Singidava Secondary School in Cugir
Short description	<p>The general objective of the project is to increase the number of participants in preschool education in the city of Cugir by improving the quality of school infrastructure.</p> <p>Specifically, the project aims to replace all utility installations, provide a ventilation system for group rooms, replace existing finishes, implement lighting systems equipped with LED sources, replace existing heating plants or purchase solar panels for hot water production. The project contributes to the local implementation of the circular economy concept by:</p> <ol style="list-style-type: none"> 1. efficient use of energy and resources; 2. the acquisition of skills and lifelong learning; 3. decreasing the migration by developing the education and training infrastructure which implicitly generates the increase of the attractiveness of the educational units through quality educational services
Contact Person	Cugir City Hall
Location	Region 7 Center, Alba County, Cugir City
Period of implementation	28 months, between 12.07.2017 and 03.31.2020
Types of actors involved	Cugir City Hall and Centre Development Agency
The role of public authorities	The Regional Operational Program is implemented at national level by the Ministry of Public Works, Development and Administration, as Managing Authority, and at regional level by Regional Development Agency Centru, an intermediate body of the program that monitors the implementation of this project.
Financing	The total value is 1,955,616.77 lei. The value of the non-reimbursable financing allocated by MDRAPFE – AM POR: 3,425,079.99 lei (60.00% of the eligible value of the project) approximately: 748,749.56
Domain	Energy Consumption
Sector of activity	MEnergy

Transferability	It is possible the transfer of project results with the aim of improving the quality of school infrastructure to other economic sectors and other similar or similar buildings in terms of operating profile under public or private administration, as well as guaranteeing their future operation is done by developing a Transferability Plan that involves attracting/retaining on the project side of the decision makers and other partners who remain involved even after the completion of the project.
Advantages identified in relation to existing policy instruments	Parents and the community of citizens, who will benefit from high educational services, thus reducing migration to large urban centers or abroad. The community will have the most to gain from the implementation of the project, because it will ensure the premises for the development of the next generation of young people, who will use the educational capacity acquired to ensure the future of Cugir.
Identified gaps/lack of policy instruments	No Gaps identified

Project/practice/methodology title	1. Installation of a Photovoltaic power plant for electricity production in order to cover the own consumption of Ocna Mureș Town Hall
Short description	<p>This project aims to achieve the energy independence of the town hall building from the electricity supplier. The photovoltaic installation will generate an energy equivalent to the consumption that the City Hall usually has (public lighting, administrative buildings, schools, UMS, Multifunctional Health Center etc.), resulting in a compensation with the electricity distributor, which will lead to a decrease to zero local government electricity costs. So, the mayor's office will end up consuming what it produces.</p> <p>The project contributes to the local implementation of the circular economy concept by:</p> <ol style="list-style-type: none"> 1. encouraging the concept of energy independence of administrative units and not only, which generates a decrease in energy consumption in the national grid; 2. conservation of energy saving funds that can be redirected and invested in other works; 3. urban regeneration through the efficient reuse of vacant land, considered without any economic future, as well as through the rehabilitation of a previously inert building, from a functional point of view;

	1. capitalizing on the local labor force by creating new jobs.
Contact Person	Ocna Mureş City Hall
Localization	Centre Region no. 7, Alba County, Ocna Mureş City
Period of implementation	
Types of actors involved	Ocna Mureş City Hall in partnership with Advokatdirekte AS – Norway, Specialized designer: SC Enecon Systems SRL, General designer: SC Valeverde International SRL.
The role of public authorities	<ul style="list-style-type: none"> • promoting energy independence and the use of green energy sources • reduction of energy consumption in the national grid • cost reduction • encouraging economic circularity through energy self-sustainability
Financing	The total value of the project is 3,190,393 lei, of which 84.99%, respectively 2,711,635 lei, represents the support of the Norwegian Grant.
Domain	Consumption
Sector of activity	Energie
Transferability	It is possible the transfer of project results with the aim of increasing energy efficiency and reducing consumption from the national grid to other similar or similar buildings in terms of operating profile under public or private administration, and ensuring their future operation is done by developing a Transferability Plan that involves attracting/keeping on the project side the decision makers and other partners who will remain involved even after the completion of the project.
Advantages identified in relation to Existing policy instruments	In addition to ensuring the energy independence of the City Hall building, there is also a regeneration of vacant land, considered without any economic future, as well as the rehabilitation of a building that was considered useless. The project also involved the creation of jobs for the citizens of Ocna Mureş.
Identified gaps/lack of policy instruments	No gaps identified

