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Replication Strategies Model

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Partners

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HISTORY OF CHANGES			
Version	Date	Author/ Contributor	Changes
01	21.05.2024	SLOM	The first draft of the document
02	29.05.2024 4.06.2024	INL, CCDR	Revision of the document
03	4.06.2024 13.06.2024	Circulair Friesland	Revision of the document
04	13.06.2024	FRL	Revision of the document
05	4.06.2004	SLOM	Presentation of the document during WP8 coordination meeting, discussion
06	26.06.2024	UniLodz	Clarifying the methods of identifying Circular Missions and Circular Challenges
07	28.06.2024	SLOM	The second draft, the changes incorporated the feedback received from the partners
08	24.07.2024	INL	Revision of the document
09	5.08.2024	SLOM	The third draft, the changes incorporated the feedback received from the partners
10	16.08.2024	OPUS	Revision of the document
11	26.08.2024	SLOM	Preparation of annexes and correction of the document
12	28.08.2024	INL	Revision of the document
13	6.09.2024	EURADA	Graphic design
14	16.09.2024	SLOM	The final version
15	26.09.2024	INL	The final version review
16	29.10.2024	K-FLEX	Quality assurance
17	30.10.2024	SLOM	Final version

Disclaimer

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1. Table of Contents

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Abbreviations

CCRI - Circular Cities and Regions Initiative
CE – Circular Economy
CEAP - Circular Economy Action Plan
CpEAP – CircuPuncture Economy Action Plan
CSS – Circular Systemic Solutions
CTC – Circular Territorial Cluster
ICT - information and communication technologies
LAP – Local Activity Place
LR – Lodzkie Region
NGO – Non-Governmental Organisation
RCT - Regional Cluster Team
SAT – self-assesment tool
SLOM – Stowarzyszenie Łódzki Obszar Metropolitalny (Lodz Metropolitan Area Association)
TRL - technology readiness level

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Executive summary

1. GENERAL INFORMATION

1.1. Replication Strategy model in FRONTSH1P project

The replication strategy in Frontsh1p project enables the methods and experiences gained in Lodzkie region during the development of the Circular Economy Action Plan to be used and transferred to other regions in Europe. The creation and replication of action plans is expected to contribute to the decarbonisation and regeneration of these areas and allow new technologies to be demonstrated there.

The aim of this study is to support different territorial areas in implementing local and supra-local circular solutions to improve the quality of life of communities, transfer knowledge, scale innovation in a circular economy, facilitate collaboration between different stakeholder groups, increase resilience to change, and support sustainable development, among other things. The cooperation of regions from Portugal, Italy, Greece and the Netherlands played an important role in the work on the replication strategy.

The experience of the project has led to the preparation of a practical document, the essence of which is to guide the user step by step through the whole process of preparing and implementing circular actions, starting with the analysis of the context, i.e. the analysis of the stakeholders, through the steps related to the planning of concrete actions and the preparation of good practices. Given the complexity of a process requiring the integration of actions undertaken in different territorial settings and with the involvement of different actors, the document is concise, complemented by descriptions illustrating the process and simple tools that can be used.

The document consists of four parts, i.e.:

- **General information** - this part provides the general context and equips the user with information about the project, the benefits resulting from the implementation of circular economy, and presents the circular model prepared for Lodzkie Region. This part consists of:
    - Replication strategy model in Frontsh1p project
    - Benefits and opportunities of a circular approach to resource management

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    - Risks and Threats related to the implementation of a circular approach to resource management
    - The idea of a CircuPuncture Model
- **JUST DO IT** – a manual that serves as a practical guide, leading the user through the entire process of preparing and implementating circular economy solutions. It contains tips, next steps, and is complemented by practical tools and solutions.
- **Circular competences** - part enabling strengthening of the innovative potential of the labour market in terms of creating favourable conditions allowing for the implementation of circular economy solutions. Refers in particular to circular competences, which should be developed not only at the level of individual institutions but above all territories facing the challenges of the circular economy.
- **Attachments** – this is a part containing a description of good practices, activities undertaken for the circular economy in Lodzkie Region and other regions, and possible tools and other helpful documents (Figure 2).

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Figure 2. Document layout

1. General information		Executive summary	general assumptions of the project
	1.1.	Replication strategy model in Frontsh1p project	what is the replication strategy structure of the document
	1.2.	Benefits and opportunities of a circular approach to resource management	a short discussion of the topic aimed at encouraging the implementation of circular economy solutions
	1.3.	Risks and Threats related to the implementation of a circular approach to resource management	a brief discussion of the topic aimed at drawing attention to the risks and limitations in implementation
	1.4.	The idea of a CircuPuncture Model	Short decription of the CircuPuncture model for Lodzkie Region
2. Replication Strategy Model – manual **JUST DO IT**	2.1.	I - Analysis of conditions	Analysis of various conditions regarding the implementation of circular economy in a given territory, leading to the preparation of the Circupuncture model
	2.2.	II – Resources Missions and CSS	Identification of Resource Missions and indication of Circular Systemic Solutions (CSS)
	2.3.	III – Challenges	Indication of challenges for each Resource Mission
	2.4.	IV – Action Plan	Preparation of an Action Plan for the replication region
	2.5.	Awareness and citizen engagement in building circular economy	The preparation of the Action Plan raises awareness of the circular economy (communication, tools used and their target group) and thus influences the involvement of the local community
3. Circular competences	Description of the circular jobs and competences		
Attachments	Annexes	Description of selected aspects related to the circular economy complementing the strategy	
	Toolbox	Practical tool for preparing CpEAP	

Source: own study

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1.2. Benefits and opportunities of a circular approach to resource management

A circular economy is a production and consumption model that involves sharing, borrowing, reusing, repairing, renewing and recycling existing materials and products for as long as possible. In this way, the life cycle of products is extended. In practice, this means reducing waste to a minimum. When a product's life cycle comes to an end thanks to recycling, the raw materials and waste that come from it should stay in the economy. They can be successfully reused, thus creating additional value.[1]

The benefits of implementing circular solutions are diverse and include economic, social and environmental aspects. Circular solutions can benefit different stakeholder groups. The benefits presented in Figure 3 are for illustrative purposes only, and the different categories of benefits can be attributed to different stakeholders depending on their specific characteristics and scope of activities.

Figure 3. Benefits of a circular economy

	Selected categories of benefits
Industry and companies	• new business opportunities (new products and services) • increased innovation - development of new and sustainable products, services and solutions • increased competitive advantage through increased operational efficiency, reduced risk from volatile prices, improved image • greater independence from external suppliers of raw materials • cost savings associated with e.g. the purchase of new raw materials, production and waste disposal • increased efficiency of production processes -> reduction of raw material and energy consumption • income generation (e.g. sale of secondary raw materials)
Consumers	• improved product quality • savings (by buying products with a longer life cycle, using services based on sharing) • better health • a cleaner environment
Environment	• conservation of natural resources • limiting the destruction of landscapes and habitats • limiting biodiversity loss • reduction of greenhouse gas emissions • reduction of waste • reduced consumption of energy and resources

[1] https://www.europarl.europa.eu/topics/pl/article/20151201STO05603/gospodarka-o-obiegu-zamknietym-definicja-znaczenie-i-korzysci-wideo

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	• clean air and water
Governments and public institutions	• supporting sustainable development goals • creating jobs (including sectors related to recycling and innovation and green technologies • improving public health
Societies	• improved quality of life (less pollution, better products and services, greater availability of resources, clean air and water, attractive environment, promotion of sustainable lifestyles) • increased innovation - creating new and sustainable products, services and solutions • development of the local economy • greater independence from external suppliers of raw materials
Municipalities	• cost savings • job creation • sustainable development • improved quality of life for residents • increased competitiveness of the territory • increased attractiveness of the territory for tourists, investors and potential residents • minimisation of environmental risks

Source: own study

The implementation of circular economy solutions can be significantly facilitated by several key determinants, which include:

- government regulations and policies, including financial incentives, mandatory norms and standards, programmes to support research and development of circular technologies,
- technological innovation in terms of, for example, modern recycling technologies (allowing the recovery of high-quality raw materials), digitisation and automation (supporting product lifecycle management),
- business models and company strategies that focus on the transition from selling products to offering services such as renting, leasing or servicing,
- extensive recycling infrastructure and reverse logistics,
- cross-sectoral cooperation enabling closed cycles in global systems,
- a high level of social capital (cooperativeness, willingness to get involved, innovation orientation, trust), openness and support from the community and consumers (including pro-environmental behaviour, development of a culture of repair and reuse,
- public awareness and education (including information campaigns, environmental education, educational programmes in schools and universities).

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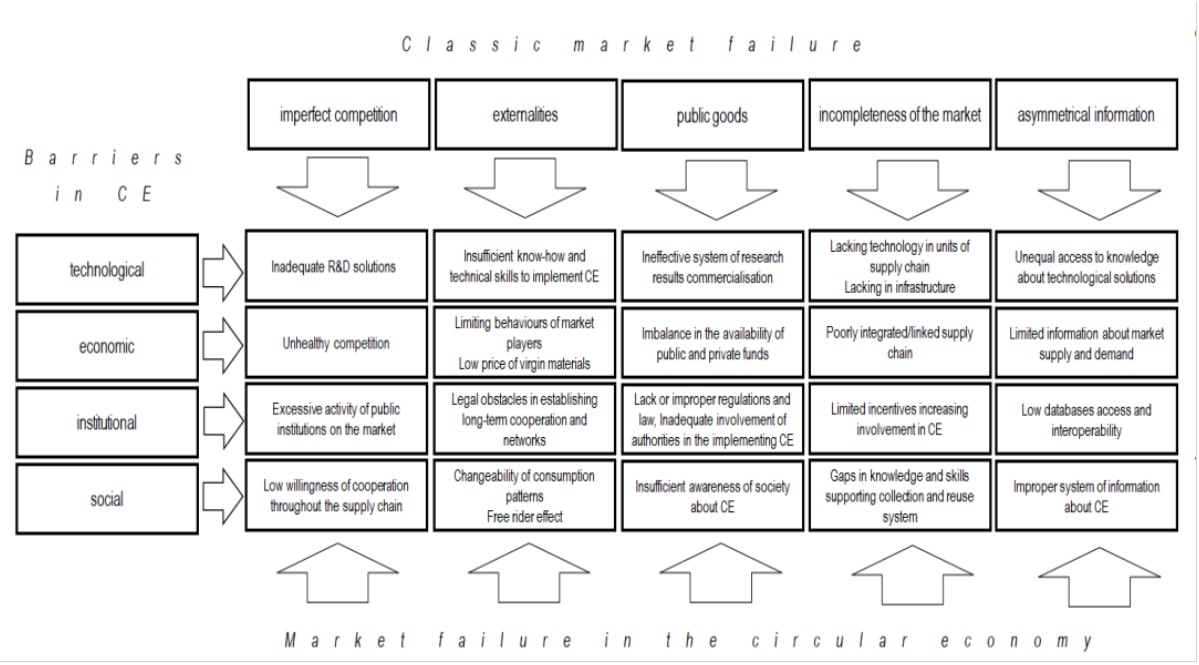
1.3. Risks and Threats related to the implementation of a circular approach to resource management

There are a number of constraints to implementing the circular approach. Research conducted as part of the Frontsh1p project identified several categories of barriers. **Formal and legal barriers** were identified as key ones, which included the occurrence of formal errors, contradictions and gaps in the law, imperfect definitions, inefficiency of legislation or difficulties in applying the law. Failures are also due to a lack of awareness and knowledge of, inter alia, stakeholders' legal institutions, an inability or skill to interpret the law and the existence of erroneous, outdated patterns of behaviour.

The second important category of **barriers** are those arising from **market failures**. These are barriers of a technological, economic, institutional, regulatory, social/cultural, organisational, supply chain, infrastructural, or knowledge and information deficiencies nature (Figure 4).

Figure 4. Barriers resulting from market failures



Source: J. Adamus, J. Trippner-Hrabi, J. Chądzyński, Deliverable D2.1. Policy Framework and Market analysis – POLICY, pp. 37

Barriers can also be classified by organisational culture, financial costs and risks, limitations in access to data and measurement, or resistance from different stakeholder groups.
The issue of barriers to implementing the circular economy is the subject of a training course available on the e-learning platform.

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1.4. The idea of a CircuPuncture Model

The name of the model comes from the combination of two words: 'circular' and 'acupuncture'. The local territory is treated as a laboratory for creating, implementing and testing innovative projects.
The CircuPuncture model is:

- a method based on integrated interpersonal and collective communication tools, supported by ICT technologies;
- a methodology for implementing small-scale investments when it is difficult to initiate and implement a holistic development vision in a single step or major project;
- a way of working towards strategic goals involving individual stakeholders in development activities;
- a method of bottom-up action initiated by individuals/(stakeholders) aware of the conditions and needs of a circular economy organisation;
- a way of coordinating and thus integrating multi-agency, dispersed sectoral and cross-sectoral activities/(projects);
- a mechanism for the coexistence of the social, economic and natural spheres based on market logic;
- a mechanism for the coexistence of the social, economic and natural spheres based on symbiosis and sharing.

CircuPuncture is a strategy for operating on a smaller, local scale. It is based on the creation, organisation, management and improvement of a Circular Territorial Cluster (CTC). A CTC is a kind of locally embedded economic network. In this network, in addition to the classical actors, including companies, public administrations, universities, among others, citizens (society) play an important role. Here, society is a co-producer, an active, economic participant in the market. An important area of interest for CTCs is waste, which is seen as a multi-component raw material. Therefore, partners from different sectors of the economy are involved in their use. The circular economy is strictly territorial in nature.
Underpinning the implementation of the CircuPuncture model is a resource-based approach to identifying critical activities - Resource Missions and Circular Challenges. The missions are the key resource categories and areas of action of the units in the Circular territorial cluster.

The resource missions identify:

- actions to integrate the territory's development potential in the area of selected resources in order to transform the territory's economy into a closed-loop model;
- critical areas of innovation needs, i.e. areas of necessary improvement and necessary system innovation in the form of closed-loop system solutions.

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How to select resource missions and then create an Action Plan will be presented in this document (see Stage II and III). The presentation of the Action Plan is also the subject of a training course available on the e-learning platform.

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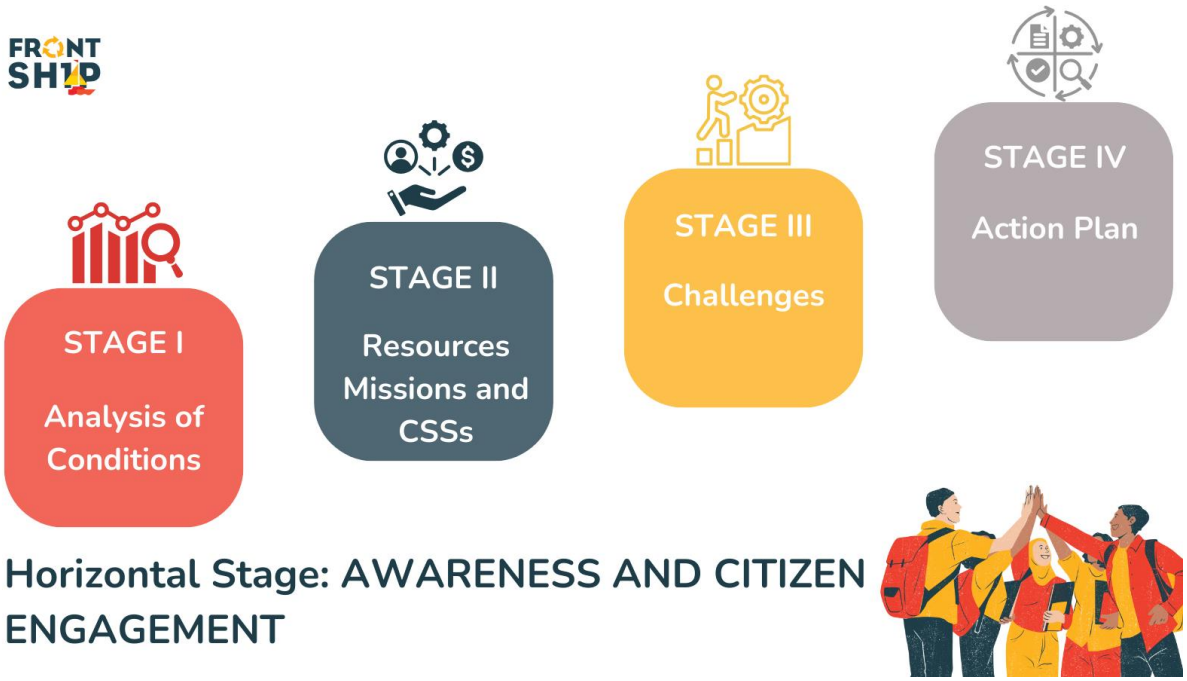
2. JUST DO IT

JUST DO IT – this section presents the step-by-step actions to be taken to implement circular economy solutions in the chosen territory. This part is a manual, a practical tool guiding the user by the hand through the whole process related to the preparation of the replication and its implementation. It consists of **four rolling stages** (Figure 5). The layout of the manual also includes a fifth, horizontal stage, which means that the activities carried out within it can be implemented in parallel with the first four.

Figure 5 - Work stages



Source: own study

Stage I: contains guidelines for the identification and diagnosis of the replication region, including internal and external conditions and entities influencing the activities undertaken in the area of the circular economy.
Stage II: presents how to define the resource missions and circular systemic solutions (CSS)
Stage III: presents how to identify circular challenges.
Stage IV: contains guidelines for preparation of the Circular Economy Action Plan (CEAP).
Horizontal stage: provides guidance on how to build a sustainable, circular economy by shaping social awareness and attitudes.

The description of each stage follows the same layout (Figure 6):

- **An information sheet** (Part A) - containing the purpose of the stage, the next steps that make up the stage, the methods, the instruments and information on sources of

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help-seeking in situations that require it. Through the use of infographics, the section interacts with the imagination. By visualising the process, it allows the user to better plan and execute subsequent tasks.

- The practical part - **'What to do' (Part B)** - is a catalogue of further tasks to be undertaken in order to implement solutions for circular economy. The catalogue of tasks is flexible, which means that, depending on the specifics found in a region, more or less attention can be paid to it, or some tasks can be dropped altogether. It is also possible to change the order of the tasks if necessary, starting, for example, with the designation of the territory in which the implementation will take place or the identification of the stakeholders needed to be involved in the different stages of the process.
- The practical part - **'What was done' (Part C)** - is a description of good practices undertaken in the demonstration region, the mentoring region, the replication regions and other regions experienced in implementing various circularity activities. This description is intended to visualise the steps taken, making it easier for the recipients of the handbook to plan their activities.
- The practical part – **Check list (part D)** – is intended to help users self-monitor, i.e. answer questions about whether all key steps have been taken.
- Practical part – **Helpful documents/tools and others (part E)** – this section contains all the documents that may be helpful during implementation and are referred to in the manual.

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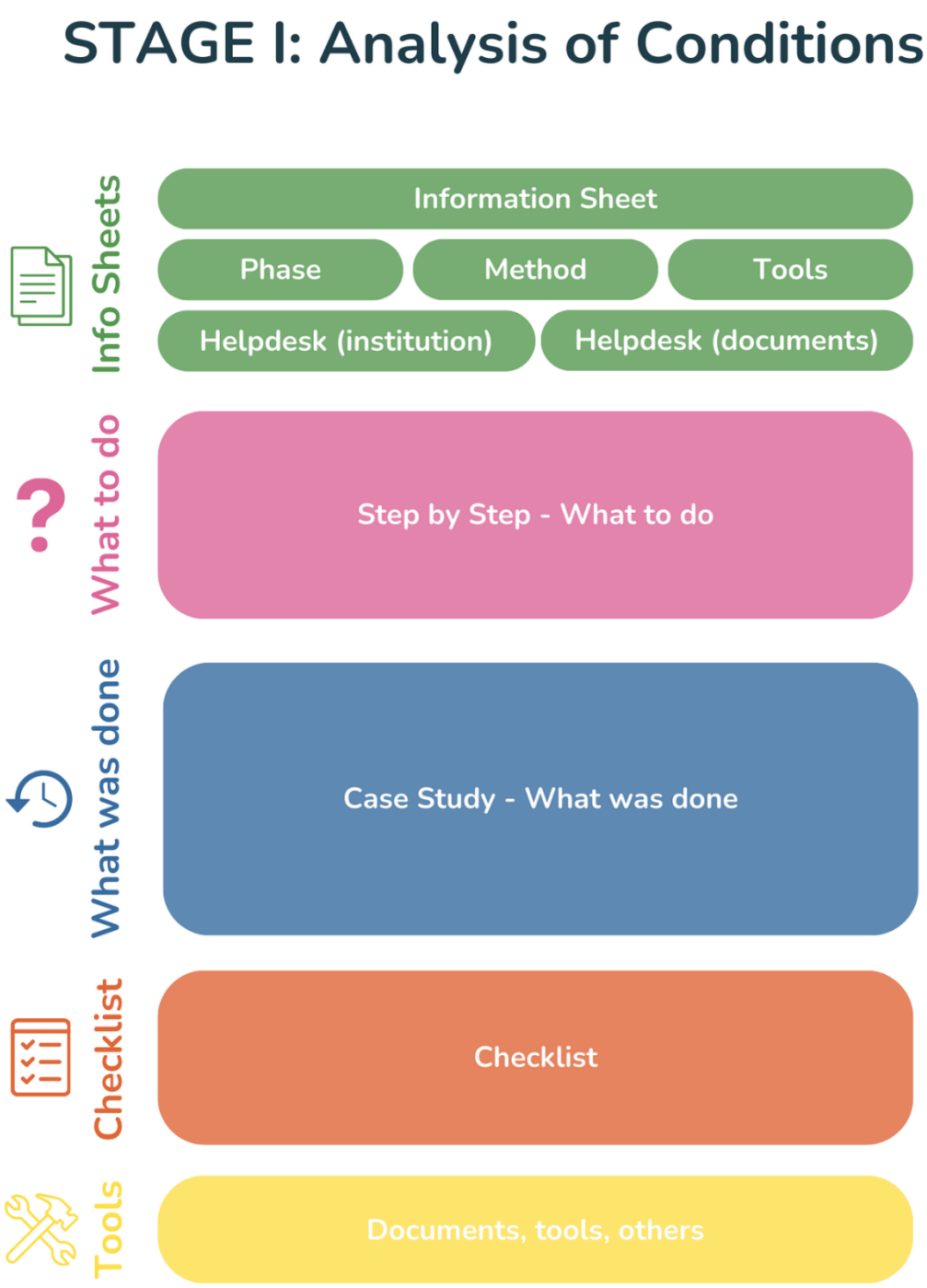
Figure 6. Diagram of the “Just Do It” section



Source: own study

This part of the manual will finally be revised with the findings from the replication and mentoring regions gathered during the activities to prepare the replication.

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2.1. STAGE I: Analysis of conditions

Objective – to identify and then diagnose the replication region, including internal and external conditions, as well as actors influencing activities undertaken in the area of circular economy in the selected territory.

The diagnosis consists of identifying and assessing the conditions of the regional socio-economic ecosystem and the conditions for local and supra-local policies for circular development.

The sequence of steps to be followed is a proposal. In the Lodzkie Region, the activities started with the delimitation of the territory and its thorough analysis. The Friesland region started with an analysis and involvement of stakeholders as a key element for successful change. The steps should be approached flexibly.

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Info Sheets STAGE I

Steps

- Designation of the region
- Key resource Identification
- Characterisation of the region
- Identification of Barriers
- Stakeholder identification and Analysis
- Stakeholder Engagement
- Supply Value Chain Analysis

Method

Obligatory:
analysis of quantitative data

Optional:
analysis of qualitative data

Tools

- CBT - Circular Benchmark Tool
- Toolbox 1 - EU indicators for circular economy
- Toolbox 2 - Circular economy indicators
- Toolbox 3 - Projects implemented in the circular economy area / green transition
- Toolbox 4 - Stakeholder analysis
- Toolbox 5 - Stakeholder Engagement Plan - KEY PLAYERS
- Toolbox 6 - Dialogue council

Frontsh1p Digital platform
E-learning platform

Helpdesk (document)

Policy Framework and Market Analysis	University of Lodz
Circupuncture Model for Lodzkie Region	University of Lodz
Circupuncture Action Plan for Lodzkie	Pro-Akademia
Stakeholder Engagement Plan	EURADA

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What to do

1. **Designate a region** - designate an area (territory) within which circular economy solutions will be prepared and subsequently implemented using this manual (so-called 'replication region'). The boundaries of the area may coincide with the boundaries of the administrative division in your country (e.g. NUTS 2), may go beyond those boundaries or may cover only a selected part of the area. You can also delimit the area by following the existing circular economy network (see point 5). When designating a region, try to find out which actors might be interested in cooperating on circularity or are the first to implement circular solutions (early adopters) - they can support you in designating a territory or identifying resources (see point 2).

2. **Identify key resources for implementing circular economy activities in your region** - these resources may focus on wood packaging, food and feed, water and nutrients, or plastics and rubber (these are the resources defined in the Frontsh1p project). This catalogue can be broader depending on the resources identified and the economic activity in your territory (it can therefore also include construction, electronics and ICT, textiles, batteries, batteries and vehicles, packaging, etc.). You can focus on several or just one (resource of interest to you).

3. **Characterise the region through the prism of the identified resources** - the collected data should reflect the economic, social (including the activities undertaken), spatial and environmental situation in the region. Focus on those data that relate to the resources you are interested in. The transition to a circular economy requires identifying and then characterising the local factors that are key to implementing a place-based circular economy. You should focus on the basic/key data from an implementation point of view, e.g.: climatic and environmental conditions, marginal areas, natural and secondary resources, main industries, municipal and industrial waste, activities undertaken so far in the region for circular economy / green transition. As part of the analysis, you can pay attention to indicators such as, for example, national extraction of natural resources, waste generation in relation to domestic material consumption, or characterising business activities within a circular economy, including, for example, employment generated or financial turnover. The characterisation can be done starting from the administrative region, but depending on the data available, you can broaden or narrow your analysis. A list of possible indicators is included in Toolbox 1 'EU indicators for circular economy' (based on data published at https://ec.europa.eu/eurostat/web/circular-economy/monitoring-framework). Selected indicators related to the circular economy in Poland (or used in the Lodzkie Region) are included in Deliverable D2.1 (pp. 12), followed by Toolbox 2 'Circular economy indicators'. The analysis of a region or a selected territory

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(e.g. a municipality) can start by examining strategic and planning documents (the section on diagnosis can be helpful). When carrying out the analysis, you can also use the Digital Platform developed as part of the FrontSh1p project. The Frontsh1p digital platform is an interactive tool for cities and regions. By entering information such as the type and amount of waste, its location, the CSS that is planned to be activated, and the incentives or barriers that are present (input data), the platform will provide information on what is the best option for waste management through CSS, what are the investments needed to implement the solutions and the related environmental impact.Another useful tool is the Circular Benchmark Tool (CBT) tool. It is an effective assessment to understand, visualize, and compare the transition towards a circular economy for regions and provinces. A short description about these digital tools is included in Annex 1.

Another tool aimed at supporting the circular economy actions in cities, regions and territorial clusters in Europe, including the definition of indicators and their subsequent monitoring, is the Self-Assessment Tool (SAT). It is part of the guidance and support instruments provided by the Circular Cities and Regions Initiative (CCRI). It connects to other instruments such as the CCRI-Methodology and the Knowledge Repository. The aim of the tool is to support the tracking of progress towards the circular economy objectives. This tool takes into account the diversity of CE projects and local circumstances. The CCRI SAT focuses on a tailored monitoring approach that takes into account specific needs and context. At this stage of the work, it allows defining indicators that will be monitored during the preparation of the circular economy action plan and its implementation. At the time of publishing this deliverable, the CCRI SAT was in a beta version and therefore it is not included in the Tools section of the present document yet.

As part of this step, identify the projects implemented in the region within the circular economy. Analyse the scope of activities, the territorial area of action, the financing and the results of the projects. An important element will be to analyse the substantive (identification of links between objectives and activities) and institutional networks of partnerships (see point 5). You can use Toolbox 3 'Projects implemented in the circular economy area / green transition' to do this. For each project, reflect on and indicate which of the 5Rs principles it uses (rethinking, repourpousing, reducing, reusing, recycling).
In order to illustrate the situation in the region, it is necessary to collect quantitative data. These are all kinds of data for the region published by e.g. the European Commission, statistical offices (national, European), the World Bank, summaries and information included in reports or market analyses. You can also support yourself with scientific publications. For the purpose of characterisation, check the existence of provisions on circular economy/green transformation in the strategic and planning documents applicable at the local/sub-regional, regional or national level. These can be analysed using, for example, keywords. Their identification will allow you to justify your planned actions and/or to apply for e.g. external funding.

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When carrying out the characterisation, you can also use qualitative data collected through, for example, surveys using a questionnaire survey, participatory observation, study visits or interviews.

4. **Analyse barriers to implement circular economy or green transition solutions** - you may be dealing with different types of barriers – the determinants that influence the circular activities undertaken. These can be in both the external and internal environment. To this end, you may focus on the following determinants: **social, technological, economic (including financial) institutional, market, political** (see section 1.3.). The analysis should be carried out on the basis of the resources previously identified.

   When analysing the barriers to implementing a circular economy, it is worth focusing on legal barriers (one of the types of barriers with significant impact in the Lodzkie Region). On the analysis of the legal conditions - identify and evaluate the legal regulations that may have a negative impact on circular economy or green transformation projects or support the undertaken activities. The analysis should be based on the resources previously identified (see point 2). This step may be **optional**. Legislative barriers can be identified as: barriers to lawmaking, lack of an institutionalised system and standardisation, lack of clear vision on the part of legislators on circular economy CE in public procurement. They can be related to formal errors, contradictions and gaps in the law, definitional errors, inoperative legal provisions or difficulties in the application of the law. They may also result from a lack of awareness and knowledge of legal institutions, a lack of skills in interpreting the law and the existence of erroneous, outdated patterns of behaviour. If you fail to analyse the legal conditions affecting the activities planned in your region, please refer to the sample catalogue of barriers included in the table 'Systemic approach to legal barriers in the European and Polish legal systems' on pp. 25-31 of Deliverable D2.1.

5. **Identify and analyse the stakeholders as well as the existing networks of connections between them** - identify stakeholders who are important from the point of view of circular economy in your region, operating or interested in taking up activities in previously defined resources. Focus in particular on those who have so far taken some CE action – early adopters. Identify areas of increased collaboration - i.e. all those activities that have so far been and/or are being undertaken jointly by different stakeholders. This cooperation can be formal (based on civil law contracts, using forms such as unions or associations) as well as informal. It can be realised within the area of, for example, a city, but also go beyond its borders.
   Stakeholders should represent public authorities (in particular local/regional government), entrepreneurs (company), academics (academy) and residents (society). These actors will create a territorial circular cluster. When carrying out the analysis, try to identify other clusters currently operating in the area of circular economy, etc. In your analysis, pay special attention to current circularity leaders. Assess the stakeholders in terms of two

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factors, i.e. impact on the planned project and interest in it (or likelihood of conflict). The analysis will allow you to identify key stakeholders (with high influence and high interest / likelihood of conflict) for which further action should be taken, including, for example, an invitation to collaborate. Use Toolbox 4 'Stakeholder analysis' for this purpose (see part 3). The development of a Stakeholder Engagement Plan will help you to identify the four stakeholder groups (key players, context settlers, subjects, crowd)[2]. Remember that the list of stakeholders may change at any stage of the activities (shrink and expand). Hence, their identification and assessment should be carried out on an ongoing basis.
Based on this analysis, prepare a map of the territorial scope of the cluster (for reference see Figure 18 p. 22 of Deliverable D2.6).