Project/practice/methodology title	5. Development of the economic activity of SC TECHNIQUE STAINLESS SRL through the acquisition of new equipment/machinery
Short description	<p>The project aims to increase the economic competitiveness on the market of construction works by increasing the number of qualified employees and by developing an investment program for the purchase of new and high-performance construction equipment to increase the volume and efficiency of the company's activity in Alba County and the region. The project contributes to the implementation at local level of the concept of circular economy by:</p> <ol style="list-style-type: none"> 1. increasing the assimilated local labor force and discouraging its emigration to other urban centers; 2. raising the efficiency of local operators through refurbishment and encouraging investment in performance; 1. diversification of services and activity capacity of economic factors in the field of construction.
Contact person	SC Technique Stainless SRL
Localization	Centre Region, no. 7 Alba County, Ocna Mureș City.
Period of implementation	06.03.2018- 31.07.2018
Types of actor involved	SC Technique Stainless SRL, private company, Regional Development Agency Centru.
The role of public authorities	The Regional Operational Program 2014-2020 is implemented at national level by the Ministry of Regional Development, Public Administration as Managing Authority, and at regional level by Regional Development Agency Centru, which is the body that monitors the implementation of this project in the Center Region.
Financing	The total value of the project is 694,331 lei. The non-reimbursable financing granted from European funds is of 503,493 lei.
Domain	Competitiveness and Innovation
Sector of activity	
Transferability	It is possible the transfer of project results with the aim of increasing the volume and efficiency of the company's activity by increasing the number of qualified employees to other similar or similar economic institutions as operating profile, as well as guaranteeing their future operation is done by developing a

	Transferability Plan that involves attracting/retaining the part of the project of the decision-makers and other partners who remain involved even after the completion of the project.
Avantaje indentificate în raport cu instrumentele de politică existente	In addition to the fact that the project has led to an increase in the number of new and efficient equipment, it has created a favorable environment for increasing the number of qualified employees.
Identified gaps/lack of policy instruments	No Gaps identified

Project/practice/methodology title	6. IMPACT- Active involvement for the citizens of Ocna Mureş
Short description	<p>The project consists in the development of an integrated system of social interventions, in order to combat poverty and social exclusion, through alternative education programs, active employment measures, social and medical services, dedicated to marginalized communities in Ocna Mureş. The project contributes to the local implementation of the circular economy concept by:</p> <ol style="list-style-type: none"> 1. the development of training programs that become educational support for entrepreneurial development at local level 2. discouraging school dropout, increasing the educational quality of the population in marginalized communities; 3. taking active measures to improve care, health and hygiene, administrative and self-care services; 1. supporting the integration into the local labor market through information, mediation and counseling.
Contact Person	Project leader: Progres Foundation
Localization	Centre Region no. 7 , Alba County , Ocna Mureş City.
Period of implementation	14.02.2018 – 13.02.2021
Types of actor involved	<p>Project leader: Progres Foundation – non-profit and non-governmental organization (legal person under private law without patrimonial purpose)</p> <p>Partners: ASMEA Association (Social actions through educational methods) – non-profit non-governmental organization, Ocna Mureş City Hall – territorial administrative unit at local level, Petru Maior Theoretical High School – Pre-university educational institution of state.</p>

The role of public authorities	<ul style="list-style-type: none"> Supporting and encouraging the involvement of civil society in cases specific to active citizenship.
Financing	The total value of the project is 10,161,385 lei. The financing granted from EU Funds is 8,637,178 lei and the funds provided from the national budget is 1,472,278.
Domain	
Sector of activity	Education
Transferability	It is possible transfer of project results with the aim of combating poverty and social exclusion, through alternative programs to other operators in the field of civil society, as well as guaranteeing their future implementation is done by developing a Transferability Plan that involves attracting/retaining project decision makers and of other partners to remain involved even after the completion of the project.
Advantages identified in relation to existing policy instruments	taking into account the fact that the demographic trend of Făgăraș is declining and that the young workforce is migrating, the advantage of this project is that it aims to prevent early school leaving and support for integration into the labor market.
Identified gaps/lack of policy instruments	No gaps identified

Project/practice/methodology title	7.Increasing the energy efficiency of residential buildings in Făgăraș municipality, Brașov county
Short description	<p>The general objective of this project is to increase the energy efficiency of residential buildings in Făgăraș Municipality, Brașov County and improve the living conditions of its inhabitants by capitalizing on indoor comfort conditions, reducing energy consumption and reducing pollutant emissions.</p> <p>Increasing the energy efficiency of residential buildings in Făgăraș Municipality, Brașov County will be ensured by carrying out intervention works to reduce energy consumption for heating apartments, in ensuring and maintaining indoor thermal climate, by limiting heat loss to the outside, and improving the urban aspect of the locality. The project contributes to the local implementation of the concept of circular economy by:</p> <ol style="list-style-type: none"> 1. reduction of the specific annual heat consumption for heating in thermally insulated blocks of flats; 2. reduction of greenhouse gas emissions;

	<ol style="list-style-type: none"> 3. improving and increasing the quality of interior comfort conditions; 4. ensuring non-discrimination, equal treatment, transparency, efficient use of public funds (European and national) in the public procurement process; 5. Improving the quality of life in the city by providing public services at a high quality level that meets the requirements of modern urban life; 6. creation of new temporary jobs during the project implementation period; 7. urban regeneration by improving the urban quality of the neighborhood.
Contact Person	Făgăraș City Hall
Localization	Centre Region, Brașov County, Făgăraș City.
Period of implementation	30 months, between 11.22.2017 and 04.30.2020
Types of actors involved	Făgăraș City Hall (public authorities) and the Center Development Agency
The role of public authorities	The Regional Operational Program is implemented at national level by the Ministry of Public Works, Development and Administration, as Managing Authority, and at regional level by Regional Development Agency Centru, an intermediate body of the program that monitors the implementation of this project.
Financing	The value of the non-reimbursable financing allocated by MDRAPFE – AM POR: 3,425,079.99 lei (60.00% of the eligible value of the project) approximately: 748,749.56 lei
Domain	Energy Consumption
Sector of activity	Energie
Transferability	It is possible the transfer of project results with the aim of increasing energy efficiency to other similar or similar buildings in function, under public or private administration, as well as guaranteeing their future operation is done by developing a Transferability Plan that involves attracting/retaining the project factors decision-makers and other partners – owners who remain involved even after the completion of the project.

Advantages identified in relation to existing policy instruments	In addition to the energy efficiency obtained, the companies from Făgăraș and the authorized natural persons, which offer technical expertise, energy audit or design services are advantaged because they can maintain their number of employees. They are joined by construction companies, manufacturers or importers of construction materials, transport companies and their employees, who benefit collateral from the effects of the investment. Thus, the citizens who live in the area, or those who transit the area benefit from this project by improving the aesthetics of the neighborhood.
Identified gaps/lack of policy instruments	No gaps identified