6. **Engage stakeholders** - identify the most appropriate way to deal with each stakeholder group (see point 5) and the channel for establishing cooperation. Obtain contact details of key and (potentially) interested stakeholders for circular activities.
Identify opportunities to engage with key stakeholders using, among others, the information you have previously gathered on their ongoing projects and resources. Assess the needs as well as the key challenges/problems and identify mechanisms to involve the different actors. Think about incentives that will help you to engage key groups. The catalogue of incentives can be broad (see Annex 2). It can include, among others: educational, financial, technological, social, regulatory, market, institutional incentives. Identify what resources they have (technology, knowledge, etc.) and what their involvement in the project could be.
Prepare a stakeholder engagement plan (SEP Stakeholders Engagement Plan). You can carry out this task using Toolbox 5 'Stakeholder Engagement Plan - KEY PLAYERS'. One important tool for stakeholder engagement is meetings. When planning meetings with stakeholders, you can use the suggested list of questions (Annex 3).

   A description of Friesland's approach to stakeholder engagement can be found in Annex 4.

   At this stage, design the Dialogue Council: identify who could joint it, what resources they can contribute, what the legal basis for its functioning will be, what it will be funded by, and what the benefits of participation will be for the different groups. You can use Toolbox 6 'Dialogue council' for this purpose and descriptions included in Annex 5.
Initiate the first key stakeholder meeting (if you have not done so already). At this stage you can also organise the first meeting of the Dialogue Council. Remember that not all stakeholders need to be part of it. Consider the scope of the council's activities and

[2] key players (high interest, high influence. Collaborate, manage closely); context settlers - potentially influential (low interest, high influence. Monitor and advocate, keep satisfied); subjects - affected players (high interest, low influence. Negotiate, keep informed); crowd - marginal players (low interest, low influence. Passively inform, minimal effort).

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competences and make a preliminary plan of the areas that are the subject of its work (e.g. defining a catalogue of indicators that are the subject of monitoring).

! As we have already mentioned, you can start with stakeholder engagement activities. Stakeholder engagement activities with the other steps can be done interchangeably or in parallel.

7. **Analyse the supply value chain** - to identify areas requiring support in the circular economy, you can also trace the supply value chain in your company/organisation. Consider whether the chain needs to be improved in terms of the rational use of raw materials. The goal is to move towards closing material loops and zero waste throughout the value chain.
   It is worth considering measures such as:
   - ensuring the possibility, repair and redistribution of products;
   - reusing parts of products for production;
   - using products and materials for as long as possible;
   - using renewable energy;
   - pursuing responsible purchasing and sourcing;
   - introducing programmes for recipients of products to encourage their return (for recycling or reuse).

   The analysis requires the involvement of all stakeholders working with the company, production partners and suppliers, as well as other actors in the value chain.
   Hence, they should be included in the Stakeholder Engagement Plan.

   You can also analyze the guidelines presented in the Report in Annex 6, which start with an initial mapping of the value chain and stakeholders.

* * *

To complete the above tasks, use the suggested **methods**:
- analysis of secondary data: data published by statistical offices (national, European) and World Bank, market analyses, scientific publications
- analysis of primary data: results of participant observation, study visits, interview results and **tools:**

Toolboxes 1 – 6
Digital tools: Frontsh1p Digital Platform and Circular Benchmark Tool

You can also use the **helpdesk.**

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Helpdesk	
Deliverable Number: D2.1 Policy Framework and Market analysis – POLICY	University of Lodz
Deliverable Number: D2.6 CIRCUPUNCTURE MODEL & CIRCUPUNCTURE ACTION PLAN FOR LODZKIE REGION (Deliverable D2.6)	Pro-Akademia
Deliverable D3.1, Synergic Circular Economy across European Regions; Report on Synergies from SCREEN project www.screen-lab.eu	Province of Fryslan

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What was done

1. **Designation of the region** - the selection of the region was made at the project preparation stage

2. **Selection of key resources** - was done at the project preparation stage.

3. **Analysis of the region** - the analysis started with social, economic, spatial, environmental identification, the main industries in the region were identified, functional linkages were identified, municipal waste resources in the region, climatic and environmental conditions and marginal areas were defined.
   Research methods: quantitative and qualitative research techniques were applied, using data from: Central Statistical Office (Local Data Bank), Head Office of Geodesy and Cartography, ESPON, World Bank, market analyses, scientific publications in the circular economy.

4. **Legal and formal barriers** to the implementation of circular economy solutions and functioning of CTCs were identified. The identified barriers are described in the table '. Systematic approach to the legal barriers across european and polish legal system' on pages 25-31 of the Deliverable D.2.1.
   Research methods: a variety of qualitative research methods were used, including:
   a. participatory observation with moderated discussion during two seminars with experts (aim: to identify key areas of formal shortcomings);
   b. a survey questionnaire addressed to selected local government units in the CTC area (objective: to find answers to the questions: *How do municipalities deal with the implementation of the circular economy concept in their areas? Do municipalities establish cooperation in this area on the basis of an existing inter-municipal assosiation? How advanced are the individual municipalities in implementing the circular economy concept?;*
   c. Study visits to municipal waste management entities;
   d. unstructured interview with local government officials responsible for the implementation of municipal waste management tasks.

   A study was also carried out focusing on: analysis of legal acts (in particular the Waste Act, regulations on maintaining order in municipalities, the Circular Economy Action Plan in the EU), literature analysis, related reports, projects implemented in the area of circular economy (including Replace, SCREEN, LCA4regions).
   This phase provided the basis for determining the benefits and opportunities, as well as risks and threads, associated with implementing circular economy solutions in the region.

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This step also included the identification of **market barriers** affecting circular action, which stem from **market failures**. These barriers are technological, economic, institutional, regulatory, social/cultural, organisational, supply chain, infrastructural or related to knowledge and information gaps.

The identification was made on the basis of a comparative analysis of solutions applied in Friesland (the Netherlands) and the results of an analysis carried out in the Lodzkie Region (Poland). The Friesland region was treated as a model region for CE, while the Lodzkie Region was considered a demonstration region.

Research methods: quantitative and qualitative research techniques were used:

a) quantitative research carried out online using a survey questionnaire (survey carried out in 4 groups: public authorities, entrepreneurs, universities and R&D centres, society in Poland and the Netherlands);
b) qualitative research conducted in the form of interviews (focus groups; FGI research) in 4 groups in Poland and 4 in the Netherlands.

The results of the research carried out have been tabulated. For each group, matrices were created to present market failures (see section 5.2.1. of the Deliverable D.2.1.).

5. **A stakeholder analysis was conducted** - key stakeholders were identified, including public authorities (in particular regional and local government), businesses, universities and the society. Their characterisation was carried out, including an analysis of the context of local, regional, national and EU conditions related to institutions strengthening circular economy organisations.

6. **Stakeholder engagement, CTC**

Within the framework of the Frontsh1p project partnership for the Lodzkie Region, a Circular Territorial Cluster (CTC) was initiated, functioning as a network of partnerships between stakeholders. A Regional Cluster Team (RCT) consisting of the following entities was established to coordinate the CTC: Inter-Municipal Union BZURA, Lodz Metropolitan Area Association, Municipality - City of Parzęczew, K-FLEX (company representatives), OPUS (social partner), Marshal's Office of the Lodzkie Region, University of Lodz, Technical University of Lodz.

The stakeholders involved in the CTC are also to form a Resource Dialogue Council. This council is to be a network of committed and interested social partners, business academics and representatives of public authorities.

As part of this step, incentives have been identified that can be a key element in shaping the attitudes and behaviours of all stakeholders in order to implement a CE. The identification of a catalogue of incentives will be essential to build a network of stakeholders or to undertake specific circular economy actions (see Annex 2).

Research methods: the research was conducted using a qualitative method with three different research techniques:

a) the technique of overt participant observation with the important role of the observer. The first observation was conducted in 2022 on the site of the 'Eagle Pond' Municipal Waste Disposal Plant located in Prazuchy Nowe, where all

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important facilities were visited. Knowledge of the technology and overall concept of the plant's operation was gained. Photographic material, documents and supporting materials were collected and key stakeholders were interviewed and invited to participate in in-depth interviews.

b) individual interviews using a standardised list of information sought IDI (Individual In-Depth Interview). The research tool was the research dispositions, i.e. the list of information sought. Four interviews with key people on the issue of circular economy were conducted. These were representatives of the Department of Environmental Protection of the Lodzkie Marshal's Office, the Voivodeship Inspectorate of Environmental Protection, the Orli Staw Municipal Waste Neutralisation Plant (ZUOK) and the Ekotechnologie company. The group was selected purposively, and respondents were chosen according to the criterion of their expertise in the subject under study.

c) qualitative data analysis, which consisted of data from participatory observation, materials from qualitative interviews, as well as results of the analysis of the subject literature (scientific articles, reports, EU Studies). On this basis, a system of incentives for the implementation of the circular economy in the Lodzkie Region and beyond was identified.

A catalogue of incentives was created taking into account the following criteria: fiscal (financial), educational, technological, social, regulatory, market incentives, institutional, industrial arrengements.

Checklist

Designation of the region	Have you designated a replication area? Does the area you have selected have a defined territorial scope? Have you identified any entities (actors) interested in circularity?
Identification of key resources	Have you identified key resources for implementing circular economy activities in your region? Are the selected resources important from the point of view of the selected territory or your organization? Does the selected resource fit into one or several areas, including: - related to the Fronsh1p project, i.e.: wood packaging, food and feed, water and nutrients, plastics and rubber - others: construction, electronics and ICT? Does the selected resource fit into one or more of the identified areas?
Characteristics of the region	Have you identified key factors for implementing a place-based circular economy? Have you noticed any areas that require improvement or continuation/development? Have you identified projects implemented within the circular economy? In what areas are they implemented? Are they consistent in terms of the

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	assumed goals and implemented activities? From what sources are they financed (own funds, external funds, public, private, EU budget, other)? Are they implemented in partnership? Is this partnership formal or informal? Have you analysed strategic and planning documents? Have you identified any provisions (including regulations, appeals) regarding circular economy?
Barrier analysis	Have you identified barriers limiting the implementation of circular economy solutions? What is their nature and what do they result from? Is it possible to implement the planned actions despite the identified barriers? Despite identifying barriers, are you still interested in taking action to implement circular solutions?
Identification of stakeholders	Are there any actors active in the circular economy in your territory? Have you identified circularity leaders? Are there actors who are not active in implementing circular solutions, but may be interested in doing so in the future? Have you identified areas of increased activity in the circular economy? Have you prepared a stakeholder list containing information on, among others: their name, legal form, sector represented, resources they use, communication channels used, contact person? In what areas do they operate? Do they cooperate with each other? What means of communication do they use? What impact do they have on the initiatives undertaken (or may they have in the future)? Does this influence have or can it be positive or negative? Are they interested in initiatives undertaken in the circular economy area (or may they be interested in the future)? Have you identified key stakeholders?
Establishing cooperation / engaging key stakeholders	Have you identified strengths and weaknesses of key stakeholders? What could be their role in the planned activities? What contribution can they make? What stakeholder involvement in the planned projects do you intend to use? Have you indicated the people/positions responsible for making decisions and implementing solutions? Have you determined the time frame of your involvement and the frequency of activities undertaken as part of the planned project? Have you identified incentives to facilitate stakeholder engagement? Have you indicated the sources of financing for your planned projects? Have you indicated the results of your actions and defined indicators?

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Dialogue Council	Have you created a Dialogue Council or plan to create it soon? Who will be a member? What is/will be the legal framework for its operation? How will the Council's activities be financed? Have you identified the benefits of participating in the Council's work for its members?
Supply value chain analysis	Have you identified key supply value chains? Do they require improvement in the rational use of raw materials? Have you planned activities to improve material loops and achieve zero waste throughout your supply value chain? Have you planned the participation of various stakeholder groups in this process?

Tools

Market failure Deliverable Number: D2.1 Policy Framework and Market analysis – POLICY, 5.2.1: Figure 13. Market failures in CE: matrix for companies Figure 15: Market failures in CE: matrix for academies Figure 17: Market failures in CE: matrix for society Figure 19. Market failures in CE: matrix for government **Barriers** Deliverable Number: D2.1 Policy Framework and Market analysis – POLICY, 4.2: Table. 3. Systematic approach to the legal barriers across European and polish legal system **Incentives** Deliverable Number: D2.1 Policy Framework and Market analysis – POLICY, 7.2.1: Table 7. Categories and types of CE incentives in relation to Sender, Recipient and Model	Toolbox 1 - EU indicators for circular economy Toolbox 2 - Circular economy indicators Toolbox 3 - Projects implemented in the circular economy area / green transition Toolbox 4 - Stakeholder analysis Toolbox 5 - Stakeholder Engagement Plan - KEY PLAYERS Toolbox 6 - Dialogue council Annex 1 -CBT – Circular Benchmark Tool short description; available: https://circularbenchmarktool.eu/how-to-use-it Annex 2 - Incentives in circular economy transition Annex 3 - Questions for stakeholder meetings Annex 4 - Stakeholders engagement – good practices form Province of Fryslan Annex 5 - Dialogue Council Annex 6 - Guidelines from the "ACTION PLAN FOR BUILDING CLOSED VALUE CHAINS" as part of the SCREEN project (Synergic Circular Economy Through European Regions) - short description

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Supply value chain Deliverable D3.1, Synergic Circular Economy across European Regions; Report on Synergies from SCREEN project; Province of Fryslan; www.screen-lab.eu	Fronts1p digital platform E-learning platform

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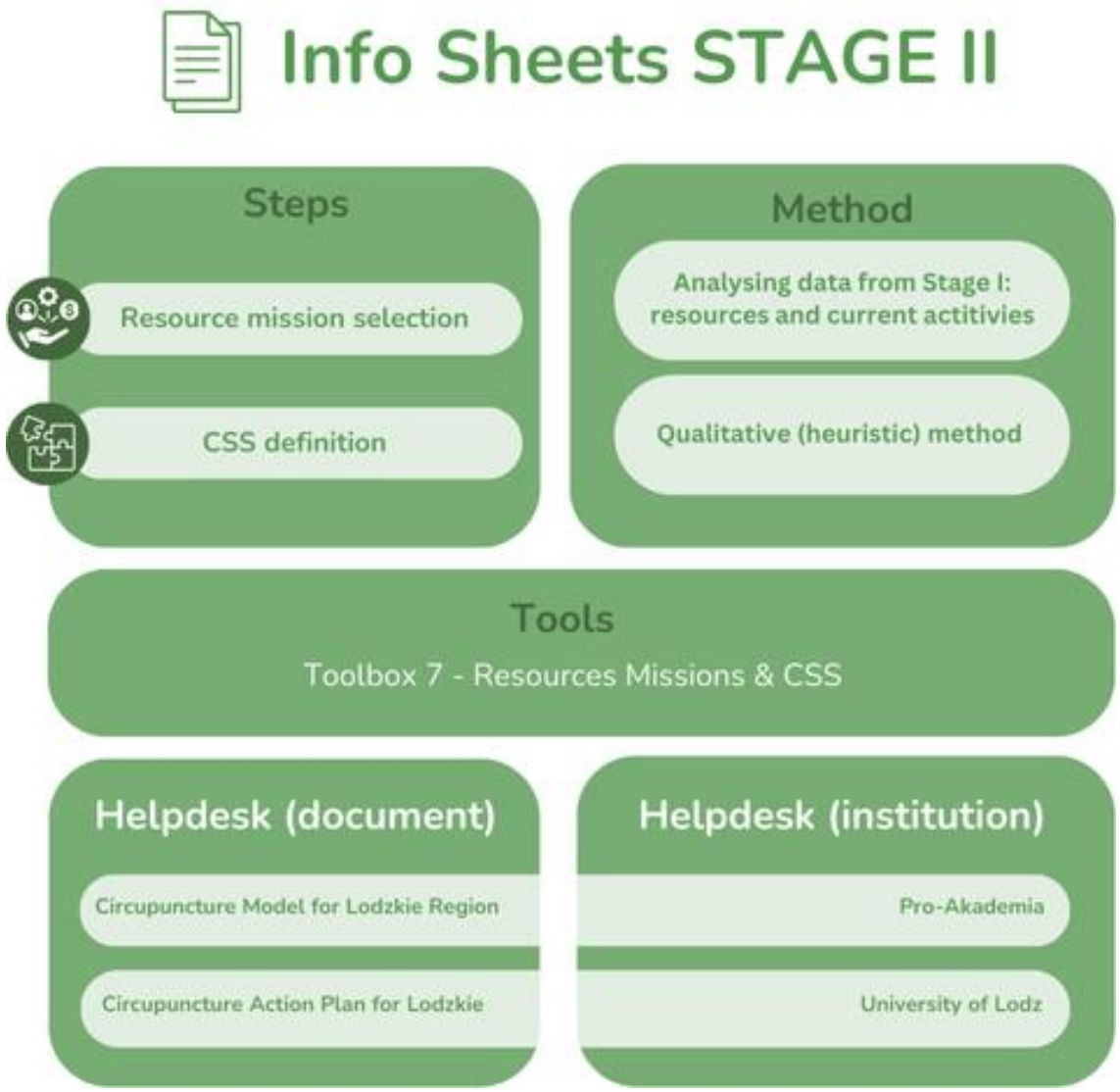
2.2. STAGE II: Resources missions and circular systemic solutions

Objective - selection of resource missions and circular systemic solutions (CSS)



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What to do

1. **Identify and select Resource Missions** – Resource Missions are critical areas of innovation needs, i.e. areas of necessary improvement and system innovation. Resource Missions define the area of circular system solutions (CSS). In Frontsh1p project we develop innovations in these 4 key resource areas. So the CSS's are a set of innovations (technological, production, process, market, social, organisational, environmental and marketing) dedicated to specific types of resources (CSS1, 2, 3 or 4). The aim of these innovations is to minimise the negative environmental impact of products throughout their life cycle

2. **Define CSS -** In the Frontsh1p project, Resource Missions are: CSS1 (wood packaging), CSS2 (food and feed), CSS3 (water and nutrients) and CSS4 (plastics and rubber). Hence, the Lodzkie Region has prepared action plans for these selected Resource Missions. However, in regions replicating the Lodzkie Region approach, not all 4 Resource Missions need to be considered as key. A situation may also arise where a different Resource Mission will be important in a circular territorial cluster of another region, for example: construction, electronics and ICT or textiles.
   To identify other Resource Missions, we suggest using one of the heuristic tools. We recommend World Café (see Annex 7). But other identification methods can also be used. It is important to use a method that will involve various stakeholders in making decisions about the selection of Resource Missions. In this way, we continue to create Dialogue Counsil at CTC.
   The basic criteria that can help select key Resource Missions for CTC are defined by the tool: 4NO Filter. The basic criteria for selecting a mission are the conditions that the resource should meet in order to be considered a strategic and circular resources. Use the 4NO Filter for mission selection (select missions that meet all criteria):
   - Area of NOT developed resources
     are as yet undeveloped/unused (but should be from the point of view of the circularity of the territory/entity or simply the principles of the circular economy)
   - Area of NOT closed added value chains
     are or can be part of circular value-added chains (but are not yet part of them - because they may not yet exist)
   - Area of NO adaptation to climate change
     their use can contribute to the adaptation of the territory/entity to climate change (but they are not yet used)
   - Area of NO convergent activities
     they are not very similar/similar to each other (including in terms of characteristics and potential for use)

   In a basic approach Resource Missions can be formulated at the level of the CTC.

   To complete this task you can use Toolbox 7 ‘Resources Missions & CSS’.

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* * *

To complete the above tasks, use the suggested **methods**:

- heuristic methods, e.g. World Café (Annex 7), brainstorming and othersand

tools:

- Toolbox 7 – Resources Missions & CSS

You can also use the **helpdesk.**

Helpdesk	
Deliverable Number: D2.6 CIRCUPUNCTURE MODEL & CIRCUPUNCTURE ACTION PLAN FOR LODZKIE REGION	Pro-Akademia University of Lodz

What was done

1. Defining Resource Missions

Research methods: heuristic methods were used to select resource missions, including brainstorming.
As a result, 4 areas included in the Frontsh1p project were adopted at the level of the Circular Territorial Cluster, i.e.:

- Wooden packaging,
- Food and feed,
- Water and nutrients,
- Plastics and rubber.

2. Defining CSS

Research methods: heuristic methods were used to select CSS, in particular World Cafe - an in-depth interpretive analysis of the role of stakeholders in CSS areas.
Four main areas of activity have been identified - Resource Missions, and thus key critical areas of closed-loop system solutions

M1 < Wood Packaging > CSS1
M2 < Food and Feed > CSS2
M3 < Water and Nutrients > CSS3
M4 < Plastics and Rubber > CSS4

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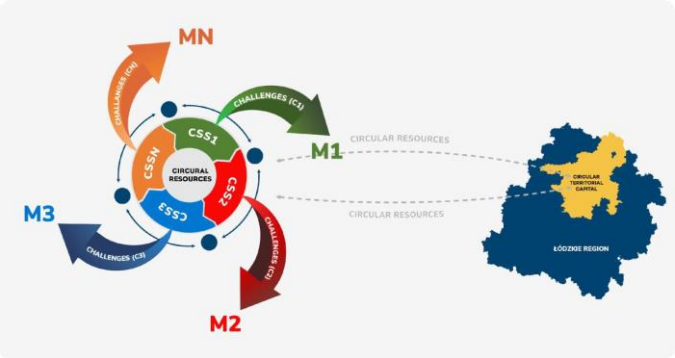
Figure 7. Circular Transition Resource Missions in Lodzkie Region and the scope of circular systemic solutions (innovations)



Source: Deliverable Number: D2.6 CIRCUPUNCTURE MODEL & CIRCUPUNCTURE ACTION PLAN FORLODZKIE REGION, pp. 23

12 key innovations have been identified in 4 areas of circular system solutions:

CSS 1	1. Exploitation of char as pigment/filler in the plastic industry (as substitute of carbon black) or/and as an additive for compost; 2. Exploitation of the CO2 captured after renewable gas (from wood waste) combustion in the plastic industry for biomaterials production. 3. Renewable gas to substitute natural gas for thermal energy production. 4. Char to substitute of carbon black in the plastic industry 5. CO2 captured after combustion of renewable gas and used in the industry
CSS 2	1. To develop a CO2 assisted pre-treatment of agro-industrial waste combined with biotechnological treatments for the obtaining of sugars and FFAs as components for foaming biomaterials; 2. To establish innovative genotypes of oil crops in marginal lands to obtain biodegradable biolubricants formulations, bio-oils for insulating materials and locally available animal feed; 3. To produce biobased building blocks (diols and dicarboxylic acids) from second generation feedstock (from regional agro-industrial waste) for the formulation of new compostable bioplastics for bags for separate OFMSW collection.
CSS 3	1. To further develop to higher TRL a compact waste water management unit for nutrients (P, N, K) extraction from agricultural waste-waters and a bigger plant for municipal wastewater both using microalgae; 2. To produce circular bio-stimulants from wastewaters; 3. To close the water loop and recycle clean water.
CSS 4	1. To optimize a high TRL pyrolysis system for chlorinated compounds; 2. To further develop a high TRL supercritical CO2 expansion system for insulating biomaterials; 3. To demonstrate low-cost 3D printing for repairing of household appliances.

Source: Deliverable Number: D2.6 CIRCUPUNCTURE MODEL & CIRCUPUNCTURE ACTION PLAN FORLODZKIE REGION, pp. 23-24

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Checklist

Selection of Resource mission	Have you identified Resource Missions? Are the selected Resource Missions critical areas for necessary improvements in the circular economy?
Defining of Circular Systemic Solutions	Have you identified circular systemic solutions for each Resource Mission? Are CSS integrated? Are these solutions with high scalability and replicability potential? Have you analysed the prepared list of solutions using the 4NO filter? Have you consulted the list of solutions with the Dialogue Council?

Tools

Resource mission & CSS Deliverable Number: D2.6 CIRCUPUNCTURE MODEL & CIRCUPUNCTURE ACTION PLAN FORLODZKIE REGION 3.3.CTC Resource Missions in Lodzkie Region **4NO filter** Deliverable Number: D2.6 CIRCUPUNCTURE MODEL & CIRCUPUNCTURE ACTION PLAN FORLODZKIE REGION	Toolbox 7 – Resources Missions & CSS

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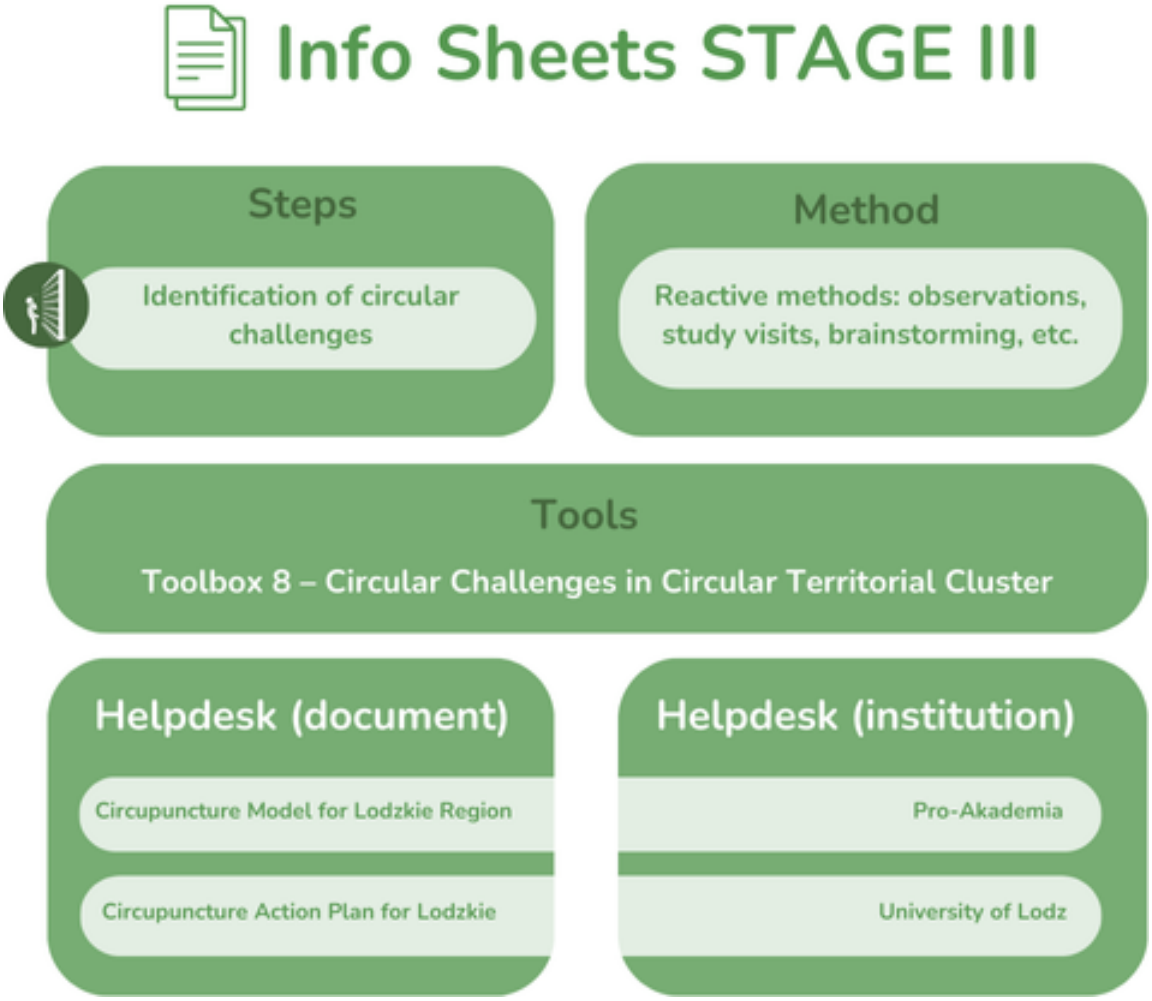
2.3. STAGE III: Circular challenges



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? What to do

Identify Circular Challenges (actions) - Challenges are actions aimed at closing loops and generating circular resources. They are identified in response to the needs of a specific region and can be formulated from the bottom up by different stakeholder groups.
Circular challenges are identified in previously defined Resource Missions (see step two) and emphasise sustainability, innovation and adaptability. Circular Challenges will often require circular innovative solutions, sometimes they will require circular systemic solutions (CSS).
The catalogue of challenges is open and includes, for example:

1. legal framework
2. innovation, product design and value chain
3. infrastructure, investments, entrepreneurship
4. social inclusion, awareness, and knowledge

In the Frontsh1p project, we have examples of the use of 4 innovative circular systemic solutions in four different Resource Missions. The individual categories can be changed, expanded, adapted to the current context. These actions aim to remedy areas that function poorly or not at all on the basis of circular economy principles. They can be both simple and complex projects/activities. They can be, for example, infrastructural, technological, organisational as well as social.
The implementation of circular challenges is a kind of 'circular acupuncture' targeting 'touch-shot' at key initiation points. It implies a point-of-care approach to intervening in different areas of resource management in the region. The identification of challenges responds to previously diagnosed potentials, barriers and incentives (see step one).
Challenges can be interdependent, meaning that the implementation of one of the Circular Challenges in a Mission can affect the implementation status of other Missions.

At the type stage to each challenge, identify the stakeholders who should be involved in the next stage to implement the actions (in the Action Plan). You can use Toolbox 8 'Circular Challenges in Circular Territorial Cluster' for this purpose.

A detailed description of the Circular Challenges is included in Deliverable D2.6, pp. 16-17.

* * *

To complete the above tasks, use the suggested **methods:**
- reactive methods: observations, study visits, brainstorming, etc.
and **tools:**
Toolbox 8 – Circular Challenges in Circular Territorial Cluster

In order to complete the task (including in particular the use of the compass and benchmarking), you can use the training available on the e-learning platform.

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You can also use the **helpdesk.**

Helpdesk	
Deliverable Number: D2.6 CIRCUPUNCTURE MODEL & CIRCUPUNCTURE ACTION PLAN FOR LODZKIE REGION	Pro-Akademia University of Lodz

What was done

Identification of Challenges in the Lodzkie Region

Following the identification of the resource missions identified in the CircuPuncture model, circular challenges based on the resource missions were formulated. These challenges were included in the Action Plan. The challenges for each CSS were divided into several categories.

Tools used:

a) COMPAS for convergence of regional stakeholder activities - allows to assess the level of linkages between partners present in the selected territory measured by the degree of synergy of their projects. The extent of mutual influence of 187 projects implemented in the Lodzkie Region was determined.
The aim of the analysis was to highlight:
1. the inclusion of entities whose activities do not produce the expected synergistic effects
2. to take advantage of the strong areas of linkages between stakeholders in the CTC when identifying closed-loop challenges.

The results of the study conducted are described in detail in D2.6., pp. 24-26.

b) Benchmarking of resource use directions - this tool allows for two types of analysis in the areas of Resource Missions (CSS): assessment of the sustainability of the directions of resource use – identification of gaps and areas of underdevelopment of circular activities (5R: Rethinking, Repurposing, Reducing, Reusing, Recycling) in the context best market practice (pattern) and nominal identification of the directions of resource involvement in closed loop.
The purpose of the resource benchmarking diagnosis is:
1. to identify the current directions of impact of projects implemented in the field of CE implementation (in accordance with the definition of 5R),

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2. to identify the scope of involvement of CTC stakeholders in the circular transformation of the Lodzkie Region,
3. to identify the scope of involvement of CTC stakeholders in the implementation projects in CSS's selected areas.

Detailed conclusions are described in D2.6., pp. 26-29.

Checklist

Identification of circular challenges	Have you carried out the project analysis mentioned in step one? Have you attended the training on the use of compass and benchmarking? Did you use the solutions proposed there? In which areas have you identified gaps in the circular economy in the context of the 5Rs principles? Have you identified a list of circular challenges?

Tools

Description of the research method Deliverable Number: D2.1 Policy Framework and Market analysis – POLICY, Regional Stakeholder Activity Convergence Compass, 10, p. 120-127): **Results of the research method** Deliverable Number: D2.6 CIRCUPUNCTURE MODEL & CIRCUPUNCTURE ACTION PLAN FOR LODZKIE REGION Compass of convergence of regional stakeholder actions, 3.4.1, p. 24-26 **Resource benchmarking results** Deliverable Number: D2.6 CIRCUPUNCTURE MODEL & CIRCUPUNCTURE ACTION PLAN FOR LODZKIE REGION, 3.4.2, p. 26-29	Toolbox 8 – Circular Challenges in Circular Territorial Cluster training available on the e-learning platform

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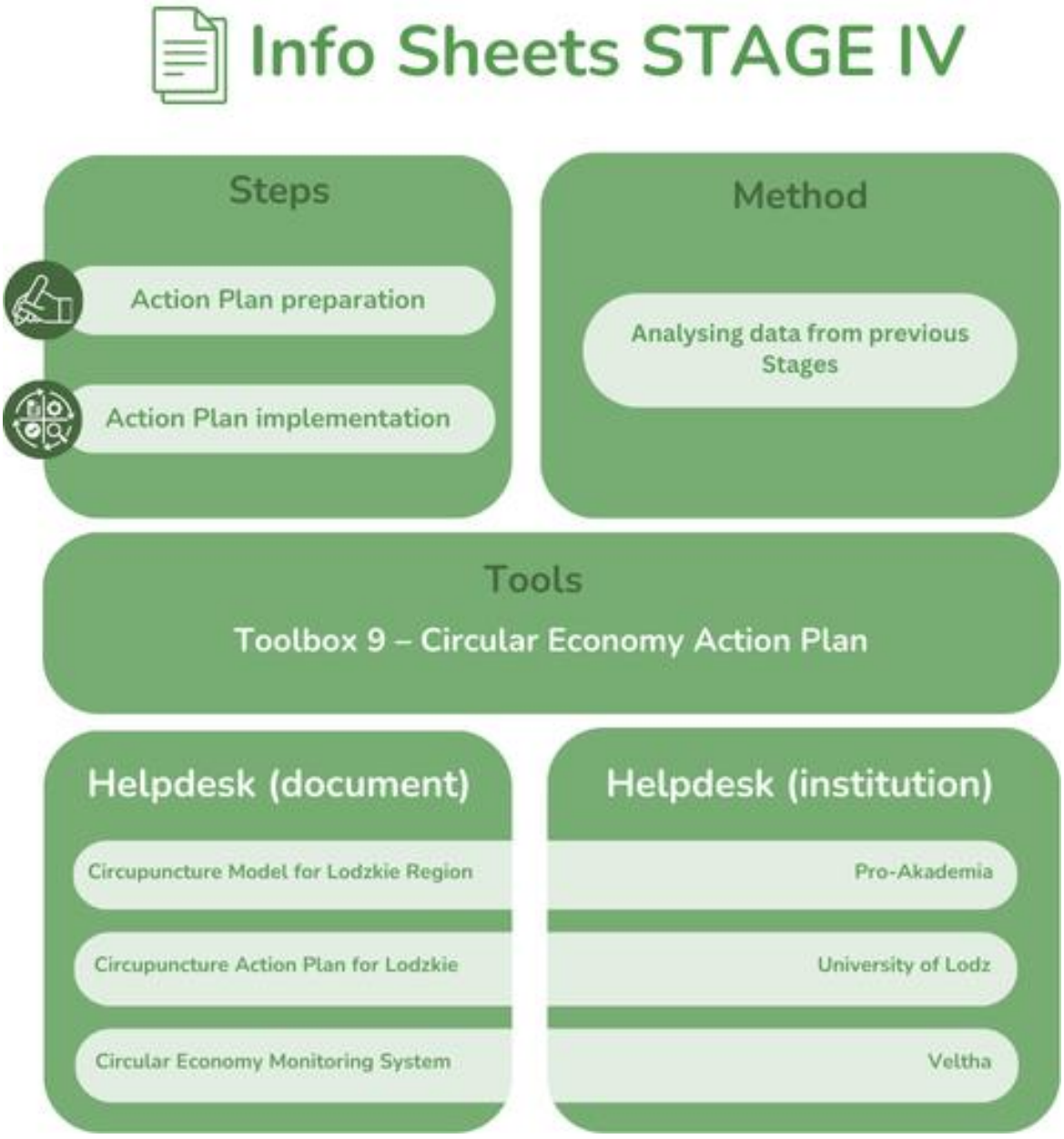
2.4. STAGE IV: Action Plan

Objective – preparation of the Circular Economy Action Plan (CEAP) for your territory, operationalising the transition to a circular economy. In line with CircuPuncture's innovative approach, the CEAP will allow 'small steps' to be taken, which will build a solid foundation for the circular economy in the region.



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? What to do

1. **Prepare the Action Plan** for your designated territory (see step I) for your designated territory (see step I). At this stage for each Challenge:
   - Formulate the objective, prepare a brief description of the context and identify the steps needed for each challenge
   - Identify a coordinator, i.e. an entity responsible for mobilising (motivating) stakeholders to act. The coordinator can be an individual entity or a group of entities (cluster, association, union, etc.);
   - Identify the implementing actors, i.e. those responsible for the implementation of the Circular Challenge. This can be either an individual entity or a group of entities (cluster, association, union, etc.). Characterise their role in the implementation of the Challenge;
   - Define the timeframe for undertaking circular actions. Given the integrated nature of the activities, when preparing the timetable, pay attention to the timeframes of other Challenges to which the Challenge is linked. When preparing the timetable, you can use concrete dates, monthly, quarterly, half-yearly cycles, etc;
   - Indicate the source of funding for the circular actions - identify all possible sources of funding including private, public, national, foreign sources. The availability of funding sources and the budget for the planned integrated actions will determine the timing of further work;
   - Define results and indicators of planned actions - for planned actions define results and outputs and assign indicators to them. Relate them to circular economy indicators defined at EU, national, regional or local/sub-regional level.When defining indicators, it is necessary to take into account the periods in which it will be possible to achieve changes that will allow for their improvement. These periods can be short-term, medium-term and long-term. The CCRI SAT will also be helpful for this purpose
   - submit the prepared Action Plan to the Dialogue Council for approval.

2. **Implement the Action Plan**

   Implementation of the Action Plan requires the involvement of different stakeholder groups with different roles.

   Implementation also requires continuous monitoring in the context of the adopted indicators referred to in D2.3. Monitoring the transition to a circular economy (CE) and its progress becomes crucial, not only to ensure that CSSs actually work, but also to facilitate effective governance by providing access to relevant information, data, measurements, good practices and guidelines to policy-makers. For this purpose you can also use the CCRI SAT.

A detailed description of CSS is included in Deliverable D2.6., p. 44-75.

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The Action Plan needs to be updated, monitored and adapted to the real needs of your territory.
You can use Toolbox 9 'Circular Economy Action Plan'

3. Prepare the CpEAP blueprint

The results of the project can also be used by individual institutions (enterprises, offices, universities, associations, etc.) that wish to integrate the principles of the circular economy concept into their daily operations. To this end, an interested organisation can prepare a CpEAP reflecting its current situation and including a projection of the actions it would like to take in the future. The Circular Economy Action Plan - CpEAP Blueprint (Annex 8) can be used for this purpose.

From the point of view of the chosen territory, the cluster, the implementation of this task is optional.

* * *

To complete the above tasks, use the suggested
methods:
- analysis of materials from previous stages
and **tools:**
- Toolbox 9 – Circular Economy Action Plan
- Annex 8 - CpEAP Blueprint

You can also use the **helpdesk.**

Helpdesk	
Deliverable Number: D2.6 CIRCUPUNCTURE MODEL & CIRCUPUNCTURE ACTION PLAN FOR LODZKIE REGION	Pro-Akademia University of Lodz
Deliverable Number: D2.3 CIRCULAR ECONOMY MONITORING SYSTEM MODEL FOR LODZKIE REGION	Veltha

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What was done

Preparation of the CircuPuncture Action Plan for the Lodzkie Region

The CircuPuncture Action Plan is an operational document that implements the strategic principles set out in the CircuPuncture Model.

An initial CircuPuncture Action Plan has been created within the project with the following structure:

1. circular challenges
2. coordinating entity
3. implementing parties
4. timeframe
5. results / outcomes of the activities
6. indicators
7. funding

In order to provide a broader description of the actions planned, the plan has been expanded to include objectives, background and steps.

The initial CircuPuncture Action Plan can be found in D2.6, p. 44 - 83.

The prepared Action Plan requires consultation with stakeholder groups. It is a proposal that should be refined, refined in the next steps so that it can be implemented by the selected stakeholders.

One of the important elements of Action Plan is the Roadmap for CircuPuncture Governance Model & CircuPuncture Action Plan prepared as part of Deliverable 2.6 (Figure 8). It presents the milestones of work on the model and plan.

Figure 8 - Roadmap for CircuPuncture Governance Model&CircuPuncture Action Plan

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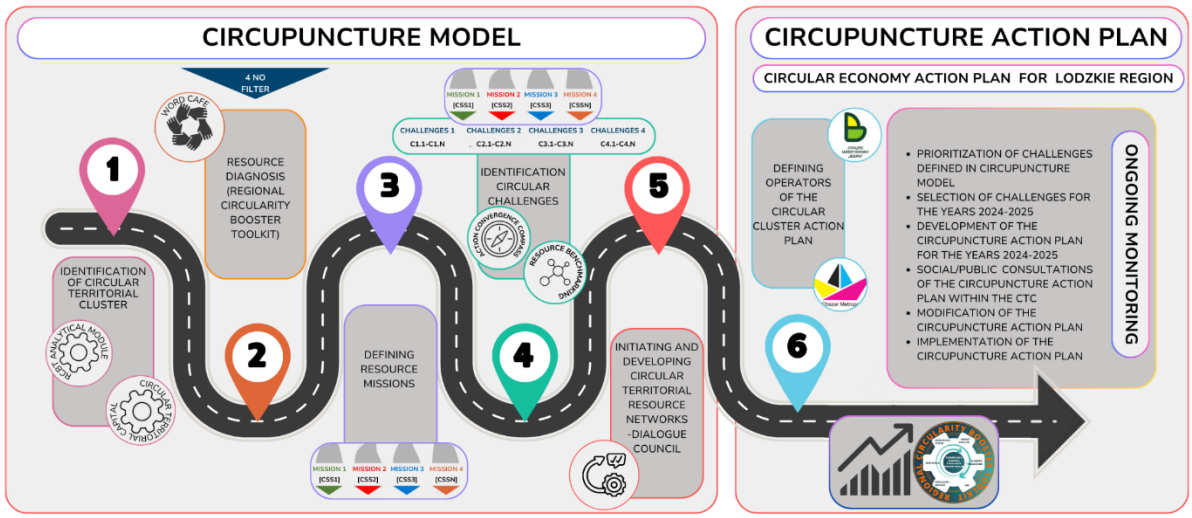

Source: Deliverable 2.6 Circupuncture Model & CircuPuncture Action Plan for Lodzkie Region, pp. 86.

Preparation of the CpEAP blueprint

The project also tested the approach of preparing an action plan by selected institutions. A description of the tool together with an example of a document developed by one of the project's partner institutions can be found in Annex 8.

Checklist

Preparation of the Action Plan	Have you prepared an Action Plan containing, among others: objectives, background and steps, circular challenges, roles of involvement entities, financing method, time frame, results and indicators and how to monitor them? Has the Action Plan been divided into challenges within the selected CSS? Have the assumptions contained in the Action Plan been developed jointly by interested parties and accepted by them? Has the Action Plan been approved by the Dialogue Council?
Implementation of the Action Plan	Is the Action Plan implemented as intended? Have the funds been provided to implement the activities? Are the goals of the planned activities achieved? Is there a risk of not achieving them? Have corrective actions been taken (or planned)? Has the implementation of circular solutions yielded any unexpected results? Have stakeholders, including the public, been involved in the implementation of the action plan? Do the assumptions of the Action Plan require correction? If so, which one? Have the changes been implemented?

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Tools

Action Plan CIRCUPUNCTURE ACTION PLAN FOR LODZKIE REGION, Deliverable Number: D2.6, 3.6, p. 44-83 3.6. Circular Economy Action Plan for Lodzkie Region - CircuPuncture Action Plan Table 8. CircuPuncture Action Plan for Circular Territorial Cluster in Lodzkie Region for 2024-2026 – CSS 1 Table 9. CircuPuncture Action Plan for Circular Territorial Cluster in Lodzkie Region for 2024-2026 – CSS 2 Table 10. CircuPuncture Action Plan for Circular Territorial Cluster in Lodzkie Region for 2024-2026 – CSS 3 Table 11. CircuPuncture Action Plan for Circular Territorial Cluster in Lodzkie Region for 2024-2026 – CSS 4 **Monitoring Framework** Circular economy monitoring system model for the Łodzkie Region, Deliverable Number: D2.3, Table 1. The 9 final indicators in the SCREEN methodology, p.13 Table 3. Macro indicators for regional monitoring frameworks, pp. 17-19 Table 4. Industrial Symbiosis between CSSs, pp. 20 Table 6. CE KPIs for CSS1 - micro level, pp. 22-24 Table 8. CE KPIs for CSS2 - micro level, pp. 26-27 Table 10. CE KPIs for CSS3 - micro level, pp. 30-31 Table 12. CE KPIs for CSS4 - micro level, pp. 33-35	Toolbox 9 – Circular Economy Action Plan Annex - CpEAP Blueprint

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2.5. Horizontal STAGE: Awareness and citizen engagement in building a circular economy

One of the biggest challenges hindering the transition to circular economy is the linear nature of the economy and the lack of awareness of the effects it brings. The dominant economic model is based on **EXTRACT – PRODUCE - USE – DISPOSE** model, where objects are used and thrown away. To change this, actions must be taken to increase awareness of the importance of the circular economy for current and future generations.

OBJECTIVE: Supporting the green transformation to improve quality of life, health and the environment. Building a sustainable circular economy by shaping social awareness and attitudes, including:

1. Increasing residents' awareness of the circular economy and its benefits.
2. Educating residents on practices and activities related to the circular economy.
3. Strengthening the involvement of residents in the implementation of projects related to the circular economy.
4. Collaborate with local NGOs and business associations to promote and support the circular economy.
5. Creation of a microgrant program that will enable residents to implement their own projects related to the circular economy.
6. Including residents in decision-making processes regarding the circular economy at the local and regional level.
7. Promoting and supporting circular economy practices among residents, such as waste reduction, reuse, recycling and separation.
8. Introducing incentives and incentives for residents to use circular economy practices, e.g. reducing local taxes or recycling fees.
9. Supporting local business and entrepreneurship related to the circular economy, e.g. by introducing a local currency for specific raw materials.
10. Facilitating residents' self-assessment in the application of circular economy principles

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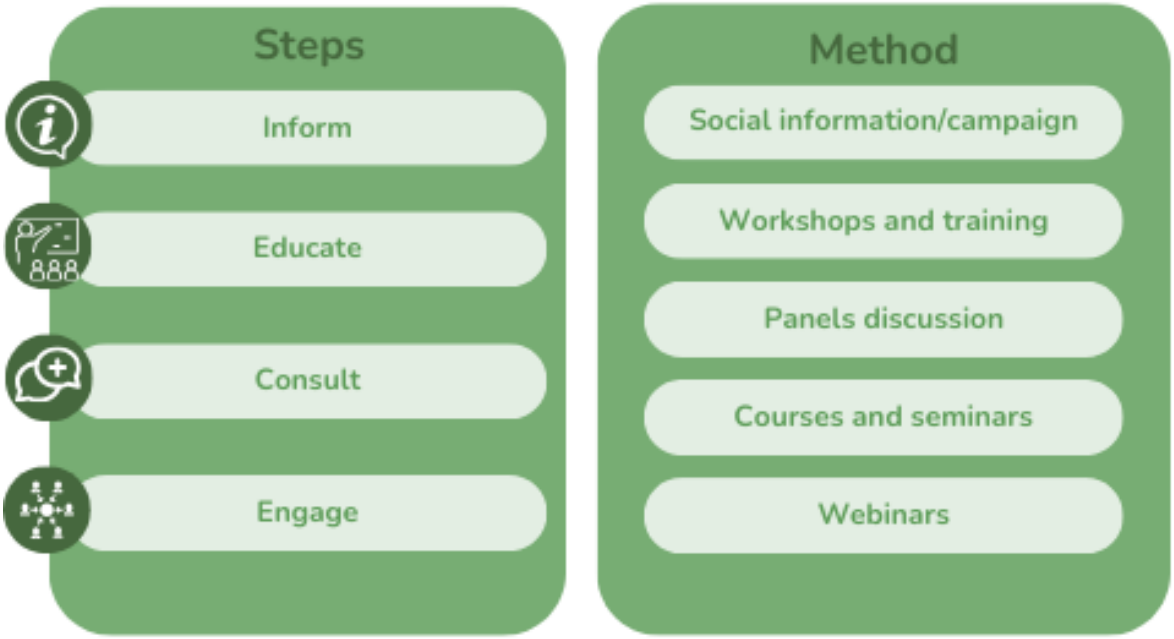
Info Sheets
HORIZONTAL STAGE



Tools

Annex 9 – Learning scenarios
Annex 10 - Household circularity self-assessment (My circular household)
Annex 11 - Local currency model for the Parzeczew commune
Annex 12 - Local microgrant programme
Annex 13 - model of development of social enterprises

Helpdesk (document)

Methodological approach to enhance circularity in Lodz Region

Helpdesk (institution)

OPUS

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? What to do

Use a community inclusion model based on several levels of citizen engagement in the circular economy in the form of a 'ladder of participation'. This model translates into specific solutions to ensure citizens' engagement in the creation of a circular economy. It is a scheme where, at the level of practice, the different 'rungs of the ladder' should interpenetrate and complement each other. The areas of co-decision and cooperation have been combined as 'inclusive actions'.

Inform

Information activities are the first rung of the 'ladder of participation' and involvement of residents in the circular economy. The aim of the activities is to raise residents' awareness of the need to take circular actions, to inspire residents with various examples of what is being done in the area of CE and to implement the 6 R's (refuse, reduce, reuse, recycle, rot, repair).

The main assumptions of the information activities are:

- raising awareness of threats to the natural environment related to waste, consumerism, and the linear economy,
- educating the public in the spirit of respect for the natural environment, ecological values and new technologies supporting the implementation of circular solutions,
- shaping attitudes that enable waste to be treated as a raw material in production,
- implementing the 6Rs principle in households,
- understanding the nature and importance of the 'human-environmental' system, i.e. the interdependence between humans and the environment,
- developing a sense of responsibility for the natural environment and developing appropriate attitudes towards the environment.

At this level, develop and adopt various channels, methods and forms of outreach to residents. Inform them about solutions and courses of action to be taken.
Develop a model for information campaigns to involve citizens in the CE, including e.g:

- general campaigns informing what the circular economy is,
- information campaigns about citizens' engagement with specific types of waste,
- information campaigns about the 'circular commune' and 'circular household' models.

Planned activities may include media activities (e.g. social media activities, circular spots, broadcasts and articles in local media), information campaigns (environmental campaigns, study tours, environmental promotional materials, competitions for schools, competitions for residents).

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Educate

Educational activities in the area of the circular economy are the basis for a change towards more sustainable production of goods and use of natural resources. They should be carried out from an early age. Because of the transition period (between the linear economy and the attempted transition to a circular economy) - these activities must reach a wide audience: children, young people, adults, NGOs, local government units, regional authorities and businesses.

Educational activities should include the following aspects:

- Increasing public awareness of the problems associated with the traditional 'extract-produce-use-dispose' model and teaching how to act more sustainably through a circular approach.
- Behaviour change - education can help people understand why and how they should change their daily behaviour to support the circular economy. This can include, but is not limited to, separating waste, repairing and reusing products, or preferring products with a longer life span.
- Support for innovation - educational activities can promote technological and process innovations that support the circular economy. Educating the public about new technological and business solutions can stimulate demand for such solutions and support the development of companies working on circular products and services. At the same time, it should not be forgotten that the education of entrepreneurs in this area is equally important.

Develop and then adopt methods to raise awareness of the green transition, the circular economy. The methods developed should be tailored to the needs of different stakeholder groups.

The model of educational activities includes, e.g.:

- activities in the field of education of children and youth,
- activities in the area of educating local leaders,
- activities in the area of education of local government representatives,
- activities in the area of education of farmers and entrepreneurs,
- activities in the area of education environmental protection staff,
- educational platforms - e-learning.

For this purpose, you can plan and conduct workshops, training (including distance learning methods), and ecological lessons.

Consult

Consultation activities and dialogue bodies are part of the participatory activities of the 'ladder of participation' with inclusive activities (co-decision and cooperation). Consultation can be either obligatory (resulting from legislation, e.g. when drawing up a local spatial plan or a development strategy) or optional. There are many opportunities to participate in the law-

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making process at its various stages – from the preparatory stage, through comments on legal acts introducing new solutions, to the assessment of the functioning of existing regulations.

The following principles should be taken into account when carrying out consultations:

- Principle of good faith - consultations should be conducted in a spirit of civil dialogue. The parties shall listen to each other, showing a willingness to understand the different points of view.
- Principle of universality - anyone interested in the topic should be able to find out about the consultation and express their view in it.
- Principle of transparency - information about the purpose, rules, process and outcome of the consultation must be publicly available. It must be clear who represents what view.
- Principle of responsiveness - everyone who submits an opinion should be entitled to a substantive response within a reasonable timeframe, which does not preclude summary responses.
- Principle of coordination - consultations should have a host responsible for the consultation both politically and organisationally. They should be adequately anchored in the administrative structure.
- Principle of predictability - consultations should be carried out from the beginning of the process, should be carried out in a planned manner and on the basis of clear rules.
- Principle of respect for the general interest - although individual consultation participants have the right to present their particular interests, the final decisions taken as a result of the consultation should represent the public interest and the general good.

Develop, consult (gaining community acceptance) and adopt tools and methods for carrying out activities aimed at obtaining feedback from residents implemented in the form of open processes or dialogue bodies. These processes clearly define the framework for residents' influence, the forms of implementation of the consultation process and are appropriate for the audience groups.

A model for consultation in CE area may include:

- a model of conducting local consultations,
- a Dialogue Council as a consultative body at the local level, that involves social partners in consultations.

Plan the consultation according to the stages: preparing the consultation, informing and educating, implementing the consultation, communicating the results, evaluating the consultation process, implementing comments from the consultation process, making an implementation decision.

Engage (including co-determination, cooperation)

Involving residents in the circular economy is the highest form of citizens engagement. At this stage, residents actually become involved by taking independent initiatives for the circular economy.

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Co-determine - the community has a decision-making mechanism in place that is binding on the local authority, in which the decision of residents is accepted and implemented (the basis has a formal or social contract dimension).
Co-operate - the community has developed and implemented mechanisms through which residents, together with the local authority, can implement solutions and take responsibility for them.

When engaging citizens, it is important to follow five principles:

- transparency: the intention of the initiative must be clear. People need to know the real potential outcomes and what commitments are expected of them;
- friendliness: in order to create an atmosphere of friendliness and respect for all, it is necessary to provide a safe space that can help to communicate divergent opinions;
- shared expertise: encourage greater participation and enable greater accessibility by finding appropriate ways to meet and question citizens. Use appropriate tools to facilitate constructive discussion;
- accessibility: it is important to make sure that there are different options and services that cover all citizens (e.g. people in employment, people with children, people with physical disabilities who cannot afford transport, have difficulties accessing language or computers, etc;
- experimentation: ask for ideas, talk to participants and listen.

Citizens engagement is demonstrated by real actions taken individually or in the form of joint initiatives carried out by households for circularity. You can use the following tools:

- Self-assessment of household circularity - the tool aims to assess the household's behaviour and attitudes regarding the implementation of (R) real behaviours in the area of circularity.
- Local currency - a model of creating a mechanism at the level of the local community (commune, housing estate, street) engaging residents in circular behaviour that creates 'exchange value' in the form of local currency. Where the source of income is specific circular behaviour in line with the definition of citizens engagement.
- Local microgrant program - an activity supported by the local government at the municipal or regional level, which, through the involvement of appropriate financial resources, can stimulate the circular behaviour of citizens by engaging them in the preparation and implementation of their own micro-projects in the area of the circular economy
- Social enterprise development model based on:
    - cooperation with local government units (e.g. Selective Waste Collection Points, refurbishing of furniture, support of 'second hand' circulation);
    - cooperation with business, including production companies (joint actions on closing production processes, inclusion of social enterprises in production processes of companies, e.g. a wooden furniture factory, a pallet factory can

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outsource the repair of pallets or e.g. furniture and put them back into circulation to a social enterprise);
- support these processes through education, promoting change and the entry of social enterprises into new industries related to the circular economy.

In order to increase the community involvement, including social enterprises, it is necessary to educate on this subject and show examples of various solutions both in Poland, other European countries and around the world, as possible forms of economic activity

* * *

To complete the above tasks, use the suggested
methods: social/information campaigns, workshops / trainings, discussion panels, courses / seminars**,** webinars
and **tools:** a household circularity self-assessment (My circular household), 'Local currency' model, Local microgrant programme, model of development of social enterprises, learning scenarios.

You can also use the **helpdesk**.

Helpdesk	
• Methodological approach to enhance circularity in Lodz Region – SOCIAL + POLICY (Deliverable D7.1)	OPUS

What was done

Inform

In the FRONTSH1P project, information activities are carried out on 2 levels:

1. European and regional - to present the project and the idea of a circular economy.
2. Local - for the purposes of testing communication tools with citizens in the context of engaging them in the circular economy and understanding the idea of citizents participation.

The main communication and dissemination activities aim to promote the project activities and prepare the ground for the effective use of its results.
The main communication instruments are:

1. The project website,
2. Social media channels: Twitter/X and LinkedIn, Instagram and, in terms of citizens engagement, a Facebook group specifically aimed at the inhabitants of the Lodzkie Region. Social media content is published in both English and Polish.

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3. Promotional videos and associated YouTube channel.
4. Newsletter.
5. Participation in conferences, organisation of workshops and other events.

In the area of citizens engagement of the project, information activities aimed at residents of the Parzęczew municipality (Poland) and communes belonging to the Inter-Municipal Union BZURA (Poland) were tested.
The tested model of information activities included:

1. Media activities: social media, circular spot, broadcasts and articles in local media.
2. Information campaigns: environmental actions, study tours, environmental promotional materials, competitions for schools, competitions for residents.
3. Use of IT tools in the municipality of Parzęczew (Poland) - free mobile application Eco Harmonogram, which allows residents easy access to the up-to-date waste collection schedule and various additional information and notifications related to waste and circular economy.

Educate

The project's educational activities focused mainly on the area of Parzęczew, the Lodzkie Region (Poland). They were addressed to:

1. Children and young people.
2. NGOs and local government units.
3. Farmers and entrepreneurs.

The educational activities conducted by the OPUS Centre, on the other hand, were concentrated in Łódź in the Local Activity Place (LAP). Here, the target group is all city residents, regardless of age or other characteristics. LAP is intended to integrate neighbours around various topics of interest. One of these is the circular economy. The idea of circularity is introduced to citizens through their active participation in the proposed workshops (a series of 7 meetings), field games and other initiatives. Ultimately, the LAP is to be a space co-created with the citizens, who will propose their initiatives and undertakings in the area of, among others, the circular economy and ecology.
A full description of the workshops together with the scenarios are included in Report D7.1. selected scenarios are included in Annex 9 to the Replication Strategy.
As part of the project, an e-learning platform will be launched as a knowledge base with courses and interesting information on the project, its results, as well as explanations of key concepts related to e.g. the circular economy, Circular System Solutions. Anyone who registers can become a user of the platform. The platform will also serve as a contact base, enabling the development of a wide group of people working to protect and reduce the impact on the environment.

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Consult

In order to ensure compliance with the principles referred to in the 'Consult' part of the 'Step by step' section, the 'Rules of Procedure for consultation in Parzeczew' (Poland), on the basis of which the concultation process of the Local Currency Model will be conducted, have been amended

In addition, in Parzęczew steps were taken to establish the Social Dialogue Council. The previously conducted process of animating various stakeholder groups allowed the topics to be presented and discussions to be initiated on the main problems in the area of recyclables management (in various waste groups). The introduction of local currency, social enterprises in the area of CE, communication and eucation, micro-grants and other tools that could be implemented were also discussed. A stakeholder map for each topics (plastic, feed&food, local currency, social enterprise) was made to identify the actors/people most involved and/or most influential in the actions taken in this area. This information will be useful for the creation of the Social Dialogue Council for CE project in the Parzęczew municipality. A workshop was also held on the shape, form and competences of the proposed Council. The course of the workshops allowed for the definition of procedures, the form of establishing the Council and its composition. The legal basis, a model ordinance and an example of the Council's rules of procedure are provided in the Deliverable Report 7.1.

Engage (including co-determination, cooperation)

As part of the FrontSh1p project, the following tools were prepared :

a) **A household circularity self-assessment** - a tool designed to enable households to assess their own circularity behaviour and attitudes. The testing tool was an online survey questionnaire entitled 'My Circular Household'. The results of the pilot study conducted in the Lodzkie Region are available in the Deliverable D7.1.
   It is recommended that the self-assessment questionnaire be a publicly accessible tool. The data it collects can be relevant for the resident himself as well as for other stakeholders, e.g. local authorities.
   The form of the self-assessment tool and the key to calculate the household's position on the attitudes scale is available in Deliverable D7.1. and is attached in Annex 10.

b) **'Local currency'** - a **Local Currency Model** for the municipality of Parzęczew was developed in cooperation with the local community, requiring public consultation (pilot). A description of this model is included in Report D7.1 and is attached in Annex 11 to the Replication Strategy.

c) **Local microgrant programme** was developed as a tool for involving citizens in self-sustaining CE projects and strengthening circular behaviour. A description of this model is included in Deliverable D7.1 and Annex 12 to the Replication Strategy.

d) **Model of development of social enterprises** – an analysis of practical solutions undertaken by social enterprises in the area of the circular economy was included in Deliverable D7.1. Annex 13 contains the short description of the model

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Checklist

Inform	Are there any activities in your area to raise awareness and knowledge about issues related to the circular economy? Have you analysed what needs improvement in this area and what actions are worth implementing in the region? Have you planned an information campaign using various channels, methods and forms?
Educate	Have you planned an educational campaign to increase knowledge about green transformation and circular economy addressed to various stakeholder groups?
Consult	Have you prepared a model for conducting public consultations / assumptions regarding conducting social participation activities? Have you consulted the prepared model/assumptions with the local community and obtained its acceptance? Have you created a Dialogue Council in the area of CE involving social partners (or have you taken steps to create it)?
Involve	Have you planned activities involving citizents (independently or in the form of joint initiatives) in circular projects? Have you taken steps to implement them?