Project/practice/methodology title	8. Entrepreneurial development by setting up a business incubator in Făgăraș Municipality
Short description	<p>The project „Entrepreneurial development by setting up a business incubator in Făgăraș Municipality” was designed to contribute to the development of the economic and social sector of Făgăraș Municipality, Brașov County, by giving priority support to start-ups in the creative industries. The project contributes to the local implementation of the concept of circular economy by:</p> <ol style="list-style-type: none"> 1. strengthening the creative industries sector at the level of the local and regional economy by increasing the entrepreneurial rate in the creative industries; 2. attracting young graduates of high schools and universities with relevant profile in the Region, specialists in the fields of creative industries located in the Region – newly established SMEs that are no more than 3 years old, operating in one or more of the primary fields of industries creative; 3. the development of the creative industry at the locality level and implicitly of the network of emerging profile events; 4. generating a market in the creative sector aspect that generates exchange of information and economic good in the local circuit.
Contact person	Făgăraș City Hall
Localization	The Făgăraș Business Incubator will be located in the North-East area of Făgăraș municipality.
Period of implementation	52 months, between 03.21.2018 and 06.30.2022.

Types of actors involved	SC Technique Stainless SRL, private company, Center Regional Development Agency
The role of public authorities	The Regional Operational Program 2014-2020 is implemented at national level by the Ministry of Regional Development, Public Administration as Managing Authority, and at regional level by Regional Development Agency Centru, which is the body that monitors the implementation of this project in the Center Region.
Financing	The total value of the project is 5,181,534.56 lei, of which 2,374,791.15 lei are eligible non-reimbursable expenses from the ERDF (48.84%), 419,080.79 lei are eligible non-reimbursable expenses from the national budget (8,62%) and 2,387. 662.62 lei represents the own contribution of Făgăraș Municipality.
Domain	Competitiveness and Innovation
Sector of activity	Business environment
Transferability	The transfer of the project results with the objective of developing the economic and social sector to other economic sectors, as well as guaranteeing their future implementation is done by developing a Transferability Plan which involves attracting/retaining on the project side decision makers and other partners to remain involved. and after the completion of the project.
Advantages identified in relation to existing policy instruments	Consolidation of the creative industries sector at the level of the regional economy by increasing the entrepreneurial rate in the creative industries, both at the level of Brașov county and at the level of the Central Region.
Identified gaps/lack of policy instruments	No Gaps Identified

Project/practice/methodology title	9. Ensuring access to outpatient health services for the population of Brașov County
Short description	This project aims to modernize and develop the health infrastructure with the help of investments in health facilities or the start of new works necessary to reduce inequalities in public health and to facilitate and improve the population's access to the necessary medical services. The project aims at the sanitary infrastructure at the level of Brașov county but also at the level of Făgăraș Municipality to be modernized and technologicalized at European level. The project contributes to the local implementation of the concept of circular economy by:

	<ol style="list-style-type: none"> 1. improving the medical activity carried out in the sanitary units that benefit from the new endowments. This will increase the capacity of the person treatment unit and, indirectly, increase the accessibility of the population to medical services; 2. increasing the number of people who benefit from access to outpatient medical services within the region.
Contact Person	Făgăraș City Hall
Localization	Centre Region, Brașov County, Făgăraș City
Period of implementation	07.01.2015 and 10.31.2019
Types of actor involved	Făgăraș City Hall and Centre Regional Development Agency
The role of public authorities	The project is realized in the form of a partnership between the Ministry of Health, ATU Brașov, Emergency County Clinical Hospital Brașov, Clinical Hospital of Obstetrics-Gynecology Dr. IA Sbârcea Brașov, Emergency Clinical Hospital for Children Brașov, Municipal Hospital Codlea, Municipal Hospital Săcele Făgăraș, Codlea ATU, Dr. Aurel Tulbure Municipal Hospital Făgăraș, Clinical Hospital of Pneumoftiziologie Brașov.
Financing	The total value of the project is 3,551,512.65 lei, and the eligible expenses for Făgăraș Municipality are 414,573.34 lei.
Domain	Production, consumption, waste management, raw materials, competitiveness and innovation, Construction and Infrastructure
Sector of activity	Construcții și Infrastructură
Transferability	It is possible the transfer of the project results with the objective of modernizing and developing the sanitary structure to other sanitary investments under public or private administration, as well as guaranteeing their future operation is done by elaborating a Transferability Plan which involves attracting/retaining the decision and other partners to remain involved even after the completion of the project.
Advantages identified in relation to existing policy instruments	The project provides an increase in the quality of services provided by the medical system and a quantitative increase in the number of beneficiaries of medical services in Brasov County, while improving public health at national and regional level and local.
Identified gaps/lack of policy instruments	No gaps identified

Project/practice/methodology title	10. Modernization of the urban mobility corridor integrated in the industrial area of Făgăraș Municipality
Short description	<p>The project consists of a series of actions aimed at modernizing the infrastructure elements in the Făgăraș area, in order to facilitate the transition from a mobility based on the use of private cars to a mobility based on walking, the use of the bicycle as a means of travel, the use of transport public of high quality and efficiency, as well as the reduction of car use in parallel with the use of certain categories of non-polluting cars. The project contributes to the local implementation of the concept of circular economy by:</p> <ol style="list-style-type: none"> 1. reduction by 2022 of CO2 emissions in the area subject to investment; 2. the increase until 2022 of the number of public transport users in Făgăraș Municipality; 3. implementation of measures designed to encourage the use of alternative transport (electric buses, implementation of a labeling system, modernization of public transport stations, creation of a traffic management system until the completion of the project, at local level; 4. increasing the number of cyclists by 2022 using the bicycle transport system by developing a bicycle rental system; 5. increasing the safety and accessibility for pedestrians by 2022; 6. improving the urban space by ensuring green spaces in alignment and planting trees and shrubs by 2022; 7. reduction by 2024 of the level of noise pollution; 8. reduction of GHG emissions (CO2 equivalent); 9. the estimated annual increase in the number of passengers carried on public transport systems; 10. the estimated annual increase in the number of people using bicycle lanes; 11. estimated annual increase in the number of people using pedestrian/semi-pedestrian routes/areas.
Contact Person	Făgăraș City Hall
Localization	Centre Region, Brașov County, Făgăraș
Period of implementation	81 months: between 10.19.2015 and 06.30.2022, the period includes the development of the project activities before the signing of the Financing Contract, according to the rules of eligibility of expenses.

Types of actor involved	Făgăraș City Hall and Centre Regional Development Agency
The role of public authorities	The Regional Operational Program 2014-2020 is implemented at national level by the Ministry of Regional Development, Public Administration as Managing Authority, and at regional level by Regional Development Agency Centru, which is the body that monitors the implementation of this project in the Center Region.
Financing	The total value of the project is 43,857,976.90 lei, of which 35,120,587.45 lei are eligible non-reimbursable expenses from the ERDF (85%), 5,371,383.93 lei are eligible non-reimbursable expenses from the national budget (13%) and 3,366,005.52 lei represents the own contribution of Făgăraș Municipality
Domain	Infrastructure
Sector of activity	Mobility
Transferability	It is possible the transfer of the project results with the objective of modernizing and developing the sanitary structure to other sanitary investments under public or private administration, as well as guaranteeing their future operation is done by elaborating a Transferability Plan which involves attracting/retaining the decision and other partners to remain involved even after the completion of the project.
Advantages identified in relation to existing policy instruments	The project was designed so that modernization actions are correlated within a larger, integrated project for the reconfiguration of urban land and the construction or modernization of infrastructure elements related to all modes of transport, contributing thus also to the increase of the quality of the urban environment and implicitly of the life of the inhabitants of Făgăraș municipality.
Identified gaps/lack of policy instruments	No Gaps Identified