Tools

- Methodological approach to enhance circularity in Lodz Region – SOCIAL + POLICY (Deliverable D7.1)

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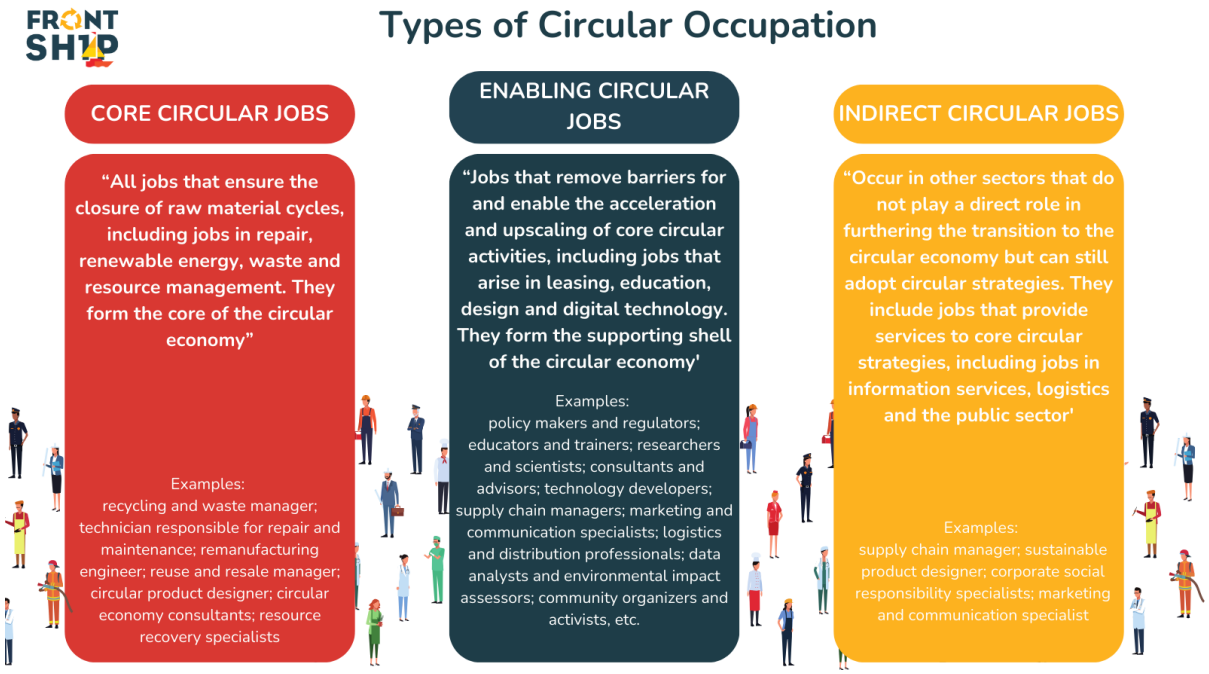
3. CIRCULAR COMPETENCES

The transition from a linear to a circular economy requires the implementation of extensive measures, including changes in the labour market. Some jobs will disappear, others will change their nature, and there is a growing need for new skills to adapt to the challenges of a turbulently changing environment.

There are currently three types of circular occupations: core circular jobs, enabling circular jobs and indirect circular jobs (Figure 9).

Figure 9. Types of circular occupations



Source: own study based on 'Circular jobs definition framework', Circle Economy (www.circle-economy.com) and workshops held as part of the Frontsh1p project

Implementing circular solutions at the level of clusters, individual areas or even the organisation itself requires specific competences: skills, knowledge, personal qualities in order to achieve the set goals and perform the set tasks. Core competences that will support the implementation of circular solutions include:

1. Cognitive which refer to an individual's ability to learn, understand and remember information, process and interpret it, as well as openness to the world and curiosity. These include:
    - critical, innovative, exploratory, desing thinking,

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- systems thinking,
- constructive thinking and decision-making,
- problem framing,
- planning and ways of working,
- mental flexibility (creativity, adaptability, open-mindedness),
- patience,
- business orientation,
- valuing circularity,
- predictive thinking – the skill of anticipating and planning for future events and trends.

2. Interpersonal – are the skills used in social relationships to communicate effectively:
    - teamworking effectiveness (leadership, collective action, collaboration, networking, communication skills, motivating different personalities, developing relations),
    - developing relationships (empathy, inspiring trust, sociability),
    - mobilizing systems (role modeling, crafting and inspiring vision, win-win negotiations, organizational awareness),
    - marketing skills (allowing for the effective promotion of circular solutions).

3. Self-leadership - allows strengths (talents, potentials) to be identified and used to initiate and maintain influencing behaviour:
    - self-awareness and self-management (self control, self confidence, self motivation),
    - entrepreneurship (courage and risk taking, driving change and innovation, energy, passion, optimism, visionary, funding sources finder, bussines oriented),
    - goals orientation (planning, setting and achieving goals),
    - individual initiative.

4. Technical skills (in the area of specific types of waste, including certified skilles)
    - IT understanding / understanding IT systems,
    - technical knowledge (e.g. biotechnologies, innovations),
    - manual skills,
    - design skills (the ability to design products and processes that can be repaired, recycled or reused),
    - knowledge of methods for processing and reusing materials that reduce waste (recycling and upcycling techniques).

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TOOLBOX

- Toolbox 1 - EU indicators for circular economy
- Toolbox 2 - Circular economy indicators
- Toolbox 3 - Projects implemented in the circular economy area / green transition
- Toolbox 4 - Stakeholder analysis
- Toolbox 5 - Stakeholder Engagement Plan - KEY PLAYERS
- Toolbox 6 - Dialogue council
- Toolbox 7 – Resources Missions & CSS
- Toolbox 8 – Circular Challenges in Circular Territorial Cluster
- Toolbox 9 – Circular Economy Action Plan

ANNEXES

Annex 1 - CBT – Circular Benchmark Tool – short description;
Annex 2 - Incentives in circular economy transition
Annex 3 - Questions for stakeholder meetings
Annex 4 - Stakeholders engagement – good practices form Province of Fryslan
Annex 5 - Dialogue Council
Annex 6 - Guidelines from the "Action Plan for building closed value chains" as part of the SCREEN project (Synergic Circular Economy Through European Regions) - short description
Annex 7 - World Café
Annex 8 - CpEAP Blueprint
Annex 9 – Learning scenarios
Annex 10 - Household circularity self-assessment (My circular household)
Annex 11 - Local currency model for the Parzeczew commune
Annex 12 – Local microgrant programme
Annex 13 – Model of development of social enterprises

FIGURES

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TOOLBOX 1

EU indicators for circular economy

INDICATORS for region/country *		UE		Poland			Lodzkie Region		Netherlands					Greece					Portugal					Italy				
Production and consumption		base value	date	base value	(+) above the EU average (-) below the EU average	date	Value	date	base value	(+) above the EU average (-) below the EU average	date	Value	date	base value	(+) above the EU average (-) below the EU average	date	Value	date	base value	(+) above the EU average (-) below the EU average	date	Value	date	base value	(+) above the EU average (-) below the EU average	date	Value	date
Material consumption																												
1	Material footprint	tonnes per capita	15	2022	20	5	2022			7	-8	2022			14	-1	2022			17	2	2022			13	-2	2022		
2	Resource productivity	index 2000 = 100	137,5	2022	164,1	26,6	2022			157,2	19,7	2022			136,3	-1,2	2022			146	8,5	2022			148,1	10,6	2022		
3	Green public procurement					0					0					0													
Waste generation																												
4	Total waste generation	per capita kg per capita	4 815	2020	4492	-323	2020			7175	2360	2020			2651	-2164	2020			1612	-3203	2020			2942	-1873	2020		
5	Generation of waste excluding major mineral wastes per GDP unit*(2010)*	kg per thousand euro, chain linked volumes	65	2020	150	85	2020			64	-1	2020			74	9	2020			78	13	2020			74	9	2020		
6	Generation of municipal waste per capita	kg per capita	513	2022	364	-149	2022			473	-40	2022			509	-4	2021			513	0	2021			495	-18	2021		
7	Food waste	kg per capita	131	2021	113	-18	2021			148	17	2021			191	60	2020			181	50	2021			140	9	2021		
8	Generation of packaging waste per capita	kg per capita	188,7	2021	172,2	-17	2019			171,5	-17,2	2021			81,1	-107,6	2019			176,5	-12,2	2021			229,9	41,2	2021		
9	Generation of plastic packaging waste per capita	kg per capita	35,9	2021	34,2	-2	2019			31,1	-4,8	2021			20,8	-15,1	2019			41,3	5,4	2021			38,4	2,5	2021		
Waste Management																												
Overall recycling rates																												
10	Recycling rate of municipal waste	percentage	48,6	2022	40,9	-8	2022			57,5	8,9	2022			17,5	-31,1	2021			30,04	-18,56	2021			51,9	3,3	2021		
11	Recycling rate of all waste excluding major mineral waste	percentage	58	2020	52	-6	2020			74	16	2020			27	-31	2018			39	-19	2020			72	14	2020		
Recycling rates for specific waste streams																									0			
12	Recycling rate of overall packaging	percentage	64	2021	55,5	-9	2021			76,8	12,8	2021			60,1	-3,9	2019			63,1	-0,9	2021			72,9	8,9	2021		
13	Recycling rate of plastic packaging	percentage	39,7	2021	31,5	-8	2021			48,9	9,2	2021			37,6	-2,1	2019			38,1	-1,6	2021			54,8	15,1	2021		
14	Recycling rate of WEEE separately collected	percentage	81,3	2021	85,9	5	2021			71,1	-10,2	2021			80,9	-0,4	2021			51,7	-29,6	2021			87,1	5,8	2021		
Secondary raw materials																												
Contribution of recycled materials to raw materials demand																												
15	Circular material use rate	percentage	11,5	2022	8,4	3	2022			27,5	16	2022			31	19,5	2022			2,6	-8,9	2020			18,7	7,2	2022		
16	End-of-live recycling input rates (EOL-RIR), aluminium	percentage	N/A		N/A	#ARG!				N/A	#ARG!				N/A	#ARG!				N/A					N/A				
Competitiveness and innovation																												
Private investment, jobs and gross value added related to circular economy sectors																												
17	Private Investments	percentage of gross domestic product (GDP) at current prices	0,8	2021	0,7	0	2021			1	0,2	2021			0,1	-0,7	2021			0,8	0	2021			0,7	-0,1	2021		
18	Persons employed	percentage of total employment	2,1	2021	2,7	-1	2021			1,1	-1	2021			1,3	-0,8	2021			1,8	-0,3	2021			2,4	0,3	2021		
19	Gross value added	percentage of gross domestic product (GDP) at current prices	2,1	2021	1,8	0	2021			1	-1,1	2021			0,5	-1,6	2021			1,5	-0,6	2021			2,5	0,4	2021		
Innovation											0					0					0					0			
20	Patents related to waste management and recycling	number	206,6	2020	17,3	189	2020			13,3	-193,3	2020			0,5	-206,1	2020			5,4	-201,2	2020			21,5	-185,1	2020		
Global sustainability and resilience																												
Global sustainability from circular economy																												
21	Consumption footprint	Index 2010=100	109	2022	123	-14	2022			105	-4	2022			97	-12	2022			118	9	2022			103	-6	2022		
22	GHG emissions from production activities	kg per capita	6 481,20	2022	9 587,30	-3 106	2022			8 227,70	1746,5	2022			7 486,80	1005,6	2022			4882,4	-1598,8	2022			5432,2	-1049	2022		
Resilience from circular economy																												
23	Material import dependency	percentage	22,4	2022	19,7	3	2022			82,9	60,5	2022			39,2	16,8	2022			30,8	8,4	2022			46,8	24,4	2022		
24	EU self-sufficiency for raw materials, aluminium	percentage	11	2022	N/A	#ARG!	2022			N/A	#ARG!				N/A	#ARG!				N/A					N/A				

* https://ec.europa.eu/eurostat/web/circular-economy/monitoring-framework

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TOOLBOX 2

Selected indicators of sustainable development relating mainly to economic growth and circular economy in Poland*

Goal CDG	Goal SDG for Poland	Indicator (units)	year	year	year
Goal 1. No poverty	Increasing the activation of socially excluded people, including through the development of the social economy sector	1.2.a Number of social integration centers, professional activity establishments and occupational therapy workshops per 100,000 population			
	Increasing the activation of socially excluded people, including through the development of the social economy sector	1.2.b Number of participants in social integration centers, professional activity institutions and occupational therapy workshops per 100,000 population (persons)			
Goal 2. Zero hunger	Support for structural transformations ensuring an increase in the competitiveness of agriculture, including an increase in the competitiveness of farms and agri-food producers	2.1.a The agricultural government expenditure index (AOI			
	Support for structural transformations ensuring an increase in the competitiveness of agriculture, including an increase in the competitiveness of farms and agri-food producers	2.1.b R&D expenditure in the field of agriculture in relation to GDP (%)			
	Ensuring food quality and safety as well as the country's food safety, taking into account environmental requirements	2.2.a Share of certified organic agricultural area on organic farms in total agricultural area in agricultural holdings (%)			
Goal 6. Clean water and sanitatione	Creation of legal and financial mechanisms favoring the rational use of water resources and the implementation of water-saving technologies, as well as the construction and modernization of sewage treatment plants	6.2.a Percentage of population using sewage treatment plants (total, percentage%)			
	Creation of legal and financial mechanisms favoring the rational use of water resources and the implementation of water-saving technologies, as well as the construction and modernization of sewage treatment plants	6.2.a Percentage of population using sewage treatment plants (in the city, %)			
	Creation of legal and financial mechanisms favoring the rational use of water resources and the implementation of water-saving technologies, as well as the construction and modernization of sewage treatment plants	6.2.a Percentage of the population using sewage treatment plants (in rural areas, %)			
	Creation of legal and financial mechanisms favoring the rational use of water resources and the implementation of water-saving technologies, as well as the construction and modernization of sewage treatment plants	6.2.b Industrial and municipal wastewater treated biologically, chemically and with increased removal of biogens in% of wastewater requiring treatment (%)			

Goal 7. Affordable and clean energy	Improving energy efficiency	7.1.a Primary intensity of GDP with climatic correction (kg / euro (in constant 2005 prices)			
	Creating conditions for the constant and sustainable development of the energy sector; reducing the impact of the energy industry on the environment	7.2.a Share of renewable energy in gross final energy consumption (%)			
	Ensuring the energy security of the state	7.3.a Ratio of total energy production to global energy consumption (%)			
Goal 8. Decent work and economic growth	Searching for new competitive advantages based on the technological advancement of products, quality and innovation of the offered products, as well as mechanisms of internationalization of enterprises	8.1.a Share of high-tech exports in total exports (%)			
	Searching for new competitive advantages based on the technological advancement of products, quality and innovation of the offered products, as well as mechanisms of internationalization of enterprises	8.1.b Outlays on innovative activities in enterprises in relation to GDP (%)			
	Searching for new competitive advantages based on the technological advancement of products, quality and innovation of the offered products, as well as mechanisms of internationalization of enterprises	8.1.c Global Competitiveness Index (GCI) - position in the ranking (position in the ranking)			
	Entrepreneurship development (legal facilitations in running a business and access to financing instruments)	8.2.a Ease of Doing Business Index (ranking position) (ranking position)			
Goal 9. Industry, Innovation and Infrastructure	Improving the legal and institutional environment conducive to undertaking risky innovative activities	9.1.a Global Innovation Index (ranking position)			
	Development of industries and knowledge-intensive services	9.2.a Gross domestic expenditure on R&D in relation to GDP (%)			
	Development of industries and knowledge-intensive services	9.2.b Expenditure of the enterprise sector on R&D in relation to GDP (%)			
	Development of industries and knowledge-intensive services	9.2.c Share of net revenues from sales of new or improved products in total net revenues from sales in industrial enterprises (%)			
	Development of industries and knowledge-intensive services	9.2.d Share of high-tech exports in total exports (%)			
	Internationalization of enterprises, especially SMEs, by creating support instruments for Polish exporters and investors	9.4.a Share of export sales revenues in SME net revenues from the sale of products, goods and materials (%)			
Goal 11. Sustainable cities and communities	Strengthening the capacity of cities and urban areas for sustainable development and job creation, as well as improving the quality of life of residents	11.1.d Share of alternative fuel buses in the total number of buses serving urban transport (%)			
	Strengthening the capacity of cities and urban areas for sustainable development and job creation, as well as improving the quality of life of residents	11.1.f Percentage of municipal waste intended for specific treatment in relation to the amount of waste generated (recycling, %)			
	Strengthening the capacity of cities and urban areas for sustainable development and job creation, as well as improving the quality of life of residents	11.1.f Percentage of municipal waste intended for specific treatment in relation to the amount of waste generated (composting or digestion, %)			
	Strengthening the capacity of cities and urban areas for sustainable development and job creation, as well as improving the quality of life of residents	11.1.f Percentage of municipal waste intended for specific treatment in relation to the amount of waste generated (thermal transformation, %)			
	Strengthening the capacity of cities and urban areas for sustainable development and job creation, as well as improving the quality of life of residents	11.1.f Percentage of municipal waste intended for specific treatment in relation to the amount of waste generated (landfilling, %)			
Responsible and production	Increasing the efficiency of resource use and changing the approach to resources by departing from their linear management, as well as changing consumption patterns (development of a circular economy)	12.1.a Resource productivity (euro / kg)			
	Increasing the efficiency of resource use and changing the approach to resources by departing from their linear management, as well as changing consumption patterns (development of a circular economy)	12.1.b Domestic Material Consumption (DMC) per capita (tons)			

Goal 12. consumption	Increasing the efficiency of resource use and changing the approach to resources by departing from their linear management, as well as changing consumption patterns (development of a circular economy)	12.1.c Material recycling rate (%)			
	Development of organic farming	12.2.a Share of certified organic agricultural area on organic farms in the total agricultural area in agricultural holdings (%)			
Goal 13. Climate action	Effective reduction of CO2 concentration in the atmosphere	13.1.a Dynamics of CO2 emissions (2010 = 100) (%)			
	Introduction of innovative technologies for the use of available energy sources, including the development of geothermal energy	13.2.a Share of energy from renewable sources in gross final energy consumption (%)			
Goal 15. Life on land	Protection and improvement of the quality of the environment through the protection of biodiversity, including area forms of nature protection, waste management system, improvement of quality and protection of water purity	15.1.b Share of devastated and degraded land requiring reclamation in the total area (%)			
	Modernization and expansion of sewage treatment plants and sewage systems, as well as air protection (elimination of pollution emission sources or reduction of their impact) and soil protection	15.2.b Percentage of population using sewage treatment plants (total, %)			
	Modernization and expansion of sewage treatment plants and sewage systems, as well as air protection (elimination of pollution emission sources or reduction of their impact) and soil protection	15.2.b Percentage of population using sewage treatment plants (in the city, %)			
	Modernization and expansion of sewage treatment plants and sewage systems, as well as air protection (elimination of pollution emission sources or reduction of their impact) and soil protection	15.2.b Percentage of population using sewage treatment plants (in rural areas,%)			
	Modernization and expansion of sewage treatment plants and sewage systems, as well as air protection (elimination of pollution emission sources or reduction of their impact) and soil protection	15.2.c Industrial and municipal wastewater treated biologically, chemically and with increased removal of biogens in% of wastewater requiring treatment (%)			
Goal 16. Peace, justice and strong institutions	Improving the quality of legislation and its application	16.2.a Law quality indicator (points)			
Goal 17. Partnerships for the goals	The geographical priorities of Polish development aid cover the countries of the Eastern Partnership, Asia, Africa and the Middle East	17.1.a Total Official Development Assistance (USD million, current prices)			
	The geographical priorities of Polish development aid cover the countries of the Eastern Partnership, Asia, Africa and the Middle East	17.1.b Total bilateral official development assistance (USD million, current prices)			
	Six main thematic areas of aid have been selected for the 2016-2020 period: good governance, democracy and human rights, human capital, entrepreneurship and the private sector, sustainable agriculture and rural development, environmental protection	17.2.a Official Development Assistance in relation to gross national income (%)			

*Source: Fronts1p, Deliverable Policy Framework and Market analysis - POLICY, pp. 12 - 14

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TOOLBOX 3

Projects implemented in the circular economy area / green transition *

No	Aim of the project**	Main project results (for aim)*	Main project resources (0 - no, 1- yes)										OWNER/ COORDINATOR / LEADER		PARTNER (optional)		Country of implementation	Territorial area of the project (implementation)	**CE area - 5R Rule** (0 - no, 1- yes)					**CE area**
			wooden packaging	food and feed	water and nutrients	plastics and rubber	construction and buildings	electronics and ICT	textile products	battery, batteries and vehicles	packaging	other	Name	OWNER A - academy C - company G - government S - society	Name	PARTNER A-academy C-company G - government S - society			rethinking	reducing	repourpousing	reusing	recycling	other - what?
1			1			0								C		G			0	1				
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								

* criteria for searching circular projects in databases
raw materials
segregation
secondary
waste
recycling
garbage
resources
social integration
social involvement
ecology
eco
wooden packaging
food
feed
nutrients
water
sewage
fertilizer
plastic
gum
circular economy
closed loop

** please provide an indicator for the aims of the project .
1 aim can have more than 1 indicator
1 indicator can achieve 2 aims

e.g.

Aim of the project	Main project results (for aim)
aim A	indicator 1A
	indicator 2A
	indicator 3 A
Aim B	indicator 1B
Aim D	indicator 1DE
Aim E	
Aim F	indicator F

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TOOLBOX 4
Stakeholder analysis

No	Stakeholder (name)	Form of activity (individual, union, association, cluster, other - what?)	Sector A-academy C-company G - government S - society	Leader of circularity (yes, no, potential, other)	Area of the stakeholder's activity / the purpose of the stakeholder's action	Main resources	Interest in the planned project / activities		Impact (influence) on the planned project/activity		Stakeholder type*	Engagement method **	Proposed channel for establishing cooperation (if applicable)	Contact person (if applicable)
							on a scale: 1-10 (1 - smallest, 10 - largest)	positive / negative / neutral	on a scale: 1-10 (1 - smallest, 10 - largest)	positive / negative / neutral				
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														
21														

Stakeholder type	* Type	description	** Engagement method
	key players	high interest, high influence	collaborate, manage closely
	context settlers - potentially influencial	low interest, high influence	monitor and advocate, keep satisfied
	subjects - affected players	high interest, low influence	negotiate, keep informed
	crowd - marginal players	low interest, low influence	passively inform, minimal effort

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TOOLBOX 5

Stakeholder Engagement Plan - KEY PLAYERS

No	Stakeholder name	Sector A-academy C-company G - government S - society	stakeholder's strengths	stakeholder's weaknesses	Planned acticities / projects											
					Role in the planned project/activity (coordinator / leader / partner - implementing party)	Contribution to planned activities (technological, coordination, administrative, financial, other - what?)	A brief description of the stakeholder's contribution to the project	Resources/solutions/tools to be used to implement the circular economy (materials, technologies, etc.)	Engagement methods	Territorial implementation area	Entity / party / organizational unit. / person responsible for implementing solutions	Timeframe	Frequency of actions taken (continuously / cyclically / sporadically	Financing	Results	Indicators
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
14																
15																
16																
17																
18																
19																

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TOOLBOX 6

Dialogue council

No	Name and surname of the member	Institution	Role	Resources possible to contribute	Address	e-mail	Telephone	Legal basis for operation	Financing	Benefits from participation in the council
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										

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TOOLBOX 7

Resources Missions & CSS

Resources*	4NO filter			
	NOT managed resources area **	NOT closed added value chains area **	NO adaptation to climate change area **	NO convergent activities area **

Selected Resource Mission ***		Circular Systemic Solutions (CSS)
Number	Name	
Resource mission 1		0
Resource mission 2		0
Resource mission 3		0
Resource mission 4		0
Resource mission 5		0
Resource mission 6		0
Resource mission 7		0
Resource mission 8		0
Resource mission 9		0

* based on stage 1

Examples: wood packaging, food and feed, water and nutrients, or plastics and rubber. This catalogue can be broader depending on the resources identified and the economic activity in your territory (it can therefore also include construction, electronics and ICT, textiles, batteries, batteries and vehicles, packaging, etc

** if the condition is met, you can use colors in individual cells

*** you define the mission based on the resources that received the most indications according to the 4NO filter

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TOOLBOX 8

Circular Challenges in Circular Territorial Cluster

Resource Missions		CSS	Cathegories*	Circular Challenges	Stakeholders (network)
Resource mission 1	0	0			
Resource mission 2	0	0			

* Examples (open catalogue) :
1. legal framework
2. innovation, product design and value chain
3. infrastructure, investments, entrepreneurship
4. social inclusion, awareness, and knowledge
5. other - what?

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TOOLBOX 9

Circular Economy Action Plan

Resource Mission	1	2	3	4	5
CSS	1	2	3	4	5
CSS name	Wood Packaging	Food and Feed	Water and Nutrients	Plastics and Rubber	….
Cathegory (choose)	legal framework	legal framework	legal framework	legal framework	….
Challenge number	1.1.	1.1.	1.1.	1.1.	….
Challenge name:					
Objective					
Background					
Steps					
Coordinator					
Implementing Parties					
Timeframe					
Financing					
Results					
Indicators					
Challenge number	1.2.	1.2.	1.2.	1.2.	
Challenge name:					
Objective					
Background					
Steps					
Coordinator					
Implementing Parties					
Timeframe					
Financing					
Results					
Indicators					

Cathegory (choose)	nnovation, product design and value chain	innovation, product design and value chain	innovation, product design and value chain	innovation, product design and value chain	
Challenge number	2.1.	2.1.	2.1.	2.1.	
Challenge name:					
Objective					
Background					
Steps					

Coordinator					
Implementing Parties					
Timeframe					
Financing					
Results					
Indicators					
Challenge number	2.2.	2.2.	2.2.	2.2.	
Challenge name:					
Objective					
Background					
Steps					
Coordinator					
Implementing Parties					
Timeframe					
Financing					
Results					
Indicators					

Cathegory (choose)	nfrastructure, investments, entrepreneurship	infrastructure, investments, entrepreneurship	infrastructure, investments, entrepreneurship	infrastructure, investments, entrepreneurship	
Challenge number	3.1.	3.1.	3.1.	3.1.	
Challenge name:					
Objective					
Background					
Steps					
Coordinator					
Implementing Parties					
Timeframe					
Financing					
Results					
Indicators					

Cathegory (choose)	social inclusion, awareness, and knowledge	social inclusion, awareness, and knowledge	social inclusion, awareness, and knowledge	social inclusion, awareness, and knowledge	
Challenge number	4.1.	4.1.	4.1.	4.1.	
Challenge name:					
Objective					
Background					
Steps					
Coordinator					
Implementing Parties					
Timeframe					
Financing					
Results					
Indicators					

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ANNEX 1 - **CBT- short description**

Circular Benchmark Tool (CBT) - The CBT is an innovative solution that enables regions to achieve their circular economy goals. The tool was originally developed for the province of Friesland in the Netherlands, in their need to assess the current level of circularity and compare it with other regions. As the tool is designed by regions for regions, it has gained recognition as a valuable resource for any region looking to become a frontrunner on circularity. By using the CBT, regions can assess their circular economy progress, generate valuable insights and reports, and identify areas for improvement. The tool also allows regions to learn from the experiences and best practices of other regions, facilitating knowledge exchange and cross-regional learning about the circular economy. Designed and developed in 2020, the CBT provides a comprehensive and standardized way of measuring circularity.
The tool uses six overarching themes that are important for regions striving to improve their circular economy performance:

1. **Circular Procurement:** By increasing procurement based on circular economy principles, regions can create a strong demand for circular products and services, thus stimulating circular value chains and supporting circular businesses.
2. **Access to Funding:** Adequate funding is crucial for supporting circular activities, projects, and organizations. By ensuring access to public and private finance, regions can incentivize circular economy innovation and accelerate the transition to a more circular economy.
3. **Circular Society:** The development and deployment of circular knowledge and skills are essential for fostering a circular economy. By creating awareness and motivating people, regions can encourage citizens to adopt circular behaviors and contribute to the circular economy.
4. **Value Chain Activation:** A systemic circular solution requires collaboration and cooperation among stakeholders within and across supply chains. By stimulating circular value creation, regions can create a circular ecosystem where businesses can thrive, and stakeholders can benefit from circular innovations.
5. **Good Governance:** Effective governance is essential for facilitating and promoting the circular economy. By orchestrating and enabling the transition to a circular economy, regions can create a favorable environment for circular businesses and accelerate the adoption of circular principles.
6. **Integrated Policy Framework:** A coherent and integrated circular policy domain is necessary for aligning policy instruments and legislation with circular principles. By establishing a policy framework that supports the circular economy, regions can create an enabling environment for circular businesses to thrive, and stakeholders to benefit from the circular transition.

The final result of the study is a gaps report. It contains the results of the assessment of all six (above) issues. It can be used to identify key challenges.

The tool is available at: https://circularbenchmarktool.eu/how-to-use-it

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ANNEX 2 - Incentives in circular economy transition[1]

Incentives are often presented as opportunities related to solving barriers to the implementation of a circular economy.

The catalogue of incentives, both those operating currently and those potential, possible to implement, is very wide. For example, initiatives that can support the circular economy are:
– Take-back incentives,
– Monetary incentives,
– Mechanisms for reduction of labour costs (lowering labour taxes),
– Legislative, legal and regulatory frameworks,
– Extended Producer Responsibility,
– Tax incentives,
– Legal waste definitions affecting product end-of-life,
– Skills development (training and educational activities) - e.g. training for refurbishing,
– Obligations to provide spare parts,
– Obligations to provide product information for repairing, refurbishing, remanufacturing,
– Enforcement of longer warranty periods for consumers,
– Support circular economy innovative (focused business models),
– Development of infrastructure for consumers to hand in used products,
– Introduction of material efficiency and durability in product design regulation,
– Legal framework to facilitate the trade of repaired and refurbished goods,
– Reduction of value-added tax (VAT) for refurbished products.

There is no single, generally accepted way of classifying (grouping) incentives. There are different categories, types, and groups. For example in *Policy Instruments and Incentives for Circular Economy - Final report 2020*, the incentives were categorized into main categories (description in below table):

CE Incentive category	Description
Fiscal incentives	This category includes fiscal incentives such as taxation, subsidies, financing, and internalising the cost of externalities. A starting point should be identifying and eliminating subsidies that are harmful to the environment
Educational incentives	Incentives aim to increase knowledge and awareness of resource efficiency and circular economy. Education can raise awareness of the need for and benefits of a circular approach as opposed to a linear approach to production and consumption.
Social incentives	Incentives and activities aimed at engaging consumers and the whole society in the circular economy. Awareness raising is an

[1] Source: Deliverable Number: D2.1 Policy Framework and Market analysis – POLICY, chapter 7. Identification incentives for creation Circular Regional Cluster

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	important area. Campaigns and other awareness-raising tools can be used to engage consumers more in the repair and reuse of products
Regulatory incentives	Regulations related to the implementation of the circular economy. Examples are eco-design, waste and extended producer responsibility
Technological incentives	Incentives aim to speed up the development of different technological solutions and innovations for the circular economy
Institutional incentives	Institutional incentives include policy measures, strategies, and roadmaps that aim to promote circular economy implementation. The policy will have a key role in improving the handling of materials and implementation of circular economy principles.
Market conditions	Incentives create markets for secondary raw materials, repaired, reused and remanufactured products
Industrial arrangements	These incentives refer to activities aimed to facilitate collaboration and partnerships in circular business. Enabling and rewarding value chain collaboration is needed to align the interests of partners

With regard to the way it works, incentives can be divided into **direct** and **indirect**. We can also distinguish between negative and positive incentives. **Positive** incentives are, for example, price reductions on secondary products, and tax reductions. **Negative** ones, for example, penalties for inadequate waste collection and fees and restrictions on landfilling and incineration. Some incentives include both positive and negative aspects, e.g. deposit schemes can be voluntary but opting out would lead to a tax increase.

The subjects of the incentive process are their senders and recipients (addressees). **The senders** of such incentives can be: EU, government, local government (regional or local). **Recipients**, on the other hand: entrepreneurs, institutions at various levels, residents. With regard to the scope of influence of the sender, incentives can therefore be divided into: operating at the EU level, national, regional, local. By the groups of addressees: into incentives aimed at a wide audience - society (e.g., general taxpayers, residents), and incentives aimed at specific groups of recipients, e.g., businesses in a specific industry, institutions with a specific profile of activity (e.g., schools/universities).
Considering incentives, their effectiveness is very important. The goal of the incentive process is to cause a change, an effect, in the form of implementing some action related to the circular economy.

The most important factors that can affect the effectiveness of incentives are:
1. Awareness and knowledge of incentives - it appears to be very important to recognize the message as an incentive, the so-called visibility of the incentive. In the mind of the individual, the incentive should be understood and defined as an incentive. In other words, the individual must correctly decode the incentive. This is not such an obvious process, given the differences and individual characteristics of the recipient - age, education, a social status held, personality predispositions, awareness, attitudes represented, sensitivity, attentiveness, etc.

2. The recipient's readiness to accept incentives - the lack of resistance and closure to accepting an incentive is important because it facilitates the process of perceiving the message as an incentive, and

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therefore its correct interpretation. This is also combined with knowledge and awareness of the importance of such an incentive.

3. Clarity of incentives (i.e., an orderly, consistent, accessible catalogue of incentives) - this point includes the phenomenon of bridging the barriers that, are strongly associated with incentives, and points to numerous inconsistencies and dispersion, thus weakening the accessibility of the catalogue of incentives.

4. Adequacy of incentives to conditions - to be effective in action incentives should be appropriate to the recipient. They should be properly coded with corresponding media. It is desirable when incentives are dedicated.

5. Articulating the incentive in the language of benefits - it is also very important in the incentive process to convince the recipient that implementing the incentive 'pays off', and therefore to see the benefits in action (in the near or long term). In the case of the circular economy, mainly pragmatic motivations are important, and in the case of entrepreneurs, financial ones.

6. Balance between encouragement and punishment (positive versus negative reinforcement) - it is important to maintain a balance between reward and punishment. Attention should also be paid to the intensity and impact of both. The proportion between the use of penalties and rewards in the system, however, should add up in favour of incentives. Furthermore, the reward (for implementing the incentive) should not be overly deferred. If it is, it should be greater.

7. Awareness of the "devaluation" of incentives - there should be constant monitoring of the effectiveness of incentives to update information on the system in place. " Custom", familiarity with incentives, can cause them to lose their attractiveness.

More information about incentives can be found in Deliverable Number: D2.1 Policy Framework and Market analysis – POLICY, pp. 48-67

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ANNEX 3 - Questions for stakeholder meetings

Questions should relate to the activities undertaken by the participating stakeholders as well as to the activities undertaken in the chosen territory.

Company name:
Contact person:
Date:

1. What **sector** of the economy do you represent (academy, company, government, society)?

2. To what extent is your organization already **engaged in the circular economy**? (on a scale from 1-10)

- No interest.
- Have never done anything with it, but curious
- Interested and have started a bit.
- Very interested and actively involved.

3. What types of **waste** do you generate?

4. In addition to complying with the waste management regulations, do you implement any additional **waste management solutions**?

If yes:

- in which waste groups?
- what are the implementations related to?
- are the solutions implemented with the involvement of partners / external entities /? Which partners? What resources do the partners contribute?
- How are they financed?

5. What **issues does your company face regarding circular** economy?

- Technical issues
  - If checked, please specify
- Legal issues
  - If checked, please specify
- Financial issues (e.g., related to subsidies, required investments)
  - If checked, please specify
- Economic issues (e.g., related to market development, business models)
  - If checked, please specify
- Logistical issues (e.g., related to the supply of circular raw materials, disposal/processing of scrap, waste)
  - If checked, please specify
- Issues related to collaboration and finding partners
  - If checked, please specify

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- Other issues (e.g., human capital, circular design, access to energy, environmental impact > LCA)
    - If checked, please specify

6. Which of the identified barriers/challenges represent the **greatest difficulties** hindering the work towards circularity?

7. Do you have the **resources** (human, material, financial, technological etc.) to prepare appropriate solutions to the existing problems / challenges? Who would you like to involve in this regard? Which partnerships would be most desirable?

8. What **support** do you need?

9. Do you have knowledge of the **actors** who may be involved in the planned circular activities? What economic sector do they represent? (academy, company, government, society)

10. Ongoing Projects and Initiatives Involving Company

Project Name	**Description and partners**	**Duration**

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ANNEX 4 - Stakeholders engagement – good practices form Province of Fryslan

The best-practice in stakeholder engagement is the establishment and on-going growth and development of the Association Circular Friesland. The association has been established in 2016 as a bottom-up approach initiated by private sector in the province of Friesland, and soon after supported by public administrations with the province of Friesland as one of the frontrunners and committed supporters. In these years Circular Friesland was one of the pioneers/first-movers in Europe to establish a circular ecosystem.

Nowadays the association has a member base of about 170 Frisian organisations. These are mainly SMEs from the private sector, and also the public administrations, education- and knowledge institutes and societal organisations. The association is stimulating value chain collaboration within and among sectors, enables knowledge transfer about circular economy principles and practices, builds the circular community in Friesland, is collaboration on the regional policy agenda on Circular Economy, stimulating circular procurement practices, etc.

Themes of special interest are Circular Plastics and Circular & Biobased Construction, due to the strengths of the region for respectively plastic from waste separation infrastructure and the potential for agriculture of biobased material (like hemp and flax) – on both sectors Friesland has also a strong private sector investing in re-use of plastics and construction. Other themes of interest are Circular water (due to the presence of the European Centre of Excellence on Watertechnology Wetsus and its supporting Watercampus ecosystem), education and youth (established in the SPARK the Movement Programm), but also tourism/recreation, food, mobility and other topics that are typically organised on a regional scale in numerous regions.

The feasibility for replication of such an organization and accompanying business model was validated in practice with the establishment of the Association Circular Groningen in 2023 in the neighbouring province of Groningen. The establishment of the association was one of the outcomes of an ERDF funded cross regional collaboration project on Circular Economy in Norther Netherlands. The Association Circular Groningen used the business- and organization model of Circular Friesland, and has already almost 100 members since the establishment in April 2023. In Frontsh1p Circular Friesland is supporting Lodzkie and other European regions to take the first steps in engaging with the private sector and possibly building a circular economy ecosystem.

Within the region we are aware that the transition to a circular economy is not possible on a large scale without international valuechain collaboration. For this reason Circular Friesland has engaged in FRONTSH1P with other private companies in the region but outside the member base, that harvest, produce or apply circular and biobased plastics. This resulted in the identification of challenges and opportunities for further cross-regional and European collaboration.

In short, by developing the circular economy in Friesland through the Vereniging Circulair Friesland, we have gained some best practices in stakeholder engagement:

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- Have an eye for each other, facing a challenge together, getting to work: it is a way of working that is embedded in our DNA. In our mindset. Address stakeholders and approach parties in a way that fits the culture of your region.
- Set an overarching goal, a mission, that seems distant but achievable. In Fryslân, we collectively set the goal of being among the most circular regions in Europe. Such an overarching goal captures the imagination and ensures that stakeholders work under the same banner towards a common goal.
- Choose themes for creating an action plan; not everything can be done at once. In particular, choose these themes based on where the most energy is in the region. For example, the Circular Friesland Association has many parties from the construction sector affiliated, such as architects and construction companies. This creates equal ownership among stakeholders.
- Work together on the basis of equality and reciprocity. Cooperation is give and take. Make it clear to each stakeholder for which self-interest it is an advantage to work together, but also ensure that stakeholders are held to a shared responsibility to give.
- Create space for an orchestrator of collaboration and stakeholder engagement. The Circular Friesland Association plays this role in our region and they are facilitated here by Province of Fryslân. It is necessary to recognise the importance of an orchestrator and invest in this role.
- And last but not least, make sure you have fun! Collaboration only really takes off if it is also fun. Look at what suits your own region, but this way it is a lot more fun for stakeholders to be involved and participate.

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ANNEX 5 - Dialogue Council

The Council is a forum for dialogue between representatives of different backgrounds wishing to undertake joint activities in the area of circularity within a cluster (or selected territory). It should include, in particular, representatives of public administration, companies, universities and NGOs / society. The Dialogue should play a key role in networking and promoting knowledge exchange in order to create the best conditions conducive to the promotion and development of the circular economy.

In order to establish the Dialogue Council, it is necessary to initiate and then periodically organise meetings of different stakeholder groups (representing business, public sector, NGOs and academia). The key role will be played by businesses interested in implementing changes and the public sector often acting as an initiator of activities. These meetings can be held for all CSS together, but can also be dedicated to only selected ones (within thematic groups).

Meetings and dialogue should be conducted in parallel to the process of establishing the territorial cluster. The process of setting up the Council is a rolling one and its constitution depends on the level of maturity of the cooperation established and implemented. It can therefore take place immediately or gradually. However, formalising its activities is not a prerequisite. It may therefore carry out activities of a non-formalised nature.

Taking into account the assumptions of the project, the CEAP prepared for the cluster /selected territory should be constructed with the participation of the Council.

Supplementary materials - good practices of the municipality of Parzęczew:

A. Model for creating a project Dialogue Council in the area of circularity
B. Rules of Procedure of the Social Council for Dialogue in the area of circular economy
C. Legal basis for consultations and the creation of dialogue bodies

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A. MODEL FOR CREATING A PROJECT DIALOGUE COUNCIL IN THE AREA OF CIRCULARITY

1. Assumption of what the Social Council for Dialogue of the Project is to be.

2. Legal basis for the creation of consultative bodies in local government units.

3. Types of dialogue bodies.

4. The process of animating and creating the Social Council for Dialogue of the Project in the municipality of Parzęczew.

5. Recommendations and conclusions.

1. Assumption of what the Social Council for Dialogue of the Project is to be

The Social Council for Dialogue of the Project (SRDP) in the area of circularity is to be an element of the local government policy in the area of circularity, involving various groups of residents in the creation and implementation of circular solutions in the commune. It is based on the concept of the "ladder of participation", where the highest level is decision-making with the participation of residents. Residents' participation (influence on the government's regulatory decisions) is one of the elements that determines the involvement of residents. The starting point in this area of solutions is the "ladder of participation". This tool illustrates the way the authorities communicate with the residents, but also the scope of the residents' decision-making power and influence on the decisions of the authorities.

The "ladder of social participation" includes levels of social involvement from total non-participation to various forms of co-determination: According to the theory of the "ladder of social participation", public authorities:

1. make decisions **unilaterally, do not inform the** residents;

2. decide unilaterally and **independently, but inform the** residents about it;

3. decide unilaterally and independently, but justify these decisions;

4. before taking a decision, **they inform about their plans** and adopt different opinions, using them to varying degrees to change the content of the decision;

5. Actively consult individual citizens**, community leaders, experts** before making decisions;

6. **consult the** various sections of society and their representations on the basis of legal requirements or political will before taking decisions;

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The type and nature of the Project Dialogue Council depends on:

- the territorial size of the territorial unit (smaller area, better knowledge of stakeholders, closer social ties),
- number of non-governmental organizations, active informal groups,
- previous practices in obtaining opinions by local government units (legal regulations at the local government level, e.g. a resolution on consultations),
- the tools used to cooperate with residents, such as local initiatives, participatory budget, consultations,
- awareness and level of knowledge in the area of e.g. circularity,
- awareness and knowledge about the participation of residents.

2. Legal basis for the establishment of consultative bodies in local government units

The legal basis for the establishment of dialogue bodies in Poland is set out in the preamble to the Constitution. Article 20 of the Constitution points to social dialogue as one of the principles underlying the legal system and mentions social dialogue as the foundation of the Polish economic system, and Article 12 guarantees the freedom to establish and operate social partner organisations.

The legal basis for starting a dialogue with the community and residents is Article 5a. Act of 8 March 1990 on Municipal Self-Government – ("In the cases provided for by the Act and in other matters important for the commune, consultations with the inhabitants of the commune may be carried out on its territory"). The rules and procedure for conducting consultations with the inhabitants of the commune are determined by a resolution of the Commune Council.

The Act on Municipal Self-Government also provides (Article 30(3) in conjunction with Article 11a(3) of the Act on Municipal Self-Government) the possibility of the executive authority, i.e. the president, commune head or mayor, in accordance with the organisational regulations of the commune, to appoint permanent and task-oriented teams to implement local policy, e.g. **the Social Council for** Culture in Warsaw, composed of experts and authorities in the field of culture.

Dialogue with non-governmental organizations is also carried out on the basis of the Act of 24 April 2003 on Public Benefit Activity and Volunteering, Article 5 (2) (5) of the Act of 24 April 2003 on Public Benefit Activity and Volunteering (creating joint advisory and initiative teams composed of representatives of non-governmental organizations, entities listed in Article 3(3) and representatives of competent public administration bodies. Teams, e.g. Civil Dialogue Commissions, can be established in various thematic areas related to local policy, Civil Dialogue Commission for the environment.

In addition, pursuant to Article 7(1) of the Act of 8 March 1990 on Municipal Self-Government (Journal of Laws of 2021, item 695, as amended), the commune's own task is, m.in, the issue of

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"spatial order, real estate management, environmental and nature protection and water management. The Environmental Protection Law in the field of detailed environmental protection indicates the need to create dialogue bodies, but does not specify detailed rules for the creation and functioning of these bodies. Regulations in this respect should be sought in the resolutions of the municipal councils that appoint a given body.

3. Types of dialogue bodies

To sum up, depending on the legal basis (in Polish) and the concept of cooperation with the community, the following types of dialogue bodies can be distinguished:

Social councils in a selected area – members of the social council are appointed by the executive authority, which has the right, in accordance with the above-mentioned legal bases, to appoint dialogue bodies, which with knowledge and authority can support specific development programs in particular areas, e.g. environmental protection, culture or others. They are appointed by the order of the president, mayor, commune head, who also indicates the persons to the above-mentioned council, the term of office and the regulations along with the competences of the council. The competences of the social council are mainly:

- initiating specific actions and solutions in the area of the local government unit,
- giving opinions on legal acts,
- advising on decisions made by the authority.

Civil Dialogue Commissions – are dialogue bodies appointed by the executive body at the request of a specific number of non-governmental organizations in a given area (province, district, commune). The number of organisations required to be established and the procedure for establishing them are determined by the programmes of cooperation between local government units and non-governmental organisations. The Civil Dialogue Committees have the following competences:

- consulting, co-creating and initiating documents and drafts of legal acts within the scope of the activities of a given CDC;
- giving opinions on draft legal acts related to public tasks;
- cooperation with the competent organizational unit of the Office

4. The process of animating and creating the Social Council for Dialogue of the Project in the municipality of Parzęczew

The challenge faced by the municipality of Parzęczew – the implementation of the idea of circularity in the municipality requires the involvement of many entities of social life, from the authorities and its organizational units to residents, entrepreneurs and households.

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Civic engagement in the circular economy means the conscious participation of citizens in direct and supportive activities (processes) for inclusion in the circular economy cycle. Thanks to the involvement of residents, various solutions in the circular economy will be implemented more effectively and with less resistance.

The processes that are to trigger the involvement of residents are mainly **information and education, activity and influence**. Implemented in parallel, they give a chance for a deeper and good change.

In this document, we will focus on the process of gaining influence on decisions by residents. The process was initiated in Parzęczew. The meetings animating the creation of the Council began in January 2023. The meetings had an open formula, social leaders, representatives of non-governmental organizations and other local institutions were invited. Conversations at these meetings were informative about the FRONTSHIP project and its assumptions and goals, especially in relation to the area of the Parzęczew commune – the place of residence of the participants.

The process of creating **the Project's Social Dialogue Council** is described below:

The scheme of the meetings was based on the stages of the "ladder of participation". It was assumed that during the meetings, educational and information activities, people would emerge who would join and engage in consultative and advisory work in the area of circular economy. The meetings were also integrative and diagnosing the municipality in terms of circularity (analysis of the municipality's resources and stakeholder groups, analysis of problems in the area of circular economy and the possibilities of solving them).

Each meeting included an educational and workshop element, which assumed the development of assumptions and content for a given area together with stakeholders.

- information
- education
- Inclusion/Engagement

Steps in the creation of the Social Council for Dialogue of the Project

1. **Getting to know each other and networking**

The Group of Partners invited the leaders of the Parzęczew community (representatives of non-governmental organizations, business and representatives of institutions) to their meetings. The aim of the first meeting was to familiarize the participants with the idea of the project and the concept of circular economy, as well as to get to know each other with the people who were

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invited to the meeting. The inviting entity was the Commune Office, cooperating with organizations and entrepreneurs. The idea of circular economy was presented and participants were invited to work on the following topics:

- how to inform about circular economy?
- How to educate?
- How to promote?

2. Inclusion of stakeholder groups in the work on the diagnosis of the Parzęczew municipality in terms of circular economy. This stage was carried out together with education on various topics related to the implementation of the FRONTS1HP project. In addition to the specific content developed at the meetings, e.g. a map of stakeholders, problems in the area of municipal waste, local currency – the partners of the meetings were of an animation nature, aimed at creating the Project Dialogue Council.

A series of meetings with various stakeholder groups was held (notes from meetings).

10 January – plan of promotional, educational and information activities

February 1 – model of creating local currency

22 March – stakeholder analysis

April 19 – how to take care of resources?- students of grades VI-VIII

26 July – how to take care of resources?- editors of "Young Paris"

3. development of the principles of establishment and operation of the Social Dialogue Council – Project Dialogue Council – workshop meeting

The meeting was conducted using the workshop method **– Open Space.** The topic was introduced with a short presentation of the types of dialogue bodies and the legal basis for the functioning of dialogue bodies. During this workshop, a discussion was held with the participation of participants on the legitimacy of the existence of such a body, its competences and fears related to its creation. The fear of formalizing this process was dominant. The participants asked the following questions:

- "whether such a structure is needed",
- "the authorities have direct contact with residents and can ask for opinions at any time",
- "lack of funding",
- "lack of knowledge of residents about circular economy",
- "Earlier, broad education is necessary".

The course of the discussion showed that the people present considered the process to be premature and too formalized. The Parzęczew commune is a small commune, it covers an area of 103.9 km2, which places it on the fifth place in the Zgierz district. There are 44 villages in the commune, which are organized into 23 villages and one housing estate. At the end of 2020. the

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population of the Parzęczew commune was 5125 (according to the population register), which is 3% of the population of the entire Zgierz county. The number of people living in the commune has increased slightly over the last years, but still few residents live in the commune. Many decisions are made in direct contact with the residents, the Mayor, currently the Mayor, makes them independently. The authorities and residents do not have experience in consulting draft resolutions of local law, hence the fear of too much formalization of the dialogue body.

In the second part of the meeting, the work took place around 3 tables/topics, the participants could choose the topic they wanted to speak on, discussions and conversations took place around, the moderator supported the process by clarifying some issues and facilitating communication:

Table 1:

"INITIATOR? WHO IS PARTICIPATING? NUMBER OF PEOPLE, DURATION, TERM OF OFFICE, COMPETENCES"

- **According** to the people who participated in the meeting, the initiator should be the Mayor of the Parzęczew commune. The people who could be indicated by the Mayor are: village leaders, NGO representatives, entrepreneurs, interested residents, young people.
- Number of people to be determined
- Duration – as needed (for the duration of the project)
- Competences: initiating, giving opinions, educational
- Advice for self-organizing
- Form of meetings: on-line or live, or mixed

To sum up, according to the participants, **the initiator of the SRDP should be the Commune Head/Mayor**. People should be indicated by him – they can be people known for their interests and competences in the subject of circular economy. It is advisable that it should be a mixed composition, i.e. village leaders, representatives of NGOs, entrepreneurs, active residents, youth. The number of people was left to be determined by the initiator. The Social Dialogue Council of the Project should have the following competences:

- Initialization
- Giving opinions,
- Educational.

Duration indefinitely, form of meetings – any/any – online, live, hybrid

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Table 2:

"WHAT COMPOSITION, RULES OF PARTICIPATION, HOW THE PARTICIPANTS ARE ELECTED – ACCESSION, RECOMMENDATIONS OR SELECTION FROM AMONG CANDIDATES"

- Mixed composition, active leaders, village leader – chairmen of district councils, youth
- Accession to the topic on an ad hoc basis, at the invitation of the leader
- **NEW** APPROACH: a fast track for consulting with residents – on-line; on-line questions – can be used by an application,
- **VIRTUAL COUNCIL** (if they take part in the vote, they are already a Council – a different scale, a better return – inspiration participatory budget; or maybe as a second stage after the live deliberations

Summary: Participants (OUs) indicated a very informal approach in this area. Such a solution would mean that people who take part in the vote, e.g. through the application, may not be the same people who indicated OU at the first table. Voting loses the element of discussion, deliberation and the search for common solutions, as well as the possibility of initiating action. This is a reactive way, depriving residents of the opportunity to initiate discussions and topics.

Table 3:

ORGANIZATIONAL STRUCTURE, MEETINGS, WHAT IS RESPONSIBLE FOR, WHO IS RESPONSIBLE FOR THE WORK OF THE COUNCIL

- various benefits – economic, networking, spending time
- The Council enters into action – e.g. initiates
- meetings no more often than once a quarter

From the conversations at the table, it appeared that at this stage there is no idea yet how the SRDP will function. The best solution would be for the RDSP to establish internal regulations on its own: meetings, the method of giving opinions or initiating topics and activities. The second approach is for the initiator (Commune Head/Mayor) to decide on the SRDP regulations.

5. Recommendations and conclusions

To sum up, the analysis of both the legal basis and the course of the meeting among stakeholders shows that the optimal solution for a small local government unit – rural, urban and rural communes, with little experience in consulting and giving opinions on local policies would be the appointment of the project's social dialogue council by the executive body (commune head, mayor, president) in the area of circular economy, pursuant to Article 30(3) in conjunction with Article 11a(3) of the Act on Municipal Self-Government) of the Act on Municipal Self-Government.

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The executive body appoints to the RDSP by means of an appropriate ordinance active people with authority in the environment, interested in the issues of ecology, in particular circular economy.

The Council has initiating, consultative and advisory competences in the implementation of the policy in the area of circular economy in a given area.

The Executive Body determines the organizational regulations of the Council (number of people, term of office, method of operation)

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B. **Rules of Procedure of the Social Council for Dialogue in the area of circular economy**

Appendix to Ordinance No. ..... of the Mayor of the commune of Parzęczew

Rules of Procedure of the Social Council for Dialogue in the area of circular economy

§ 1. The Work Regulations define the internal organization and mode of work of the **Social Council for Dialogue in the area of circular economy**, hereinafter referred to as the "Council".

§ 2.1. The Council operates at the Mayor of the Parzęczew commune and performs advisory, expert and opinion-forming functions. The main task of the Council is to support the Parzęczew municipality in pursuing its circular economy policy .

2. The tasks of the Council include in particular:

1) initiating a dialogue on the circular economy;
2) consulting and giving opinions on strategic activities in the area of circular economy in the municipality of Parzęczew
4) initiating topics important for the development of circular economy in the Parzęczew commune;
5) exchange of experience regarding the functioning of individual entities (organizations, institutions, enterprises) from the area of the Parzęczew municipality with the use of circular solutions.

3. The Council may take positions and express opinions publicly.

§ 3.1. Members of the Council are appointed by the Mayor of the Parzęczew commune for a period of 3 years from the date of appointment of the Council.

2. Membership in the Council ceases as a result of:

1) resignation of a member of the Supervisory Board,
2) the expiry of the period of appointment to the Council,
3) dismissal by the Mayor of the Parzęczew commune.

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3. The Mayor of the Parzęczew Commune may dismiss a member of the Council before the expiry of the period referred to in paragraph 1, if a given person does not participate in the work of the Council in its next three meetings without giving a reason, after consulting the Council.

4. Members of the Council do not receive remuneration for their participation in Council meetings.

§ 4.1. At its first meeting, the Council elects the Chairperson and the Vicechairperson.

2. The Council meetings are conducted by the Chairperson.

3. The Chairperson of the Council shall direct the work of the Council and represent the Council externally and sign its opinions or positions.

4. WiceChairperson shall replace the Chairperson of the Council in the event of absence or incapacity to perform the duties.

5. The Mayor of the Parzęczew Commune appoints a person from the Parzęczew Commune Office as the Secretary or Secretary of the Council.

6. Sekretarz_rzyni of the Council coordinates organizational and technical matters related to the work of the Council.

§ 5.1. Meetings of the Council are convened by the Mayor of the Parzęczew Municipality, or the Chairperson of the Council, at least 7 days before the date of the meeting.

2. Meetings of the Council are held as needed, but not less frequently than once a quarter.

3. Notification of the date and agenda of the Council meeting may be made by post or by digital means of communication.

§ 6.1. The meetings of the Council are attended by the Mayor of the Parzęczew Municipality or a person appointed by him, responsible for the subject of circular economy.

2. A meeting of the Council may be held in the presence of at least half of the members of the Council.

3. Members of the Council participate in its work personally.

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4. The Council adopts opinions and positions by open voting by a simple majority of votes of the members of the Council present at the meeting. In the event of an equal number of votes, the vote of the Chairperson Council is decisive.

5. At the request of the Mayor of the Municipality of Parzęczew, the Chairperson of the Council or three members of the Council, persons who are not members of the Council may be invited to participate in the meetings of the Council.

6. The Secretary of the Council draws up minutes of the Council meeting. Minutes of Council meetings, after being accepted by the Chairperson, are made public on the website of the Parzęczew Municipality.

§ 7.1. Matters not regulated by these regulations, concerning the functioning of the Council, are determined by the Mayor of the Parzęczew Commune.

2. Changes in these regulations require an ordinance of the Mayor of the Parzęczew Commune.

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B. LEGAL BASIS FOR CONSULTATIONS AND THE CREATION OF DIALOGUE BODIES

The basic legal act for creating bodies of dialogue, consulting important topics for a given territorial unit is:

Constitution of the Republic of Poland: The preamble to the Constitution indicates social dialogue as one of the principles underlying the legal system. Article 20 of the Constitution mentions social dialogue as the foundation of the Polish economic system, and Article 12 guarantees the freedom to establish and operate social partner organisations. Moreover, Article 59 of the Constitution grants trade unions and employers' organisations the right to negotiate, including for the purpose of resolving collective disputes, and to conclude collective bargaining agreements and other agreements.

Other regulations are created at the level of specific acts:

1. At the level of statutory/national regulations, bodies for dialogue with non-governmental organizations may be established on the basis of the Act of 8 March 1990 on municipal self-government (Art. 5a. 1. "In the cases provided for by the Act and in other matters important for the commune, consultations with the inhabitants of the commune may be carried out on its territory"). The rules and procedure for conducting consultations with the inhabitants of the commune are determined by a resolution of the Commune Council.

The Act on Municipal Self-Government also provides (Article 30(3) in conjunction with Article 11a(3) of the Act on Municipal Self-Government) the possibility of the executive authority, i.e. the president, commune head or mayor, in accordance with the organisational regulations of the commune, to appoint permanent and task-oriented teams to implement local policy, e.g. the Social Council for Culture in Warsaw, composed of experts and authorities in the field of culture.

2. The legal basis for the creation of social dialogue bodies on environmental protection at the level of municipalities in Poland is the Act of 27 April 2001 on Spatial Planning and Development (Journal of Laws of 2021, item 576, as amended). Pursuant to Article 7a of this Act, municipal authorities should conduct public consultations on matters related to spatial planning, including environmental protection. In addition, pursuant to Article 6(1)(5) of the Act of 8 March 1990 on Municipal Self-Government (Journal of Laws of 2021, item 695, as amended), the task of the municipality is, among m.in, environmental protection and environmental policy, including through social dialogue.

3. The Act of 27 April 2001 – Environmental Protection Law; Article 151 (Journal of Laws of 2022, item 740) is the general legal basis for the creation of social dialogue bodies on environmental protection at the level of municipalities in Poland. The Act does not specify detailed rules for the establishment and functioning of these bodies. Regulations in this respect should be sought in the resolutions of the municipal councils that appoint a given body.

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4. The Act of 24 April 2003 on Public Benefit Activities and Volunteering, Chapter 5a of the Council for Dialogue with the Young Generation and Chapter 6 of the Provincial, District and Municipal Councils for Public Benefit Activities, which provide the basis for the creation of bodies of dialogue with non-governmental organizations.

Dialogue with non-governmental organizations is also carried out on the basis of the Act of 24 April 2003 on Public Benefit Activity and Volunteering, Article 5 (2) (5) of the Act of 24 April 2003 on Public Benefit Activity and Volunteering (creating joint advisory and initiative teams composed of representatives of non-governmental organizations, entities listed in Article 3(3) and representatives of competent public administration bodies. Teams, e.g. Civil Dialogue Commissions, can be established in various thematic areas related to local policy, Civil Dialogue Commission for the environment.

It is worth noting that social dialogue can take various forms, such as negotiations, consultations, opinions, or information. Each of these forms has its own specific features and principles of operation.

The legal basis for social dialogue in Poland is therefore diverse and includes both constitutional provisions and a number of specific laws. In order to create social dialogue bodies on environmental protection at the municipal level, it is important to know local regulations and the possibility of cooperation with existing institutions at higher levels of administration.

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ANNEX 6 - Guidelines from the "ACTION PLAN FOR BUILDING CLOSED VALUE CHAINS" as part of the SCREEN project (Synergic Circular Economy Through European Regions) - short description

The report 'A ROADMAP FOR BUILDING CIRCULAR VALUE CHAINS' describes six steps that systematically take through the whole process from initial mapping of the value chain, to development of a roadmap with interventions and further to the identification and evaluation of respectively hotspots and emerging ideas that will eventually synthesise into cross-regional synergies.

A lightweight and complete version of the research process is available therefore provision is made to accommodate different terms and levels of expertise.

Full version below:

WORK PACKAGE 2.3	STEP I: Value chain and stakeholder mapping	Mapping the value chain and stakeholders		Expert consultations
	STEP II: Collecting detailed data	Desk research into databases and sectoral reports		Stakeholder interviews
	STEP III: Data analysis and visualization	Material flow analysis	Stakeholder analysis	Impact and hotspot analysis
	STEP IV: Defining interventions and roadmap	Workshop		
WORK PACKAGE 3.1	STEP V: Gathering data for synergies	Collecting data on hotspots and emerging ideas		
	STEP VI: Exploring synergies	Finding the synergies		Taking the synergies further

Figure 2: Flowchart of full research program

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Light version below:

WORK PACKAGE 2.3	STEP I: Value chain and stakeholder mapping	Mapping the value chain and stakeholders	Expert consultations
	STEP II: Collecting detailed data	Stakeholder interviews	
	STEP IV: Defining interventions and roadmap	Workshop	
WORK PACKAGE 3.1	STEP V: Gathering data for synergies	Collecting data on hotspots and emerging ideas	
	STEP VI: Exploring synergies	Finding the synergies	Taking the synergies further

Figure 3: Flowchart of light research program

The Content included in the table come from the Report D3.1 titled 'A ROADMAP FOR BUILDING CIRCULAR VALUE CHAINS', pp. 13, 14

Descriptions of the process and the report can be found on the website: http://www.screen-lab.eu/Deliverables.html

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ANNEX 7- WORLD CAFÉ methodology[2]

DESCRIPTION of METHODOLOGY

The World Café methodology is an innovative approach to facilitating group discussions and collaborative dialogue. It creates a dynamic and interactive environment where participants can explore complex topics, share perspectives, and generate creative solutions to real-world challenges. The World Café typically involves setting up multiple small group discussions in a café-like setting, with participants rotating between tables or stations dedicated to specific topics at regular intervals. As they move between groups, participants engage in focused conversations, building upon each other's ideas and insights. The process is often guided by thought-provoking questions or prompts, designed to encourage deep reflection and exploration of key issues. By harnessing the collective wisdom and diverse perspectives of participants, the World Café methodology fosters meaningful dialogue, promotes collaboration, and generates innovative solutions. Research underscores the transformative nature of the World Café methodology, serving as a catalyst for constructive dialogue among diverse groups. This dynamic process facilitates cognitive reappraisal and individual sense-making, transcending conventional knowledge production methods. The World Café enables the exploration and discussion of topics within large and heterogeneous groups, emphasizing intimate exchange, disciplined inquiry, the cross-pollination of ideas, efficacy in fostering personal relationships and mutual learning through conversational processes.

Viewed from a bottom-up perspective, the World Café method underscores grassroots engagement, collective intelligence, and community-driven initiatives. Its adaptability and effectiveness make it a valuable tool for facilitating inclusive dialogue and fostering collaborative solutions.

WORLD CAFE WITHIN THE FRONTSH1P PROJECT

This initiative brought together an international assembly of 100 participants, including entrepreneurs, scientists, households, and local government representatives. These stakeholders were tasked with formulating assumptions for circularity strategies and CEAPs.

The research design involved brief 'tabletop' sessions adhering to the principles of the World Café. Participants circulated among tables to deliberate on various subjects, creating an organized yet dynamic setting that mirrored real world societal interactions. The methodology successfully

[2] *source: article 'Enhancing Circular Economy Action Plans: Strategies for stakeholder engagement and scalability' authors: Ewa Kochańska, Justyna Trippner - Hrabi, Iwona Adamkiewicz, Katarzyna Woźniak, Nuria Barros, Mattia Bosoni, Rafal M. Lukasik, Aimee Forcada, Carmine Pascale, Małgorzata Żak-Skwierczyńska (not published)*

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facilitated open discussions and idea sharing, providing valuable insights into community needs, priorities, and potential solutions.

Notably, the research cohort demonstrated a heightened awareness of environmental and circular economy issues compared to typical local EU communities. This increased consciousness underscored the potential of the World Café methodology to effectively engage diverse stakeholders in meaningful dialogue and collaborative decision making processes.

Each table session began with the following announcement:

> *"We are representatives of the local administration, and we are preparing the Circularity Governance Model and the Circular Economy Action Plan for our territory. Please, put yourself in the role of:*
>
> *1. an entrepreneur,*
>
> *2. an employee of a company, a school, or an opera theater,*
>
> *3. a scientist,*
>
> *4. a houseman or housewife, or*
>
> *5. a local authority clerk responsible for implementing CEAP...*
>
> *...and tell us what your expectations are regarding local circularity development, specifically tailored to you. We will do our best to reflect them in the regional governance model and the local CEAP."*

World Café organizers presented **initial goals and pointers** for each stakeholder group to stimulate more dynamic discussions. However, they did not limit the study participants by doing so many of the responses and suggestions regarding CEAP were unconventional and unpredictable.

Table 2: WC's initial pointers

Please, consider potential objectives from:	
ad.1 the entrepreneur's perspective*: 1. reduce costs; 2. increase profits; 3. improve the image; 4. dominate the market/expand or specialize in the activity; 5. ensure compliance with current changes in the law*	***ad.2. the employee's perspective:*** *1. work less; 2. work more efficiently; 3. earn more; 4. easier to get to work; 5. work in a pleasant environment; 6. feel job satisfaction; 7. raise qualifications; 8. to get promoted*

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***ad.3. the scientist's perspective**: 1. conduct research desired by business and society and participate in scientific and industrial consortia; 2. work in important/interesting R&D projects in an international environment; 3. develop soft skills; 4. transfer the knowledge; 5. make money on knowledge*	***ad. 4. the household's perspective:** 1. reduce maintenance costs (water, energy, garbage...); 2. buy cheaper; 3. live in a nice environment; 4. have access to various services (social, cultural etc.); 5. be well connected - in terms of transport and information; 6. be socially engaged/create the environment and be a conscious consumer; 7. achieve a sense of being saved; 8. live comfortably*
***ad. 5 the clerk's perspective**: 1. complete assigned tasks; 2. be well rated by the community; 3. enjoy the trust of society; 4. feel a social mission well done; 5. building an image of a society-friendly administration*	

Conclusions

The most important conclusions and their implications for the preparation of CEAP are as follows:

1. Increased stakeholder engagement: successfully brought together an international, including entrepreneurs, scientists, local government officials and community members. This diverse participation ensured a comprehensive collection of insights and perspectives necessary for the overall development of CEAP.

2. Innovative ideas and solutions: Participants proposed creative solutions such as shared transport for employees and circular exchange of resources such as computer equipment and furniture between companies. These suggestions highlight the potential for practical and lasting changes that could be incorporated into CEAP.

3. Policy recommendations and local engagement: Findings suggest that local policies should not only focus on environmental and economic aspects, but also strengthen social capital and trust through community-focused activities and engagements such as local circular events and educational programs.

4. Implications for CEAP implementation: The study findings suggest that CEAP should be flexible and adaptable,to improve strategies and actions. This approach will ensure that CEAPs remain relevant and effective in meeting changing community needs and achieving broader sustainability goals.

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ANNEX 8 - CpEAP Blueprint

Blueprint is a detailed plan or design that outlines the key elements, components, and steps necessary to achieve a specific goal or objective. In a broader sense, a blueprint serves as a roadmap or guide, providing a clear and systematic overview of how to accomplish a task or project. It typically includes specific objectives, strategies, and action steps, as well as timelines, resource requirements, and performance indicators for measuring progress.

The blueprint for a Circular Economy Action Plan typically includes **two general parts:**

- **a diagnostic part**
- **a planning part.**

The CpEAP blueprint, equipped with the **diagnostic component** tailored to the specific mission, as well as the baseline data that serves as a starting reference point, will help organize thoughts, identify priorities, and establish a framework for decision-making and action toward the development of local circularity.

The diagnostic part of the Circular Economy Action Plan is a critical first step in the process by providing a comprehensive understanding of the current state of the targeted areas and creating the foundation for informed decision-making and targeted interventions (missions).

Diagnosis provides baseline data and metrics that serve as a reference point for monitoring progress and evaluating the impact of circular economy initiatives over time. This allows stakeholders to track improvements in resource efficiency, waste reduction, and other key performance indicators.

The **planning part** of CEAP includes the following components:

1. Policy Framework: Establishes a comprehensive policy framework that outlines the goals, targets, and strategies for transitioning to a circular economy. This framework may include legislation, regulations, and incentives to encourage local administration, businesses and consumers to adopt circular practices.

2. Resource Management: Implements strategies to optimize resource use, minimize waste generation, and promote 6R paradigm. This may involve setting targets for resource efficiency, developing waste management infrastructure, and supporting research and innovation in recycling technologies.

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3. Product Design (eco-design) and Innovation: Encourages product eco-design that prioritizes durability, reparability, and recyclability. This may include incentivizing eco-design practices, promoting the use of sustainable materials, and fostering collaboration between designers, manufacturers, recyclers and end-users.

4. Value Chain: Streamlines value as well as supply chains to reduce resource consumption, energy use, and emissions. This may involve promoting circular business models such as product-as-a-service, encouraging collaboration between businesses to share resources and reduce waste, and integrating circular principles into procurement practices.

5. Consumer Engagement: Educates and engages consumers to make informed choices and adopt more sustainable consumption habits. This may involve raising awareness about the benefits of the circular economy, providing information on sustainable products and services, and empowering consumers to participate in circular initiatives such as repair cafes and clothing swaps.

6. Investment and Funding: Mobilizes investment and fundes to support the transition to a circular economy. This may include providing financial incentives for circular businesses, offering grants and loans for circular projects, and creating investment funds dedicated to circular innovation and infrastructure.

7. Monitoring and Evaluation: Establishes mechanisms to monitor progress towards circular economy goals and evaluate the effectiveness of policy interventions. This may involve tracking key performance indicators such as resource efficiency, waste generation, and recycling rates, and conducting regular reviews to identify areas for improvement.

The following blueprint for the CpEAP development can serve as a strategic roadmap for the individual entities, e.g. companies, NGOs, R&D.

Pro-Akademia (frontsh1p project partner), utilized this blueprint to develop its own CircuPuncture Economy Action Plan (CpEAP). The data used to create the CpEAP and depicted below accurately reflects the current situation at Research and Innovation Centre Pro-Akadmemia and embodies the commitment made by the RIC Management Board to integrate CpEAP into daily operations.

> ***You can complete for your institution Table 1*** *Blueprint of the CircuPunture Economy Action Plan (CpEAP), based on the CircuPunture Model*
> ***and also see a ready-made example prepared by a Pro Akademia*** *Table 2 Circular Economy Missions and Challenges at RIC.*

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Table 1 Blueprint of the CircuPunture Economy Action Plan (CpEAP), based on the CircuPunture Model.

<table>
<tr><td colspan="3">Implementaor of CpEAP: .....
Date of the Version 0 Preparation: .....
Date of the collaborative discussion phase within the endusers/ team of an implementator: .....
Date of the Management Board Approvement to implementation: .....</td></tr>
<tr><td colspan="3">Mission 1: Define missions
Missions in the CircuPuncture Model reflect circular activities for the of a specific type of waste, for example the management of used wooden packaging, organic waste, sewage, plastic or textiles, paper, metals, etc.</td></tr>
<tr><td rowspan="6">Mission 1:.....</td><td colspan="2">Challenge 1.1.: Legal framework
During each mission's implementation, i.e. while developing local circularity around selected types of waste, encounter several challenges. These challenges are diverse and multifaceted, encompassing a spectrum of complexities. They include navigating legal and regulatory frameworks, overcoming technological obstacles, fostering social acceptance of sustainable practices over the entrenched habits of linear models, and addressing investment and infrastructure needs. Circular challenges are identified in response to the needs and specific locations.
Proposal to divide the challenges into 4 areas:
1. Legal Framework: Establishes a robust legal framework to navigate complex regulatory landscapes of Territorial Circular Cluster and enabling CpEAP implementation and ensuring compliance with higher-level regulations;
2. Innovation, Product Design, and Value Chain: Fosters innovation, optimizing product design addressing 6R paradigm, and enhancing value chains to drive competitiveness and quadruple helix symbiosis;
3. Infrastructure, Investments, Entrepreneurship: Strengthens infrastructure, attracting investments, and cultivating entrepreneurship for sustainable growth and circularity development;
4. Social Inclusion, Awareness, and Knowledge: Promotes social inclusion, raising awareness, and fostering knowledge sharing for circular development.</td></tr>
<tr><td colspan="2">The diagnosis involves assessing current economic, technological, infrastructure, social and environmental practices in industry sector or specific entity to identify areas where linear, wasteful processes dominate. This includes analysis of resource use, waste generation, and inefficiencies in production and consumption patterns.
Analyze the current status according to the points below:
1.1. Assessment of the current landscape in terms of the challenge:
1.1.1. Type of specific waste available/ present within the activity: .....
1.1.2. Annual volume of the specific waste:.....
1.2. Internal rules and regulations: .....</td></tr>
<tr><td>Baseline data / a reference start point for monitoring progress</td><td>define baseline data that serves as a reference point, helps organize thoughts, identify priorities and establish a framework for decision-making and actions to develop local circularity
.....</td></tr>
<tr><td>Implementation Alliance</td><td>assign responsibility for meeting challenges, establish partnerships for shared commitment,.....</td></tr>
<tr><td>Timeframe</td><td>define realistic time frames.....</td></tr>
<tr><td>Source of funding</td><td>determine the source of financing.....</td></tr>
<tr><td>Expected progress compared to reference</td><td>define progress.....</td></tr>
</table>

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	start point	
	Indicator	*define indicators of progress or success*.....
	Challenge 1.2: Innovation, Product Design, and Value Chain	
	Assessment of the current landscape in terms of the challenge:	
	Baseline data / a reference start point for monitoring progress	
	Implementation Alliance	
	Timeframe	
	Source of funding	
	Expected progress compared to reference start point	
	Indicator	
	Challenge 1. 3. Infrastructure, Investments, Entrepreneurship	
	Assessment of the current landscape in terms of the challenge:	
	Baseline data / a reference start point for monitoring progress	
	Implementation Alliance	
	Timeframe	
	Source of funding	
	Indicator	
	Challenge 1. 4: Social Inclusion, Awareness, and Knowledge	
	Assessment of the current landscape in terms of the challenge:	
	Baseline data / a reference start point for monitoring progress	
	Implementation Alliance	
	Timeframe	
	Source of funding	
	Expected progress compared to reference start point	
	Indicator	
Mission n:.....	**Challenge n.1,2,3,4**	
	Assessment of the current landscape in terms of the challenge:	
	Baseline data / a reference start point for monitoring progress	
	Implementation Alliance	
	Timeframe:	

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	Source of funding:	
	Expected progress compared to reference start point	
	Indicator	
Mission n+1	**Challenge n+1.1,2,3,4**	
	Assessment of the current landscape in terms of the challenge:	
	Baseline data / a reference start point for monitoring progress	
	Implementation Alliance	
	Timeframe	
	Source of funding	
	Expected progress compared to reference start point	
	Indicator	

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CpEAP of Research and Innovation Centre Pro-Akademia – an example of exploitation the CpEAP Blueprint, developed within the Frontsh1p project

Table 2 Circular Economy Missions and Challenges at RIC.

CpEAP Implementator: The Management Board of Research and Innovation Centre Pro-Akademia **Date of the Version 0 Preparation:** 30.04.2024 **Date of the collaborative discussion phase within the RIC team:** 30.05. – 30.06.2024 **Date of the Management Board Approvement: .....**		
Mission 1: Circular Approach to Wooden Packaging Waste		
Mission 1: Circular Approach to Wooden packaging	**Challenge 1.1.: Legal framework**	
	1.1. Assessment of the current landscape in terms of the challenge Wood packaging waste management at RIC is carried out in accordance with the regulations regarding all groups of waste, specified primarily in the Act of December 14, 2012 on waste (Journal of Laws of 2020, item 2286, as amended). In addition, RIC complies with the recommendations of the Regulation of the Minister of Climate of December 19, 2021 on the annual levels of recycling of packaging waste in particular years until 2030. This Regulation sets out detailed rules for dealing with wooden packaging waste and pallets, including their segregation, collection, transport, processing and disposal. Wooden pallets or wooden boxes are treated generally as wood waste. Wooden waste management is carried out in accordance with the waste collection/disposal contract concluded with the Remondis waste management company, which is carried out on an ongoing basis in accordance with the schedule established in the terms of the contract. Wooden packaging is classified as mixed waste and is collected twice a month in RIC. Wooden pallets must be placed in a container. If their size exceeds the dimensions of the container, then the pallets are broken down into smaller elements. **1.1.1. Type of wooden packaging available/ present within the activity:** wooden pallets, wooden boxes **1.1.2. Annual volume of the wooden packaging**: 30 pallets per year **1.2. Internal rules and regulations:** none	
	Baseline data / a reference start point for monitoring progress	None internal rules in terms of management of wooden packaging
	Implementation Alliance	Director of Infrastructure and Coordinators of the R&D Project
	Timeframe	6 months, by the end of 2024
	Source of funding	RIC's own funds
	Expected progress	Internal, specific regulation in terms of management of wooden

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	compared to reference start point	packaging, disccused with the RIC's team and implemented by the Management Board into the practice
	Indicator	**1** internal rule in terms of management of wooden packaging
	Challenge 1.2: Innovation, Product Design, and Value Chain	
	Assessment of the current landscape in terms of the challenge: There are currently no activities related to innovation, product design and value chain in relation to wooden packaging, like pallets or wooden boxes	
	Baseline data / a reference start point for monitoring progress	None
	Implementation Alliance	Director of Infrastructure, Assistant of the Board, K-Flex in the future
	Timeframe	6 months, by the end of 2024
	Source of funding	RIC's own funds
	Expected progress compared to reference start point	1. **Innovations** in relation to wood packaging are out of the scope of the R&D activities carried out by RIC 2. In terms of the **Eco-design**, the Assistant of the Board will organize 1 workshop/ brainstorming session with cross-functional teams to ideate and prototype new usage of the wooden packaging, e.g. parts/ elements of the new laboratory stands. Applying design thinking principles, during the workshop we will be able to generate creative ideas that address specific RIC's needs. 2. In terms of a new **Value chain** creation: Organizing the management of wooden pallets and their transfer chain to the Circular Territorial Cluster partner e.g. K-Flex, to improve circular efficiency, reduce costs and increase overall value. Planning transportation logistics and customer relations using RCBT to ensure ongoing transfer of wood packaging materials, while minimizing waste at RIC.
	Indicator	In terms of new **eco-design** solution: **3** new usage solutions will be created; In terms of **value chain**: **1** new value chain will be established
	Challenge 1. 3. Infrastructure, Investments, Entrepreneurship	
	Assessment of the current landscape in terms of the challenge: The **Infrastructure** for managing wooden packaging is limited to dedication of a special place for storing wooden packaging after laboratory equipment has been removed from them. From this place, the pallets are collected and removed by waste management companies.	
	Baseline data / a reference start point	There are no **Investment** nor **Enterpreneourial** activities **Cost of utilization: PLN 111 annually**

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	for monitoring progress	
	Implementation Alliance	Director of Infrastructure, K-Flex in the future
	Timeframe	6 months, till the end of 2024
	Source of funding	RIC's own funds
	Expected progress compared to reference start point	Taking entrepreneurial steps towards use wooden packaging for the purposes of developing circularity within CTC.
	Indicator	In terms of **circular economy development within the CTC**, **1** entrepreneurial step will be undertaken **Cost indicator:** Income or Saving thanks to the entrepreneurial step - baseline cost of utilization
	Challenge 1. 4: Social Inclusion, Awareness, and Knowledge	
	Assessment of the current landscape in terms of the challenge: Currently, the level of social inclusion, awareness and knowledge regarding the potential for circularity based on wooden packaging development is average or rather low in the RIC team. The RIC's team shows no interest in the circular use of wooden packaging.	
	Baseline data / a reference start point for monitoring progress:	Avarage level of **Social Inclusion**, **Awareness**, and **Knowledge**
	Implementation Alliance:	Assistant of the Board, Director of Infrastructure, ICT Specialist
	Timeframe:	6 months, by the end of 2024
	Source of funding:	RIC's own funds
	Expected progress compared to reference start point	Increasing social inclusion, awareness and knowledge thanks to workshops, dedicated to a circular approach towards wooden packaging and eco-design. Increasing the competences of the Infrastructure team in the use of CBT in the management of wooden packaging waste.
	Indicator	**30 members of the RIC team** will participate in the workshops, which will increase their awareness and knowledge. **3 infrastructure specialists** will acquire competences in the use of RCBT.
Mission 2: Circular Approach to Organic Waste		
Mission 2: Circular	**Challenge 2.1: Legal framework**	
	2.1. Assessment of the current landscape in terms of the challeng In Poland, the management of organic waste is governed by several legal rules and regulations that align with European Union directives. The primary legislative framework includes:	

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	-Act on Waste (Ustawa o odpadach); -Act on Maintaining Cleanliness and Order in Municipalities (Ustawa o utrzymaniu czystości i porządku w gminach); -National Waste Management Plan (Krajowy Plan Gospodarki Odpadami); -Regulation on Waste Classification (Rozporządzenie w sprawie katalogu odpadów); -Regulation on Detailed Requirements for the Collection of Selected Waste Fractions (Rozporządzenie w sprawie szczegółowych wymagań dla zbierania wybranych frakcji odpadów); -Regulation on Landfilling of Waste (Rozporządzenie w sprawie składowania odpadów). Poland adheres to several EU directives related to waste management, such as the Waste Framework Directive (2008/98/EC). Organic waste management at RIC is carried out in accordance with the regulations regarding organic waste, specified primarily in the Act of December 14, 2012 on waste (Journal of Laws of 2020, item 2286, as amended). According to this act, organic waste is biodegradable waste that is biodegradable or fermentable under the influence of microorganisms. Moreover, RIC's organic waste management is consistent with the Regulation of the Minister of Climate of July 20, 2020, on methods of handling waste (Journal of Laws of 2020, item 1285) contains provisions regarding the selective collection of waste, including organic waste. **2.1.1. Type of organic waste available/ present within the activity:** Currently, RIC manages three main streams of organic waste: 1. biowaste from employee canteens, 2. green waste from the garden, 3. organic/ hazardous waste from R&D activities. R&D-origin organic waste are produced mainly by: **A) the Fermentation Lab**, e.g. in the R&D process of brewery production, produces brewing hammer, riverside sediments with hops and yeast biomass **B) the Natural Products Lab**, e.g. in the R&D processes about Hydroponic cultivation using expanded clay aggregate. **C) the Biomass Valorisation Lab**, e.g. Innovative plasma electrolysis for efficient hydrogen production. **2.1.2. Annual volume of organic waste**: From the Fermentation Lab: **500 kg of brewing hammer**, **mineral wool with plants from hydroponic cabins.** **2.2. Internal rules and regulation** RIC has signed two contracts regarding the collection/disposal of organic waste of canteen- and R&D-origins, collected selectively in brown and special containers. The first contract concluded with the Remondis waste management company, concerns bio-waste of the brown containers, collected in employees' canteens. The second contract concluded with the Malex hazardous wast management company, concerns the collection and disposal of hazardous waste, i.e. organic waste generated in laboratories. The contract with Remondis is implemented on an ongoing basis in accordance with the schedule established in the terms of the contract, i.e. collection of bio-waste from

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	employees' canteens takes place once a month. There is no set schedule for the management of organic waste from laboratories. The Malex company provides services upon request. For each performed organic waste disposal service from laboratories, in addition to an invoice, the Occupational Health and Safety (OHS) Inspector responsible for hazardous waste management prepars a Waste Transfer Card. The person, responsible for hazardous waste management and maintainig contacts with the Malex company is Ms. Katarzyna Wozniak, the OHS Inspector.	
	Baseline data / a reference start point for monitoring progress	None internal rules in terms of management of organic waste management
	Implementation Alliance	OHS Inspector, the Board and Heads of laboratories
	Timeframe	By the end of 2024
	Source of funding	RIC's own funds
	Expected progress compared to reference start point	- Preparation of the complex internal rules regarding segregation and disposal of organic waste, e.g. in terms of RIC's organic waste for feeding animals, the canteens food waste segregation etc.; - Implementation of procedure of composting the garden green waste and using it as fertilizer for plants in the RIC's backyards -Sharing information about organic waste/ by-products with local farmers on the platform /Frontsh1p RCBT/ -Discuss and implement the internal rules for canteen selective collection at the end of the day of the specific fraction of food waste, e.g. egg shells towards usage as fertilizer for the potted flowers and coffee grounds towards usage as fertilizer for plants in the RIC's garden
	Indicator	At least 3 internal rules in terms of management of organic waste
	Challenge 2.2: Innovation, Product Design, and Value Chain	
	Assessment of the current landscape in terms of the challenge: The key area of RIC's R&D and innovative activity is environmental engineering, especially the valorization of organic waste, as well as in technological areas as in the socio-economic subjects. However, it is a new approach to focus attention on the organic waste, produced within the RIC's general and R&D activities. **The Fermentation Lab:** Annually: 500 kg of brewing hammer, 40 kg of riverside sediments with hops, 20 kg of yeast biomass is produced. This organic waste can be converted into **innovative**, valuable products in circular research and development processes.	
	Baseline data / a reference start point for monitoring progress	There is no research, dedicated to organic waste, produced in the laboratories. There is no value chains based on e.g. canteen food waste.
	Implementation	**Fermentation Lab,** several Frontsh1p partners, R&D institutions

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	Alliance	like Lukasiewicz Network, EU industrial partners as well as companis and farmers in the CTC or outside Lodzkie Region.
	Timeframe	By the end of 2027
	Source of funding	EU grants, HE Programme 2022-2027, e.g. Innovative bio-based food/feed ingredients European Funds for Regional Development (EFRR) for Lodzkie Region, e.g. FELD.02.13 Gospodarka o obiegu zamkniętym
	Expected progress compared to reference start point	**Fermentation Lab**: Creation ideas of utilizing a brewing hammer and riverside sediments with hops and yeast biomass, leading to interesting avenues for research and development (R&D) in several fields.
	Indicator	**Fermentation Lab**: At least **1 new innovative concept** for an R&D project leading to the management of brewery waste, e.g. to obtain plant protein from yeast or to develop high-protein animal feed. Creation at least **1 new eco-designed product** based on the brewery waste. Establisment of **1 new value chain** with academia, farmers and business partners in terms of collaboration.
	Challenge 2.3: Infrastructure, Investments, Entrepreneurship	
	Assessment of the current landscape in terms of the challenge Currently, the Fermentation Laboratory is equipped with basic research infrastructure dedicated to the development of new recipes for fermented drinks, espacially non-alcoholic beer, but to conduct research on the valorization of brewing waste the following equipment will be needed: ball mill, Soxhlet Extractor, High-Pressure Homogenizer, Enzymatic Reactor, Mineralizer (Buchi K-439), Scrubber (Buchi K-415), Distillation apparatus (Buchi Distillation Unit K-355), Titrator for titration (Titronic 300). etc. Hence, investing in the adaptation of the Fermentation Lab's facilities and the potential purchase of new equipment will be planned as part of grant projects.	
	Baseline data / a reference start point for monitoring progress	1. Cost of utilization of Canteens' organic waste: PLN 60 per month 2. Cost of utilization of garden's organic waste: gardening company – PLN 100 per month 3. Lab's organic waste: lab organic waste for waste from fermentation lab – **0** 4. Fermentation Lab **infrastructure** specific to plant protein extraction from brewery waste as well as to develop high-protein animal feed: **0** 5. The **entrepreneurial** activities directed towards selling waste as animal feed are currently insufficient: **0**.
	Implementation Alliance	Head of The Fermentaion Lab, Director of Infrastructuer, the RIC's Board
	Timeframe	2 years, by the end of 2027
	Source of funding	EU grants, HE Programme 2022-2027, e.g. Innovative bio-based food/feed ingredients; HORIZON-JU-CBE-2024-RIA-05

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		European Funds for Regional Development (EFRR) for Lodzkie Region, e.g. FELD.02.13 Gospodarka o obiegu zamkniętym
	Expected progress compared to reference start point	The research infrastructure will be expanded towards valorisation of the brewery waste by the **EU grants investment**. **Entrepreneurial activities** towards contacts farmers who will use the brewery waste as animal feed.
	Indicator	At least **1 proposal** for new R&D project for circular management of brewery hammer (młóto browarnicze) and riverside sediments with hops and yeast biomass Establishment **cooperation links with at least 1 farmer** who will use waste from the laboratory as animal feed.
	Challenge 2.4: Social Inclusion, Awareness, and Knowledge	
	Assessment of the current landscape in terms of the challenge: The Research and Innovation Centre Pro-Akademia (RIC) has established itself as a leader in the field of organic waste management, demonstrating a level of social inclusion, awareness, and knowledge that exceeds the national average in Poland. The RIC collaborates with academia, businesses, and governmental bodies to develop and promote inclusive practices and engage diverse groups in waste management projects, e.g. REUSE2023, NiCE, SmartFood. We organize a monthly vegetarian breakfast for disusinig the concepts of new projects and the EU landscape of the green deleopmet of Europe and Poland.	
	Baseline data / a reference start point for monitoring progress	High level of **Social Inclusion**, **Awareness**, and **Knowledge**
	Implementation Alliance	Assistant of the Board, Director of Infrastructure, ICT Specialist
	Timeframe	6 months, till the end of 2024
	Source of funding:	RIC's own funds
	Expected progress compared to reference start point	Increasing social inclusion, awareness and knowledge thanks to workshops, dedicated to a circular approach towards RIC's organic waste management and eco-design. Creating the habits of reusing kitchen waste, e.g. coffee and tea grounds or vegetable peelings etc. Donating food to cooperative refrigerators. Encourage the Head and scientists of Fermentation lab towards new concepts of the circular projects Increasing the competences of the Infrastructure team in the use of RCBT in the management of the organic waste Suitable for Animal Feed.
	Indicator	**30 members of the RIC team** will participate in the workshops, which will increase their awareness and knowledge, e.g. avoiding buying excessive amounts of food that may get thrown away

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		5 members of Fermentation Lab will start research on the plant protein extraction from the brewery hammer etc. **3 infrastructure specialists** will acquire competences in the use of RCBT
Mission 3: Circular Approach to Wastewater		
Mission 3: Circular Approach to Organic Wastewater	**Challenge 3.1: Legal framework**	
	3.1. Assessment of the current landscape in terms of the challenge: Poland's legal framework for wastewater management is comprehensive, encompassing various national and European Union (EU) regulations designed to ensure the protection of water resources and the environment. The primary legislative framework includes: <u>European Union Directives</u> -Water Framework Directive (2000/60/EC) -Urban Waste Water Treatment Directive (91/271/EEC) <u>National Legislation</u> - Water Law (Prawo wodne) - Environmental Protection Law (Prawo ochrony środowiska) - Act on Collective Water Supply and Collective Sewage Disposal (Ustawa o zbiorowym zaopatrzeniu w wodę i zbiorowym odprowadzaniu ścieków) - National standards that provide detailed technical guidelines and specifications for wastewater treatment processes and equipment. **3.1.1. Type of wastewater available/ present within the activity:** Currently, RIC manages two main streams of wastewater: wastewater of the RIC general activities (communal wastewater) and hazardous wastewater from R&D activities. **3.1.2. Annual volume of wastewater:** From general activities (communal wastewater): 276 cubic meters" **From the research activities:** **A)** from the **Fermentation lab**: **10,000 liters of sewage** **B)** from the **Natural Products lab**: **10.800 liters of plant food** **C)** from the **Waste and Biomass Valorization lab**: **4.800 liters of watercourses with high salinity containing 2.000 of crude oil or its equivalent.** **3.2. Internal rules and regulations**: Agreement with Przedsiębiorstwo Komunalne Gminy Konstantynów Łódzki Sp. z o.o.	
	Baseline data / a reference start point for monitoring progress	There is no internal rules in management of the communal wastewater terms in e.g. collecting wastewater from sources such as sinks, hand basins and showers, and reusing it as greywater or collecting rain water and wastewater from the roofs for watering the RIC's garden
	Implementation Alliance	Director of Infrastructure and the Board
	Timeframe	By the end of 2024

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	Source of funding	RIC's own funds
	Expected progress compared to reference start point	Introduction of internal, specific regulations regarding the wastewater management, discussed with the RIC team and implemented by the Management Board into practice. The regulations will include both general rules and specific procedures in terms of the communal wastewater and rainwater.
	Indicator	At least 2 internal rules in terms of management of communal wastewater and rainwater
	Challenge 3.2: Innovation, Product Design, and Value Chain	
	Assessment of the current landscape in terms of the challenge: The key area of RIC's R&D and innovative activity is environmental engineering, especially the valorization of the organic waste and wastewater, as well as in technological areas as in the socio-economic subjects. However, it is a new approach to focus attention on the wastewater, produced within the RIC's general and R&D activities.	
	Baseline data / a reference start point for monitoring progress	There is no research, dedicated to wastewater, produced in the laboratories, nor procedures in terms of the communal wastewater and rainwater.
	Implementation Alliance	Head of the Waste and Biomass Valorization Lab, Director of Infrastructure, the RIC's Board, several Frontsh1p partners, R&D institutions like Lukasiewicz Network, EU industrial partners as well as companies like wastewater treatment plants in the CTC or outside Lodzkie Region.
	Timeframe	By the end of 2027
	Source of funding	RIC's own funds for the internal water saving solutions. HE Programme 2022-2027, e.g. Overcoming barriers and delivering innovative solutions to enable the green transition European Funds for Regional Development (EFRR) for Lodzkie Region, e.g. FELD.09.01. Gospodarka odpadami i wodno-ściekowa
	Expected progress compared to reference start point	Introducing innovative methods for processing of the RIC's communal wastewater and rainwater, incorporating low-cost solutions for getting the e.g. water for watering the RIC's garden. **Waste and Biomass Valorization Lab**: Creation ideas of utilizing wastewater of crude-oil processing or wastewater of food processing industry, leading to interesting avenues for innovation in several R&D projects.
	Indicator	**Wast Valorization Lab**: At least **1 new innovative concept** for an R&D project leading to the management of crud-oil refnery wastwater, e.g. to obtain pure water and H2. Creation at least **1 new eco-designed product** based on the crude-oil refinery wastewater. Establisment of **1 new value chain** with academia and business

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		partners in terms of R&D collaboration.
	Challenge 3.3: Infrastructure, Investments, Entrepreneurship	
	Assessment of the current landscape in terms of the challenge: There is currently no infrastructure in place for collecting rainwater. On the other side, the Waste and Biomass Valorization lab is well-equipped with advanced research infrastructure dedicated to the development of R&D projects focused on various types of organic wastewater valorization. In addition to this, our lab boasts specialized equipment for cutting-edge research in plasma hydrolysis or wastewater purification.	
	Baseline data / a reference start point for monitoring progress	There is currently no infrastructure in place for collecting rainwater.
	Implementation Alliance	Director of Infrastructure and the Board
	Timeframe	By the end of 2024
	Source of funding	RIC's own funds for the rainwater collecting solutions.
	Expected progress compared to reference start point	Implementation of the low-cost solution for rainwater collection. At least **1 proposal** for new R&D project for circular management of several types of wastewater.
	Indicator	1 new low-cost rainwater collection solution introduced and implemented in RIC. Establishing scientific cooperation with at least three partners and technology companies or startups to jointly develop and implement innovative solutions in organic wastewater management by the end of 2027.
	Challenge 3.4: Social Inclusion, Awareness, and Knowledge	
	Assessment of the current landscape in terms of the challenge: The Research and Innovation Centre Pro-Akademia (RIC) has established itself as a leader in the field of organic wasteater management, demonstrating a level of social inclusion, awareness, and knowledge that exceeds the national average in Poland. The RIC collaborates with academia, businesses, and governmental bodies to develop and promote inclusive practices and engage diverse groups in wastewater management projects, e.g. WASTE4H2, SUPERVALUE, CoCOATEX.	
	Baseline data / a reference start point for monitoring progress	High level of **Social Inclusion**, **Awareness**, and **Knowledge**
	Implementation Alliance	Assistant of the Board, Director of Infrastructure, Head of Waste Valorization Lab
	Timeframe	6 months, by the end of 2024
	Source of funding	RIC's own funds
	Expected progress	Increasing social inclusion, awareness and knowledge thanks to

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	compared to reference start point	workshops, dedicated to savings water solutions and to circular approach towards RIC's organic wastewater management and eco-design. Creating the habits of water savings. Encourage the Head and scientists of West Valorization Lab towards new concepts of the circular projects, dedicated to wastewater from our R&D activities
	Indicator	**30 members of the RIC team** will participate in the workshops, which will increase their awareness and knowledge on water savings.
Mission 4: Circular Approach to Plastic Waste		
Mission 4: Circular Approach to Plastic Waste	**Challenge 4.1: Legal framework**	
	4.1. Assessment of the current landscape in terms of the challenge Plastic waste management is carried out in accordance with the waste collection/disposal contract concluded with the Remondis waste management company, which is carried out on an ongoing basis in accordance with the schedule established in the terms of the contract. Plasic with rubber and metal waste is collected one a month in RIC. Rubber, plastic and metat must be placed together in a container. If their size exceeds the dimensions of the container, then the pallets are broken down into smaller elements. **4.1.1. Type of plastic waste available/ present within the activity** Currently, RIC manages mixed plastic and metal waste, which is placed in the yellow container in accordance with the principles of selective collection. **4.1.2. Annual volume of plastic waste**: unknown, approximately: **12.000 liters** **4.2. Legal rules in terms of management of plastic waste** Plastic waste is collected selectively and goes to yellow containers for metals and plastics. Plastic waste management is carried out by RIC under an agreement with the Remondis waste management company for the plastic waste collection/disposal. Selected waste (plastic + metal) is collected once a month. **4.3. Internal rules and regulations:** None	
	Baseline data / a reference start point for monitoring progress	None internal ruls in terms of management of plastic waste
	Implementation Alliance	Director of Infrastructure
	Timeframe	6 months, by the end of 2024
	Source of funding	RIC's own funds
	Expected progress compared to reference start point	Internal, specific regulations in terms of management of plastic waste, including plastic bottles packaging, disccused with the RIC's team and implemented by the Management Board into the practice
	Indicator	**1** internal rule in terms of management of plastic waste

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	Challenge 4.2: Innovation, Product Design, and Value Chain	
	1. Assessment of the current landscape in terms of the challenge: There are currently no activities related to innovation, product design and value chain in relation to plastic waste	
	Baseline data / a reference start point for monitoring progress	None
	Implementation Alliance:	Director of Infrastructure, Assistant of the Board, K-Flex in the future
	Timeframe	6 months, till the end of 2024
	Source of funding	RIC's own funds
	Expected progress compared to reference start point	1. **Innovations** in relation to plastic material are out of the scope of the R&D activities carried out by RIC 2. In terms of the **Eco-desing**, the Assistant of the Board will organizing 1 workshop/ brainstorming sessions with cross-functional teams to ideate and prototype new usage of the plastic waste, e.g. parts/ elements of the new laboratory stands. Applying design thinking principles, during the workshop we will be able to generate creative ideas that address specific RIC's needs. 2. In terms of a new **Value chain** creation: Organizing the management of specific type of plastic and their transfer chain to the Circular Territorial Cluster partner e.g. K-Flex, to improve circular efficiency, reduce costs and increase overall value. Planning transportation logistics and customer relations using RCBT to ensure ongoing transfer of specific plastic material, while minimizing waste at RIC.
	Indicator	In terms of new **eco-design** solution: **3** new usage solutions will be created; In terms of **value chain**: **1** new value chain will be established
	Challenge 4.3. Infrastructure, Investments, Entrepreneurship	
	Assessment of the current landscape in terms of the challenge: The **Infrastructure** for managing plastic waste is limited to dedication of a special containers for selective collection of mixed plastic and metal waste. We have got small containers for plastic in the laboratories, cateens and in the offices as well as the big, 200 l containre outside the RIC's buildings. From this outdoor containers, the plastic and metal waste is collected and removed by waste management companies. The infrastructure is therefore limited to a specific location and yellow containers for collecting plastics and metal.	
	Baseline data / a reference start point for monitoring	There are no **Investment** nor **Enterpreneourial** activieties

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	progress	
	Implementation Alliance	Director of Infrastructure, K-Flex in the future
	Timeframe	6 months, till the end of 2024
	Source of funding	RIC's own funds
	Expected progress compared to reference start point	Taking entrepreneurial steps towards use plastic material for the purposes of developing circularity within CTC.
	Indicator	In terms of **circular economy development within the CTC**, **1** entrepreneurial step will be undertaken
	Challenge 4.4: Social Inclusion, Awareness, and Knowledge	
	Assessment of the current landscape in terms of the challenge: Currently, the level of social inclusion, awareness and knowledge regarding the potential for circularity based on the recycling of plastic waste demonstrated by RIC team is high. The RIC's team shows the extraordinary interest in the banining plastic one-use accessories like shopping bags, plastic cups or spoons, prefering useage glass food containers instead of the plastic ones, etc.	
	Baseline data / a reference start point for monitoring progress	Avarage level of **Social Inclusion**, but a very high level of **Awareness**, and **Knowledge**
	Implementation Alliance	Assistant of the Board, Director of Infrastructure, ICT Specialist
	Timeframe	6 months, till the end of 2024
	Source of funding	RIC's own funds
	Expected progress compared to reference start point	Increasing social inclusion, awareness and knowledge thanks to workshops, dedicated to a circular approach towards banning plastic in everyday life and eco-design. Increasing the competences of the Infrastructure team in the use of CBT in the management of plastic waste
	Indicator	**30 members of the RIC team** will participate in the workshops, which will increase their awareness and knowledge **3 infrastructure specialists** will acquire competences in the use of RCBT

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ANNEX 9 - Household circularity self-assessment (My circular household)

1. Methodological assumptions of the self-assessment tool construction

The purpose of the constructed self-assessment tool, i.e. the questionnaire entitled "My Circular Household", is to provide an opportunity to make a self-assessment of the level of circularity of one's own household by determining the place (position) it occupies on a hypothetical scale of circularity (from 0 to 100%). In other words - how self-assessed a household is or is not circular. And secondly, in which of the three areas (distinguished according to the attitude concept discussed below), it can improve its performance. The questions in the questionnaire were constructed and standardized in such a way that they could be parameterized to produce a score that would determine the household's position on the operational circularity scale. The scale is proprietary and was contoured specifically for the use of this study.

The questions relate to the theory of attitudes (we can call an attitude a relatively constant tendency for a person to have a positive or negative attitude towards a given object/phenomenon), broken down into its three components:

(a) behavioral - referring to behaviors or their dispositions;

(b) cognitive - referring to beliefs (these are thoughts that a person believes and recognizes as true, are subconscious, strong and stable in nature, and are based on suppositions and interpretations), and the individual's knowledge regarding the object/phenomenon in question;

(c) emotional - feelings and emotions towards the object/phenomenon in question.

Each of the three aforementioned components was assigned corresponding questions that indicated the respective area.

The concept of the attitude clearly defines it as a specific mechanism regulating human behavior and conduct, so the completed questionnaire reveals the respondent's (and his household's) level of circularity, broken down into the above three areas. The sum of these components determines the attitude towards CE. The use of the tool makes it possible to obtain an answer to the question: how circular is the assessed household (by determining its position on a specially constructed circularity scale) and recommendations on what and in what areas can be improved to make this position higher.

The circularity self-assessment survey is important both for the resident himself and for other stakeholders in the change, e.g.: for local authorities (if the platform will allow to receive

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aggregated results of surveys of residents making self-assessments). From the resident's point of view, receiving feedback regarding the level of circularity of his own

household allows him to take a more comprehensive look at his attitude towards CE (as a representative of the household). The self-assessment questionnaire is constructed in such a way as to be able to provide results on three key areas - the components of attitude, that is, on the emotional, cognitive and behavioral spheres.

Breaking down the results into the three areas makes it possible to reveal possible inconsistencies, and to identify a specific sphere that needs possible improvement, or one that is well-built. Thus, for example: it is difficult to talk about generating a specific behavior if emotions, knowledge and beliefs have not been sufficiently reinforced. From the point of view of other CE stakeholders, e.g.: local authorities, aggregate knowledge of residents' attitudes allows shaping collective actions to support particular spheres of attitudes, such as: expansion of CE infrastructure improving or inducing specific behaviors; educational activities; or providing positive incentives and emotions of residents on the subject of CE.

The questionnaire contains 21 questions (including six questions on the characteristics of the respondent). It is easy to use - the average time to complete the questionnaire is 13 minutes. The questionnaire is filled out by an adult, designated in the household as a representation of the household, who implicitly has knowledge of the policies, practices and activities of the entire household.

The questionnaire, as a tool of self-diagnosis, was subjected to a multi-stage piloting procedure, thanks to which its latest version is comprehensible, accessible, easy to use and has an adequate diagnostic value - it diagnoses certain components of attitudes well. The questionnaire was tested in four stages: the first testing took place among academics of the University of Lodz, the second - among purposively selected residents of Lodz, and the third - among employees of the Parzeczew Municipality. Meanwhile, the final phase of the pilot was conducted in the field, among the school community (parents and teachers), at Parzęczew Elementary School in January and February 2024. It resulted in the return of 61 completed questionnaires. The group for the pilot was selected in a purposive manner. The school environment was considered a potential source in disseminating and promoting attitudes in the local environment, in this case, pro-environmental attitudes and building awareness of CE.

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It is recommended that the self-assessment questionnaire be a publicly available tool.

2. Survey questionnaire

1. Do you think waste should be reused?
   - Yes
   - No
   - I don't have an opinion
2. Does your household segregate waste?
   - Yes
   - No
3. Indicate the reasons why you segregate waste in your household (indicate max 2 options
   - to pay less for their disposal
   - because I think that this is the right and sensible action
   - because thanks to this I take care of the environment
   - I do it automatically
4. Why is your household not segregated waste?
   - There is no space in the house to segregate waste and/or
   - there are no suitable containers
   - There is a shortage of suitable containers in the area
   - Household members do not believe that waste will be reused
   - Household members lack time for segregation
   - There is no information on how to segregate waste
   - Waste segregation is associated with additional costs
   - Lack of willingness on the part of the household members
   - Other
5. How often in your household are the appliances, things and equipment listed below repaired?

	Always	Very often	Often	Seldom	Very rare	Never	N/A (I don't have/don't use)
-audiovisual equipment and computer							
-Phones							
- small household appliances							
- large household appliances							
- furniture and equipment							

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-footwear							
-clothing							
- equipment for recreation							
- children's toys and equipment							

6. How often do you buy or source the following second-hand items free of charge in your household?

	Always	Very often	Often	Seldom	Very rare	Never	N/A (I don't have/don't use)
-audiovisual equipment and computer							
-Phones							
- small household appliances							
- large household appliances							
- furniture and equipment							
-footwear							
-clothing							
- equipment for recreation							
- children's toys and equipment							
-Book							
- records, colour press							

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7. How often (estimated) is food thrown away in your household?

   Daily

   - 3-4 times a week
   - 1-2 times a week
   - 2-3 times a month
   - less
   - we do not throw away food

8. What actions are you taking to reduce food waste? *Select all the answers that apply to you*

   - waste composting
   - animal feeding
   - giving to others, e.g. family, neighbors
   - donation to special points, e.g. community fridge
   - other

9. Why is food thrown away in your household?

   - Improper food storage
   - Buying too much food
   - Overlooking the expiration date of a product
   - The food I bought does not taste good
   - Food spoilage
   - Lack of ideas for food use
   - Other reasons

10. Please specify the frequency of occurrence of the following situations in your daily life:

	Always	Very often	Often	Seldom	Very rare	Never	Not applicable
Taking a reusable bag with you							
resignation from disposable plastic packaging in the store, e.g. bottles, bags							
paying attention to whether the products you buy have biodegradable packaging							
saving, in everyday life, water, gas, electricity							

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paying attention to whether the equipment you buy is energy-efficient							
choosing ecological means of transport (e.g. bicycle) or going on foot instead of a car							
Choosing public transport instead of a car							
shared use of less frequently used equipment so as not to buy them							
Use of equipment rental							
conscious resignation from buying things you can do without							

11. Does your household:

	Yes	No	Not applicable
compost waste			
drink tap water/ filtered water			
use of community fridges			
donate unused clothes and equipment to various institutions, e.g. parish, orphanage			
use the public library			
have a photovoltaic installation			
use applications, e.g. OLX, Vinted			
buy on-line			
buy at "flea markets", flea markets			
collect rainwater			
reuse waste wood			
take part in ecological campaigns			

12. To what extent do you agree with the following statements?

	Definitely yes	Rather yes	Rather not	Definitely not
I feel discomfort when I mix different types of waste				

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I really don't like wasting food				
I'm angry when I can't fix something and I have to throw it away				
I feel bad when I buy too many things that I don't really need.				
I worry when I think about environmental degradation.				
I like it when old things get a new life (e.g. through other uses, giving them to someone, selling)				
It's a problem for me to wear second-hand clothes				
I feel satisfaction when I save water, gas, energy (even if I don't pay for them)				
I would be happy if I could share a means of transport with someone (bike, car)				

COGNITIVE COMPONENT (beliefs + knowledge)

13. To what extent do you agree with the following statements?

	Definitely yes	Rather yes	Rather not	Definitely not
I have a real impact on environmental protection and the lives of future generations				
Living in harmony with the principles of ecology is much more expensive				
Buying second-hand clothes is embarrassing				
Repairing or otherwise using a given thing is better than buying a new one				
Segregating rubbish, for various reasons, makes sense				
Buying and owning many things is a sign of prosperity				
Saving water, energy and electricity has an impact on the future of our planet				

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Buying good quality products, clothes and equipment is good for the environment				
Paying attention to the packaging of the product you buy (e.g. whether it is biodegradable) is important				
Buying new things is cheaper than repairing used ones				

14. Are you familiar with the term circular economy?
    - Yes
    - No
15. Do you think it is true that one of the goals of the circular economy is to extend the life of a product?
    - Yes
    - No
    - I do not know
16. Sex:
    - Female
    - Male
    - Other
17. Age (in years)
    - 18-24
    - 25-29
    - 30-39
    - 40-49
    - 50-59
    - 60-69
    - 70 and more
18. How many people, including you, does your household have?
    - I live alone
    - 2
    - 3
    - 4
    - 5
    - 6 and more
19. The city where you live is:
    - village
    - city of up to 20 thousand residents

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- city of 20-50 thousand residents
- city of 50-100 thousand residents
- city of more than 100,000 residents

20. Enter the name of the town/village .....

21. Type of inhabited housing:
    - detached single-family house
    - single-family terraced house
    - tenement
    - residential block built before 1990
    - residential block built after 1990
    - other

3. Preliminary results of a pilot study

The pilot study conducted at Parzęczew Elementary School in 2024 resulted in the following information characterizing the surveyed sparsity:

- Almost all respondents are of the opinion that waste should be reused. ¾ of the respondents say they are familiar with the concept of the circular economy, and they also generally know that one of the goals of the circular economy is to extend the life of a product.
- Almost all respondents (59/61) segregate waste in their household. Those who do not do so point to the main reasons as lack of space at home for proper containers, lack of time for segregation and lack of willingness on the part of household members. On the other hand, among the reasons for segregating waste (as many as 77/95 indications), indications that it is the right and sensible thing to do and that by doing so one cares for the environment prevail. This is positive information, as intrinsic motivation is emphasized as a manifestation of the respondent's intrinsic action.
- About half (32/61) say they do not throw away food at all, 13/61 throw away food 2-3 times a month and less often, and 14/61 throw away food about 1-2 times a week. The reduction in food throwing is mainly related to composting waste and feeding animals, which is characteristic of rural areas. The main reasons for throwing away food are seen as overlooking expiration dates and food spoilage.
- Among environmentally friendly practices, three predominate: saving water, gas and electricity in daily life; taking a reusable bag for shopping; and paying attention to whether the equipment you buy is energy-efficient (but this can also come from saving money). Further down the line: consciously refraining from buying things you can do without. In the context of reducing consumption, this represents a good prognosis for the future.

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- Within the framework of resource-saving behaviors within the household, the following are mentioned most often: online shopping; use of applications such as vinted, olx; donation of clothes, equipment to various institutions, e.g.: DPS, parish, orphanage; drinking tap water/filtering water; and using the public library.

4. The key for calculating a household`s position on the scale

The questionnaire entitled "My Circular Household", is to provide an opportunity to make a self-assessment of the level of circularity of one's own household by determining the place (position) it occupies on a hypothetical scale of circularity (from 0 to 100%). In other words - how self-assessed a household is or is not circular.

The key for calculating a household's position on the attitude scale was developed separately for each of the three attitude components surveyed. In each of them, the surveyed household scored a certain number of points, which shows its positioning on a hypothetical circularity scale. The number of points obtained (converted into percentages) also makes it possible to determine how much remains to be done in order for the household to be described as fully circular (out of 100 on a scale of 0 to 100), and to what extent the household members (especially those people who fill out the survey, i.e. those who are responsible for household waste management and have influence over the conduct of others) are convinced of CE, internally motivated to implement CE principles, and have an adequate level of knowledge about CE.

THE QUESTIONNAIRE WITH SCORES ASSIGNED TO THE ANSWERS

1. Do you think waste should be reused? (0-10)

Yes	10
No	0
I don't have an opinion	0

2. Does your household segregate waste? (0-40)

Yes	40
No	0

3. Indicate the reasons why you segregate waste in your household (indicate max 2 options (0-40, max 2 answers count, if one answer is indicated, multiply it x2)

to pay less for their disposal	10
because I think that this is the right and sensible action	20

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because thanks to this I care about the environment	20
'Cause I do it automatically	20

4. Why is your household not segregated waste? (0-10)

There is no space in the house to segregate waste and/or there are no suitable containers	0
There is a shortage of suitable containers in the area	5
Household members do not believe that waste will be reused	0
Household members lack time to segregate	0
There is no information on how to segregate waste	5
Waste segregation is associated with additional costs	0
Lack of willingness on the part of the household members	0
Other	0

5. How often in your household are the appliances, things and equipment listed below repaired? (0-40 i.e. the sum of points divided by 9 or less if not applicable)

	Always	Very often	Often	Seldom	Very rare	Never	N/A (I don't have/don't use) (not considered)
-audiovisual equipment and computer	40	40	20	10	4	0	
-phones	40	40	20	10	4	0	
- small household appliances	40	40	20	10	4	0	
- large household appliances	40	40	20	10	4	0	
- furniture and equipment	40	40	20	10	4	0	
-footwear	40	40	20	10	4	0	

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-clothing	40	40	20	10	4	0	
- equipment for recreation	40	40	20	10	4	0	
- children's toys and equipment	40	40	20	10	4	0	

6. How often do you buy or source the following second-hand items free of charge in your household? (0-40, i.e. the total points divided by 11 or less if not applicable)

	Always	Very often	Often	Seldom	Very rare	Never	N/A (I don't have/don't use) (not considered)
-audiovisual equipment and computer	40	40	20	10	5	0	
-phones	40	40	20	10	5	0	
- small household appliances	40	40	20	10	5	0	
- large household appliances	40	40	20	10	5	0	
- furniture and equipment	40	40	20	10	5	0	
-footwear	40	40	20	10	5	0	
-clothing	40	40	20	10	5	0	
- equipment for recreation	40	40	20	10	5	0	
- children's toys and equipment	40	40	20	10	5	0	
- books	40	40	20	10	5	0	
- records, colour press	40	40	20	10	5	0	

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7. How often (estimated) is food thrown away in your household? (0-40)

Daily	0
3-4 times a week	0
1-2 times a week	5
2-3 times a month	10
Less often	20
We don't throw away food	40

8. What actions are you taking to reduce food waste? *Select all the answers that apply to you* (0-40 if more than 1 answer, divide by the number of answers)

Waste composting	40
Animal Feeding	20
giving to others, e.g. family, neighbors	40
Forwarding to special points, e.g. Social Fridge	40
other	is not taken into account

9. Why is food thrown away in your household? (it is not taken into account, I have educational power, serving the development of self-awareness)

Improper storage of food	0
Buying too much food	0
Overlooking product expiration date	0
Purchased food does not taste	0
Food spoilage	0
No idea how to use food	0
Other reasons	0

10. Please specify the frequency of occurrence of the following situations in your daily life: (0-100, total points, and for each answer. "not applicable" should be added by dividing the total score by the number of selected categories)

	Always	Very often	Often	Seldom	Very rare	Never	Not applicable (not taken into

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							account)
Taking a reusable bag with you	10	10	5	2	0	0	
resignation from disposable plastic packaging in the store, e.g. bottles, bags	10	10	5	2	0	0	
paying attention to whether the products you buy have biodegradable packaging	10	10	5	2	0	0	
saving, in everyday life, water, gas, electricity	10	10	5	2	0	0	
paying attention to whether the equipment you buy is energy-efficient	10	10	5	2	0	0	
choosing ecological means of transport (e.g. bicycle) or going on foot instead of a car	10	10	5	2	0	0	
Choosing public transport instead of a car	10	10	5	2	0	0	
shared use of less frequently used equipment so as not to buy them	10	10	5	2	0	0	
Use of equipment rental	10	10	5	2	0	0	
conscious resignation from buying things you can do without	10	10	5	2	0	0	

11. Does your household: (0-55, total points divided by 2, and for each answer. "not applicable" should be added by the average number of points obtained by dividing the obtained value by the number of selected categories))

	Yes	No	Not applicable (not taken into account)
compost waste	10	0	
drink tap water/ filtered water	10	0	
use of community fridges	10	0	

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donate unused clothes and equipment to various institutions, e.g. parish, orphanage	10	0	
use the public library	10	0	
have a photovoltaic installation	10	0	
use applications, e.g. OLX, Vinted	10	0	
buy on-line	0	0	
buy at "flea markets", flea markets	10	0	
collect rainwater	10	0	
reuse waste wood	10	0	
take part in ecological campaigns	10	0	

12. To what extent do you agree with the following statements? (0-90)

Finding	Definitely yes	Rather yes	Rather not	Definitely not
I feel discomfort when I mix different types of waste	10	8	2	0
I really don't like wasting food	10	8	2	0
I'm angry when I can't fix something and I have to throw it away	10	8	2	0
I feel bad when I buy too many things that I don't really need.	10	8	2	0
I worry when I think about environmental degradation.	10	8	2	0
I like it when old things get a new life (e.g. through other uses, giving them to someone, selling)	10	8	2	0
It's a problem for me to wear second-hand clothes	0	2	8	10
I feel satisfaction when I save water, gas, energy (even if I don't pay for them)	10	8	2	0
I would be happy if I could share a means of transport with someone (bike, car)	10	8	2	0

13. To what extent do you agree with the following statements? (0-100)

Finding	Definitely yes	Rather yes	Rather not	Definitely not

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I have a real impact on environmental protection and the lives of future generations	10	8	2	0
Living in harmony with the principles of ecology is much more expensive	2	4	8	10
Buying second-hand clothes is embarrassing	0	2	8	10
Repairing or otherwise using a given thing is better than buying a new one	10	8	2	0
Segregating rubbish, for various reasons, makes sense	10	8	2	0
Buying and owning many things is a sign of prosperity	0	2	8	10
Saving water, energy, and electricity has an impact on the future of our planet	10	8	2	0
Buying good quality products, clothes and equipment is good for the environment	10	8	2	0
Paying attention to the packaging of the product you buy (e.g. whether it is biodegradable) is important	10	8	2	0
Buying new things is cheaper than repairing used ones	0	2	8	10

14. Are you familiar with the term circular economy? (0-10)

    Yes 10

    No 0

15. Do you think it is true that one of the goals of the circular economy is to extend a product's life? (0-10)

    Yes 10

    No 0

    I don't know 0

5. Interpretation of points' calculation

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BEHAVIORAL COMPONENT

Question No.	2	4	5	6	7	8	10	11	Total
Maximum number of points	40	10	40	40	40	40	100	55	365

365 =100%

A score of more than 292 p, i.e., above 80%, shows that the household meets almost all of the most important CE goals in its daily habits and behaviors.

A score of 220 to 292, i.e. between 60-80%, shows that the household in its daily habits and behavior realizes very many of the most important CE goals, although some aspects can still be improved.

A score of 146 to 219 (between 40 and 60%) shows that the household's waste handling should be rethought and that it should take advantage of the many CE opportunities that already exist and should be implemented in its own household.

A score of less than 146, or less than 40%, is an alarming score that calls for reflection on CE and changes in household behavior and the necessary implementation of these in one's own household.

EMOTIONAL COMPONENT

Question No.	3	12	Total
Maximum number of points	40	90	130

130 =100%

A score above 104 p., i.e., above 80%, shows that household members have a very positive emotional attitude towards CE and the realization of its goals.

A score of 78 to 103, i.e. between 60-80%, shows a positive emotional attitude toward CE and the realization of its goals, but there are aspects in which it can still be strengthened.

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A score between 51 and 77 (between 40 and 60%) shows, the emotional attitude towards CE and the realization of its goals is not good and that it should be rethought and improved.

A score of less than 51 points, i.e. less than 40%, is a score that shows a rather negative attitude toward CE and requires reflection and making changes

COGNITIVE COMPONENT (beliefs + knowledge)

Question No.	1	13	14	15	Total
Maximum number of points	10	100	10	10	130

130 =100%

A score above 104 p., i.e., above 80%, shows that household members have adequate knowledge on CE and are convinced and motivated to act on CE in their own households

A score of 78 to 103, i.e. between 60-80%, shows adequate knowledge on CE and positive beliefs towards achieving its goals.

A score of 51 to 77 (between 40 and 60%) shows that the level of knowledge about CE and belief toward the implementation of its goals is at an average level and that it needs to be improved.

A score of less than 51, or less than 40%, shows definitely insufficient knowledge about CE and negative beliefs towards the realization of its goals, which should be definitely improved.

SYNTHETIC CIRCULARITY INDEX

Calculated in percentage terms as the sum of the percentages (not the number of points, since they are inconsequential) obtained by each household in each of the three attitude components analyzed, divided by three. Its interpretation refers to the interpretation of its three components presented above.

For example, a self-assessed household that obtains 75% each in the cognitive and emotional components, but only 50% in the behavioral component, resulting in a relatively good circularity index score of 66% (63 on a scale from 0 to 100). This should be interpreted as an inconsistent attitude, consisting of a relatively high level of knowledge and an appropriate attitude toward CE goals but weaker implementation in everyday life. This can be conditioned by internal factors, but also, for example, by the lack of adequate infrastructure that makes it difficult or impossible to

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properly implement CE goals. However, this is the aspect of attitudes (behavioral) that is by far the easiest to improve if accompanied by the right attitude and knowledge.

In another situation, on the other hand, with the low level of knowledge found in the majority of residents of the city/municipality/community, this can be a recommendation to their authorities indicating the need for educational measures.

The obtained results of the self-assessment are therefore valuable both for the residents (households) themselves, who receive feedback in the form of self-knowledge, showing which aspect in relation to the CE should be improved, and (in aggregated and anonymized form) for local authorities/land and/or housing resource managers. In this case, they indicate what corrective actions need to be implemented so that each household can achieve the goals of CE unhindered and become increasingly circular in each of the aspects studied.

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ANNEX 10 - LOCAL CURRENCY MODEL FOR THE PARZECZEW COMMUNE[3]

Local Currency Model in a Nutshell

The Local Currency Model is an initiative designed to support residents and promote circular economy participation. It consists of a Prototyping Process and a Final Currency Model. Initially, the goal is to present a flexible, adaptable framework for local contexts. The model integrates design thinking and urban labs to understand user needs and create a supportive ecosystem for developing local currencies. It includes currency circulation, supporting technology, rewarded behaviours, rewards, and involved entities.

Key roles in the system include Innovator and Administrator, Strategic Partner, Local Partners, and Residents. Residents earn virtual coins for engaging in R-real behaviours, which can be verified through real-life interactions or an app. R-real behaviours, powered by the local currency, aim to promote sustainable consumption, reduce overall consumption, encourage reuse, renovate and repair goods, and promote recycling. The collected coins can be used for rewards offered by the system.

The Prototyping Process is essential for tailoring the model to different communities, focusing on sustainability and community engagement. It includes three stages: Conceptualisation, Iterative Testing, and Summary and Upscaling. The Conceptualisation phase involves understanding community needs, defining problems, brainstorming solutions, and developing prototypes. Iterative Testing involves organising events to test the currency, gather feedback, and refine the model. The final phase involves analysing results, developing a digital currency model, exploring future scenarios, and planning for replication in other cities and contexts.

Final Currency Model

The framework of the model includes the circulation of currency, the technology supporting the currency, rewarded behaviours, rewards, and the entities involved in the process.

[3] Deliverable Number: 7.1 (from Frontsh1p project) Methodological approach to enhance circularity in Lodz Region - SOCIAL + POLICY Citizen engagement

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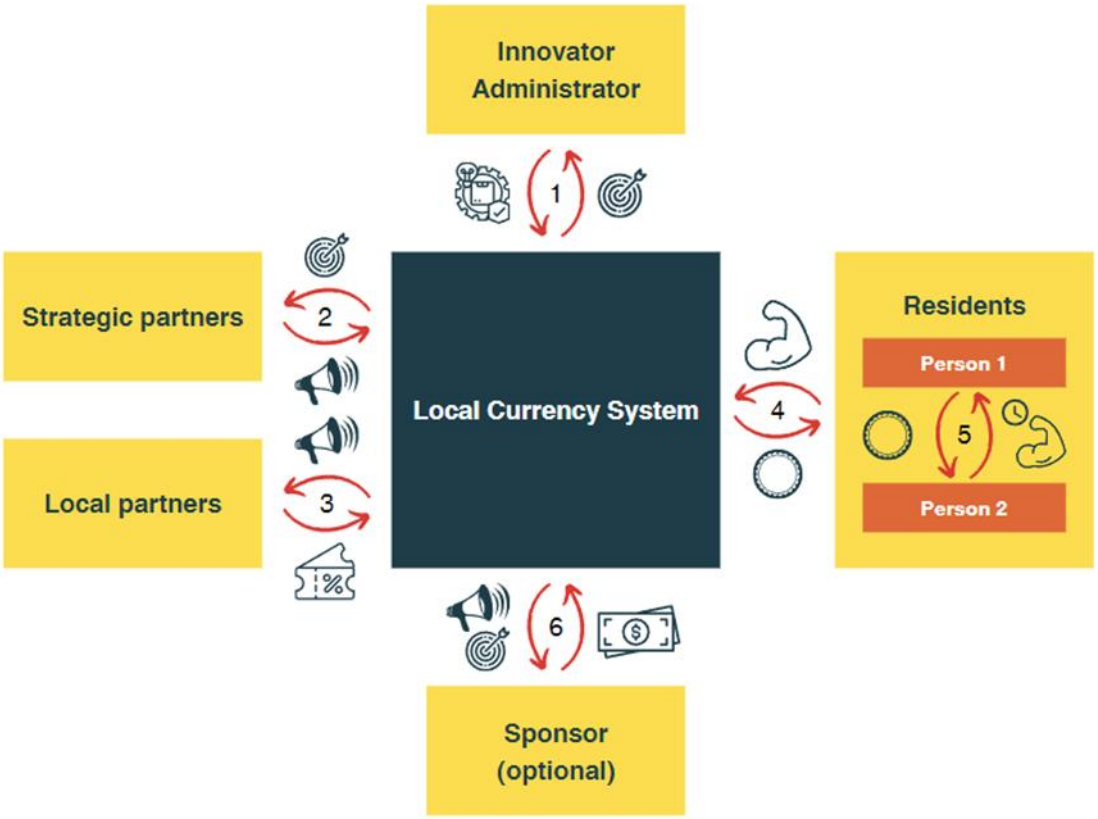

Figure 13: Local Currency System (Deliverable Number: 7.1 Methodological approach to enhance circularity in Lodz Region - SOCIAL + POLICY Citizen engagement, s. 85)

The currency model is illustrated in the diagram above, which schematically shows the interactions of various actors within the system:

1) Innovator and administrator: They are responsible for the development and supervision of the system, ensuring its proper functioning and the adequacy of solutions to the needs and behaviours of the other actors. In return, the Administrator achieves its goals (e.g., social, political, environmental).

2) Strategic Partner: This entity's presence in the model improves its image, visibility, and enables promotion. Like the Administrator, they achieve their goals in return.

3) Local Partners: They contribute real value to the system in the form of products, services, or discounts on them. In return, they promote themselves among residents. The system can additionally promote sustainable local partners by rewarding users for responsible purchases.

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4) Residents: They engage in behaviours within the R-real scope. In return, they receive virtual coins. The verification of behaviours can take place through real-life verification (e.g., visiting a local partner) or through an application (e.g., GPS tracking).
5) Optional Resident Exchanges: Residents can optionally exchange coins among themselves in return for items (secondary circulation of goods) or time (services, e.g., tutoring).
6) Optional External Sponsor Support: The circulation can be supported by an external sponsor, improving their image or achieving organisational goals.

Residents can use the collected coins to purchase rewards offered by the system. The Local Currency Model assumes a Prototyping Process, during which temporary assumptions and functionalities are tested in order to create a stable circulation the final Currency Model tailored to the local context.

R-real Behaviours Powered by Local Currency

To address the R-real principles, based on case studies, workshops, and meetings with stakeholders, the following aims and action examples were defined and are listed below.

Refusal

Aim: Encourage and reward residents for avoiding unnecessary consumption and eliminating harmful products. Promote sustainable choices and conscious consumption habits.

Examples:

- Cleaning: Encourages residents to engage in sustainable behaviours like cleaning their surroundings, and raising awareness about the impact of waste.
- Incentive System for Physical Activity: Encourages walking and cycling over driving, reducing fuel consumption and emissions.

Reducing

Aim: Incentivise the reduction of overall consumption to decrease the physical flow of

materials in economic processes, leading to less waste and lower environmental impact.

Examples:

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- Waterholes: Install public water dispensers to encourage the use of reusable bottles, reducing single-use plastic consumption.
- Food-Sharing Points: Enable food donations to reduce waste.
- Local Markets: Promote local products to reduce the carbon footprint from transportation.
- Biogas Plant: Use organic waste to produce biogas, reducing greenhouse gas emissions and waste.

Reuse

Aim: Promote the repeated use of goods for their original purpose to extend their lifecycle and reduce the need for new products.

Examples:

- Exchange Point: A place for residents to exchange used items like toys, appliances, furniture, clothes, and tools.
- Exchange Events: Regular events where residents can swap items they no longer need.
- Neighbourhood rental: renting goods (e.g. tools) within the local community instead of buying.

Renovate, Repair and Reuse for New Purposes

Aim: to support the renewal of material goods to restore their functionality, thus prolonging their life and reducing the need for new purchases. Encourage the repair of broken or damaged items instead of discarding them, fostering a culture of fixing rather than replacing.

Examples:

- Repair Point: a facility where residents can donate items for repair and restoration, offering workshops for repairing and renovating items. This facility encourages finding new uses for already-used items through exchange and repair services.
- Workshop: educating people about repairing or upcycling stuff (e.g. sewing workshop).

Recycling

Aim: Promote the processing of material goods into new raw materials to be used in the production of new products, thus closing the loop in the material cycle.

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Examples:

- Incentives for collecting selective waste: Enhance waste segregation facilities to promote recycling.
- Paid Disposal for Problematic Waste: Provide facilities for the paid disposal of items like used tyres, asbestos, and e-waste, encouraging recycling and responsible disposal.

Prototyping Process

To develop a local currency model that effectively addresses the unique needs of different communities, a structured prototyping process is essential. This process should be adaptable to various local contexts while maintaining a focus on fostering sustainability and community engagement. Below is a proposed universal prototyping process, which will be implemented while prototyping and developing Local Currency Models in Parzeczew and Lodz.

The implementation is planned as a three-stage process:

1. Conceptualisation: Understand the community's needs, motivations, and pain points (Empathise), articulate problems (Define), generate ideas (Ideate), and build tangible representations to explore feasibility (Prototype). Initially, an analogue currency will be introduced to test functionalities, with digital solutions proposed in the final stage.
2. Iterative Testing: Use the local currency during regular local events ("local markets") to ensure continuous design iteration and respond to ideas proposed by the local government.
3. Summary and Upscaling: Analyse results, refine the model, and scale up the initiative based on feedback and testing outcomes.

Conceptualisation Phase

This phase aims to understand the community's needs, motivations, and challenges, and to define the scope of the local currency. With this phase, the following deliverables are developed: a report on community needs and preferences, a conceptual model of the local currency, an initial design of analogue currency and event concepts. The following activities are recommended for implementation:

- Workshops and Interviews: Engage with key stakeholders through workshops, individual meetings, and interviews to gather insights into local needs and expectations.
- Data Collection: Community meetings to identify pain points, desires, and potential barriers to adoption.

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- Problem Definition: Clearly articulate the problems to be addressed by the local currency, focusing on sustainability, community involvement, and economic support.
- Ideation: Brainstorm potential solutions and ideas for the currency's design, structure, and operational model.
- Prototyping: Develop tangible prototypes of the currency system, starting with analogue solutions that can be later digitised.

Iterative Testing Phase

To effectively test solutions, we recommend organising events for residents to test their behaviours. A series of events where the local currency will be introduced enables it to implement a structured approach focusing on specific activities, feedback collection, and data analysis. Each event can serve as a testing ground for different aspects of the local currency system, allowing us to gather insights and make improvements iteratively. The aim of this phase is to test and refine the local currency model through real-world applications and continuous feedback. In order to reach that aims, the following activities ought to be taken:

- Event Planning: Organise monthly events featuring locally chosen activities supporting R-real principles.
- Implementation: Introduce analogue currency at these events to test its functionality, user engagement, and impact on local activities.
- Feedback Collection: Use surveys, feedback forms, interviews, and observational data to gather insights on participants' experiences, behaviours, and suggestions.
- Data Analysis: Track the volume of coins circulated, the types of transactions, participation rates, and the effectiveness of various functionalities.
- Iteration: Adjust the model based on feedback and retest.

To ensure the local currency initiative aligns with eco-friendly practices, zero-waste coins for transactions during the events should be utilised. These coins can be created using sustainable methods such as 3D printing with filament made from recycled plastic bottles or repurposing leaky, damaged jar caps with an imprinted unique pattern for each event to prevent forgery, or using paper printed on one side with non-sensitive information from the municipality, which will be stamped with a unique design for each event.

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Summary and upscaling

Based on the findings and results of the previous phase, a comprehensive model for digital currency can be prepared. This model includes detailed mock-ups and technological requirements to facilitate the integration of the local currency into a digital application. In addition to developing the digital currency model, future scenarios for the currency's development in a local context can be created. These scenarios can explore various pathways for expanding the currency's use, incorporating more local businesses, services, and community activities. It is also worth considering how the currency can evolve to address emerging needs and opportunities within the community.

The aim of this phase is to analyse the findings, refine the currency model, and plan for digital implementation and expansion. This phase includes the following activities:

- Analysis: Review the outcomes of the testing phase, identifying successful features, areas for improvement, and user feedback.
- Model Refinement: Develop detailed mock-ups and technological requirements for the digital version of the currency, integrating feedback from the analogue testing phase.
- Future Scenarios: Explore various scenarios for expanding the currency's use, incorporating more local businesses, services, and community activities. Consider the evolution of the currency to address emerging needs and opportunities.
- Replication Strategy: Develop a roadmap for implementing the currency model in other cities and contexts, detailing necessary steps, adaptations, and considerations for replication.

Deliverables:

- Comprehensive digital currency model with mock-ups and technical specifications.
- Scenario plans for future development and expansion.
- Replication guide for introducing the currency in other communities.

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ANNEX 11 - LOCAL MICROGRANT PROGRAMME[4]

What is the purpose of the tool?

The aim of the tool is to involve residents in taking their own grassroots initiatives involving the local community in activities for the circular economy.

The idea behind microgrants is for residents (households) to implement projects together for the benefit of the local community. This means that initiatives are taken by, among others: 3 households.

In the case of the microgrant mechanism, this condition is of key importance in the context of creating projects involving the local community. Working together, min. 3 households, as informal groups, should invite other community residents to participate in the project. This is a key condition for influencing residents through joint ventures.

What is a microgrant?

A microgrant is financial resources transferred to a group of residents for the implementation of grassroots projects worth from EUR 1,000 to EUR 3,000. The funds are a tool to support residents' ideas. The essence of a microgrant is to launch an initiative. Due to the fact that the funds are small, the microgrant is intended to stimulate the creativity of residents and implement projects that are within their organisational reach. The implementation of expenditure under the programme should be informalised so that residents can spend funds on projects in a simple and purposeful way.

What can a microgrant be used for?

Actions that local communities can take should concern the implementation of the idea of "citizen engagement" in the circular economy. In the context of residents' projects, it is crucial to promote activities that can be easily adapted and replicated by other households and communities, thus creating a broad-based change towards sustainable development.

Taking into account the essence of the FrontSh1p project, residents' projects should Focus on the topic of waste:

a) Plastic

b) Wooden packaging

[4] Deliverable Number: 7.1 (from Frontsh1p project) Methodological approach to enhance circularity in Lodz Region - SOCIAL + POLICY Citizen engagement

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c) Food and feed

d) Water and sewage

Residents' undertakings should support real initiatives in households and the local community (R) (and not just declarative) actions such as:

1. Refusal (e.g. unnecessary consumption of goods; elimination of unnecessary/harmful consumption).
2. Reduction (consumption of goods to reduce the physical flow of matter in economic processes).
3. Reuse (multiplication of the use of material goods for their current purpose).
4. Renovation (renewing material goods to restore their original functionality and extend their life).
5. Repair (repair of broken or damaged material goods).
6. Reuse (finding new uses and functionalities for material objects already used in
7. accordance with their original purpose).
8. Recycling (processing material goods into new, secondary raw materials),
9. as well as activities not directly related to, but supporting such practices:
10. Sharing (using one item/material good together with other households to increase the intensity and efficiency of use).
11. Leasing (systems for renting material goods).
12. Separation and selective collection in the local waste management system.

Residents can implement various projects for informational and educational purposes, but also to create lasting local solutions that strengthen the idea of circularity.

Examples of projects that residents can undertake:

1. Creation of food sharing/ fair-share points.
2. Food waste prevention workshops.

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3. Building a circular community garden (from composters to collecting water to growing eco-vegetables).
4. Creating a repair café (repairing things, giving them a new life).
5. Neighbourhood swaps, garage sales.
6. Neighbourly equipment rental.
7. Creation of a system for collecting and using rainwater in tenement houses.

The essence of microgrants is that residents create the project themselves in response to local needs, taking into account their resources and capabilities. This is the greatest value of the program - it stimulates creativity among the participants. The essence of microgrants is that the projects, as small undertakings, become an inspiration for other residents to be able to multiply activities to others, e.g. streets, housing estates, and communes.

Who organises the Local Microgrant Program?

In the presented Program model, the initiator and organiser is a local government unit. In our assumption, it is the local government that, as part of the implementation of the definition of "citizen engagement", creates the conditions and environment for residents to take specific actions. In the model, the local government (commune) and regional government (provincial government) undertake various activities aimed at involving residents as part of their tasks.

The Local Micro-Gant Program can be implemented at each level of local government. The goals of the regional programme will be more promotional and educational in nature for the development of the tool. At the municipal level, it may become an ideal tool for implementing specific projects that strengthen municipal circularity development programmes, including the municipal circular model.

The role of the local government in the Local Microgrant Program model is to set the main goals for the program and cooperate with local partners.

The microgrant program should not be directly implemented by the municipality itself. Therefore, we recommend selecting programme operators as part of the model.

The role of programme operators may be played by local non-governmental organisations working with local communities and statutorily involved in supporting neighbourhood activities. The microgrant program will be an important tool to support such activities. For the local government, the operator is a partner in implementing activities.

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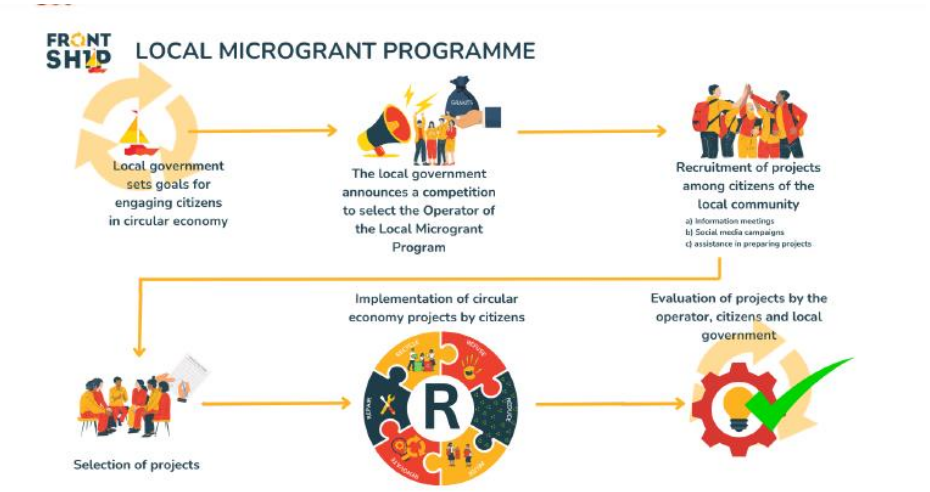

Figure 14: Local Microgrant Programme

What is the legal basis for the implementation of the Local Microgrant Program?

The Local Microgrant Program should be implemented based on national regulations.

In Polish regulations, the rules for selecting Operators are regulated by Art. 16a of the Act. On this basis, we have prepared model regulations for selecting the Operator included in the Attachment: LOCAL_MICROGRANT_REGULATION_OPERATOR

What are the operator's tasks?

The key task of the operator is to organise a competition for the selection of implementers of local initiatives.

As part of the Local Microgrant Program model, we recommend:

1. Creating a simple online tool for recruitment and project management.
2. Implementation of a two-stage selection of projects.
3. Determining precise project selection criteria.

Two-stage recruitment should be based on:

Stage 1: recruitment of project ideas - at this stage, applicants present short descriptions of their projects via an online form. The description of the project should indicate the target group, its

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purpose, a short description of activities in the context of implementing the citizens' engagement idea and a framework cost estimate. The essence of the first stage is to collect ideas in a simple and accessible form. The forms should be assessed by the operator based on clear criteria.

Stage 2: interviews with potential implementers - the operator's task is to organise meetings of the project evaluation committee with potential implementers selected from stage 1. The interviews are aimed at meeting the authors of the project directly and discussing design concepts with them. This form is intended to allow the selection of implementers who actually have an idea for citizen engagement in the circular economy.The conversations increase the chances of those residents who have no experience in writing applications but want to actually implement grassroots initiatives.

The assessment of the first and second stages of implementation is based on criteria that promote initiatives involving residents in the circular economy *(example criteria are described w D7.1, Table 8: Example of criteria that promote initiatives involving residents in the circular economy, page 97)*

An alternative way to select projects that move to the second stage may be a voting system for residents.

The operator organises meetings with potential project promoters, and then a vote takes place. Voting should be preferential, which allows residents to select projects according to preferences based on points, e.g. from 1 to 5 points. where you can choose 5 projects, each of them having a different weight, e.g. the most interesting one gets 5 points, and the least preferred but selected one gets 1 point. The number of points should depend on the number of projects available to choose from in a given community. This voting model allows Example criteria are described the wider community to be involved in the selection of projects.

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ANNEX 12 - Model of development of social enterprises[5]

The business models are possible to implement in the area of social entrepreneurship, but this requires certain conditions to be met:

- access to capital (investment financing)
- creativity (niche, innovative ideas)
- cross-sector cooperation (government, business, NGO sector)
- projects that provide the opportunity to employ several people (profitability).

The development of circular social entrepreneurship in a given area depends on many **factors**.

It is necessary to create a general climate open to innovation and cooperation among many actors in social life. Local government units play an important role in this aspect - the ones that appreciate the role of the social economy, not only in the development of circularity but also in solving social problems related to unemployment, disability, homelessness, etc. They are also open to cooperation with the Social Economy sector - public procurement, providing space, and cooperation in the implementation of social policies. They initiate platforms for cross-sector cooperation.

Another factor is support infrastructure - these are Social Economy Support Centres, other business support institutions and loan funds, financial institutions, and banks. These institutions play a role in inspiring new business solutions and supporting mutual cooperation. These entities may also offer financial support and capital for the development of new ventures.

The role of business can also be multi-threaded, from capital support (e.g. joint venture) to cooperation in the implementation of a business model with the participation of a social enterprise.

Businesses can also inspire and educate in the use of circular business mechanisms in the activities of a social enterprise.

All the above-mentioned elements can synergistically influence the development of social entrepreneurship. They are important cooperation networks, exchange of information, experiences and mutual benefits. Various platforms for intersectoral cooperation and information exchange play an important role.

[5] Deliverable Number: 7.1 (from Frontsh1p project) Methodological approach to enhance circularity in Lodz Region - SOCIAL + POLICY Citizen engagement

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Most SE entities use the assumptions of the Circular Economy as a key principle in their activities. They successfully combine business activities with social and solidarity goals.

The role of business: creating CE business models, i.e.:

● creating business models based on sharing (e.g. car sharing, leasing, subscription models, e.g. renting furniture, clothes),

● reducing your ecological footprint (investing in renewable energy, giving up on non-recyclable packaging),

● closing the loop for used raw materials, products and packaging - increasing material efficiency (better waste sorting, eco-design, recycling levels)

● increasing competitiveness by implementing innovations (using waste to produce products - customer advocacy)

● motivating customers to make more ecological choices (price incentives, special product labelling)

The role of legislators - a key role in creating system change:

● building a legal framework for business and consumers, creating a legislative base (Global Plastics Treaty),

● creating mechanisms that motivate and/or oblige entities to, e.g. use recycling, achieve specific recycling goals,

● creating reporting obligations (e.g. BDO),

● ban on placing products on the market that have a negative impact on the environment (SUP Directive),

● unification of definitions, unification of rights in various markets → achieving economies of scale,

● extending the responsibility of producers to manage the products and packaging they introduce to the market in the last phase of their life cycle (deposit system, collection and management of waste electrical and electronic equipment).

When the above-mentioned conditions occur, there is also an opportunity to increase the role of social enterprises in the CE area.

The OPUS Center as a Social Economy Support Center sees an opportunity for this type of entrepreneurship through:

1. Cooperation with local government units: enabling activities in the field of CE, cooperation in the minimisation of municipal waste, and undertaking common activities in this area (e.g. Selective Waste Collection Points, furniture renovation, supporting the "second-hand" circulation).

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2. Cooperation with business (production companies): joint activities in the field of closing production processes, including social enterprises in the production processes of companies, e.g. a wooden furniture factory, a pallet factory can outsource the repair of pallets or e.g. furniture and put them back into circulation to a social enterprise.

3. Supporting these processes through education, promoting changes and entering social entrepreneurship into new industries related to CE. To increase the involvement of communities, including social enterprises in CE, it is necessary to educate about it and show examples of various solutions both in Poland, Europe and around the world as possible business activities. Traditional business and SE support centres are entities that should and do implement such education.

Analysis of selected business models in terms of their use in social enterprises - possible solutions in the area of social economy.

1. Circular raw materials: a model based on circular raw materials, i.e. those that can be used in a closed loop. In other words, raw materials that are obtained from recycling or are renewable and at the same time can be returned to technical or biological cycles.

2. Recovery of by-products: recovery of by-products is a business model at the production stage of the circular economy cycle. It involves an activity whereby residual or secondary products of one process (or value chain) become an input for another process (or value chain).

3. Modification: Modification is a business model at the production stage of the circular economy cycle. It involves extending the life of a product by modifying it.

4. Repair: at the production stage, it involves extending the life of the product by repairing it, refreshing it or improving its aesthetics, without extending its warranty.

5. Access: at the use stage, it involves providing the end user with access to the product/resource instead of owning it.

6. Product as a service: at the use stage, it involves providing the end user with access to the functionality of the product/resource instead of the product/resource.

7. Recovery of raw materials: at the end of the product life stage, it involves the recovery of used materials or products for use in new products, processes or value chains.

Examples of Social Economy enterprises the field packaging, use and processing of plastics, use of agri-food waste, sewage, water, etc. you can find in D7.1

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A. Learning scenario:
– LOCAL LEADERS AND TEACHERS

ECOLOGY IN EVERY LESSON. PRACTICAL METHODS OF IMPLEMENTING PRO-ECOLOGICAL CONTENT

Target group: Primary school teachers

General objective: To provide primary school teachers with knowledge, tools and practical strategies to incorporate pro-ecological content into everyday teaching in various subjects.

Specific objectives:
Participant:

- understands the idea of environmental education,
- defines terms related to ecology,
- evaluates the value of global education in relation to ecology and pro-ecological issues taught during school classes,
- compares the points from the core curriculum concerning environmental education with the information that the student should actually receive on this subject,
- learns the value of an interdisciplinary approach in teaching ecology,
- discusses successful projects and initiatives from other schools in the field of environmental education,
- expands their knowledge of active methods of teaching ecology,
- uses multimedia games related to pro-ecological topics,
- creates a lesson scenario, adapted to their subject, which will include pro-ecological issues,

Duration: 3 hours

Useful materials: multimedia projector, computer workstations, whiteboard, office supplies: A3 sheets, markers, crayons, pens, notebooks

Circular Economy practices discussed in this workshop (tick the appropriate ones): **Refuse, Reduce, Reuse, Refurbishing, Repairing, Repurposing, Recycling, Sharing**.

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Course of the class - sample diagram / phrases

Admission

Introduce yourself, introduce the participants to the topic of the workshop. Identify the main issue raised during the meeting.

The class is preceded by an introduction explaining the importance of environmental education in the context of contemporary environmental challenges.

At the beginning, ask the participants how important global education is, including raising pro-ecological issues in the lessons of various subjects. Does the Core Curriculum meet the requirements of the modern world and the student in this matter?

Process

a) Use of the serving method, talk:

Present the main issues related to the goals of environmental education and environmental challenges, such as climate change, loss of biodiversity or environmental pollution. Use a multimedia presentation and a multimedia projector for your presentation.

b) The use of the activating method, round table discussion:

After the presentation, have a discussion about the impact of the discussed challenges on our daily lives and the future of our planet. Write down the conclusions on a piece of paper or a board.

c) The use of the serving method, informative lecture:

Examples of ways to include ecological content in the classes of various subjects:

Polish:

- Writing essays, essays, or stories with an incorporation of environmental issues.
- Create posters or multimedia presentations to promote a sustainable lifestyle.
- Debates on current environmental issues, e.g. climate change or environmental pollution.

Mathematics:

- Calculating the carbon footprint of vehicles.
- Analyze energy or water consumption data.
- Creating mathematical models showing the impact of various factors on the environment.
- Developing household budgets that take into account sustainable shopping.

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Nature:

- Getting to know plant and animal species threatened with extinction.
- Conducting experiments to study the impact of humans on the environment.
- Organization and participation in environmental protection actions, e.g. planting trees or cleaning up the forest.

History:

- To learn about the history of environmental movements and their impact on society.
- Analysis of the impact of the industrial revolution on the environment.
- Investigating historical environmental disasters and their effects.
- Discussion on ethical aspects of environmental protection.

Art:

- Creating works of art inspired by nature.
- Using recycled materials to create art.
- Participation in artistic projects promoting a sustainable lifestyle.
- Organizing competitions and art exhibitions devoted to environmental issues.

Physical education:

- Promoting active transport, e.g. walking or cycling to school.
- Participation in green area cleaning campaigns.
- Conducting educational classes on healthy lifestyles and their impact on the environment.

Inspiring educational projects:

1) Ecoexperimentarium
   http://ekoeksperymentarium.pl
2) Karków Center for Environmental Education in Krakow
   https://www.facebook.com/centrumedukacjiklimatycznej/
3) Environmental Education Centre in the New Palm House in the Royal Łazienki Park
   https://www.lazienki-krolewskie.pl/pl/edukacja/centrum-edukacji-ekologicznej

In your speech, include information about the interdisciplinary approach in teaching ecology.

<u>Examples:</u>

d) The use of the activating method, brainstorming:

Ask the participants a question about their ideas for introducing pro-ecological issues into the course of their lessons, without disturbing the whole.

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Write down the answers on a flip chart/whiteboard. Moderate the discussion in such a way that the participants want to talk to each other and share their knowledge.

e) The use of the serving method, informative lecture/talk:

Present the available tools and methods (e.g. the flipped lesson method) that can be used in the classroom to teach ecological content.

If participants have not encountered the flipped lesson method, direct them to Appendix 1 of this scenario.

Examples:

f) The use of the activating method, didactic games – with the use of a computer

Examples of free online games to use during lessons:

- National Geographic Kids
  https://kids.nationalgeographic.com/games/action-adventure/article/recycle-roundup-new
- Ecoexperimentarium:
  http://ekoeksperymentarium.pl
- Winnie
  https://kubus.pl/gry-i-zabawy-online/gry-ekologiczne/#eko

Participants, using computer workstations, familiarize themselves with the presented multimedia tools and platforms that they can use during their lessons. Group activities, broken down by the type of subject or field taught.

Emphasize that the participants should think about its practical use during the classes when using a given tool – these ideas will be necessary in the workshop part.

g) Using the problem method, talk:

Discuss with the participants the planning of the ecological lessons, taking into account all the relevant points: objectives, content, methods used, teaching materials and final assessment.

h) Use of the practical method, seminar, simulation

Introduce workshop activities during which participants will independently prepare scenarios for pro-ecological activities in their lessons. To do this, divide the participants into taught subjects or majors: humanities, mathematics, natural sciences or mathematics and natural sciences.

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Presentation of the created scenarios by representatives of individual groups. Discussion on the topics and issues discussed, possible modifications.

Summary

Summarize the workshop and share your conclusions.

Encourage participants to use the acquired knowledge in their lessons, as well as to shape environmental awareness in their students by introducing environmental issues into the course of classes and encouraging them to take pro-ecological actions in their region.

Thank them for their attention and time spent effectively.

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The flipped lesson method, also known as the "flipped classroom," is an innovative approach to teaching that involves changing the order of traditional lesson steps.

Instead of providing curriculum content in class, the teacher prepares educational materials that students read on their own before class. These can be a variety of materials, such as:

- Educational films - especially recommended for the organization of classes using the flipped lesson method,

And:

- Multimedia presentations
- Texts
- Podcasty

The goal is for students to actively absorb basic information from the comfort of their homes, at their own pace and with the possibility of repetition.

During lessons, the time is used for:

- Discussions
- Practical classes
- Troubleshooting
- Collaborate in groups
- Projects
- Exercise
- Consultations with the teacher

The teacher acts as a facilitator, supporting students in deepening their knowledge, practicing skills and resolving doubts.

Advantages of the flipped lesson method:

- It activates students and increases their involvement in the learning process.
- It promotes independence and responsibility for learning.
- It allows you to individualize the pace and style of learning.
- It allows you to better understand and remember the content.
- It develops critical thinking, problem-solving and collaboration skills.
- It uses modern technologies and facilitates access to information.

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Challenges of the flipped lesson method:

- It requires students to have self-discipline and time management skills.
- It can exacerbate educational inequalities if students do not have access to the right technologies or the internet.
- Teachers need to spend more time preparing educational materials.
- Some items may be less suitable for this method.

If you want to know more:

- https://www.edunews.pl/narzedzia-i-projekty/narzedzia-edukacyjne/4291-czym-jest-flipped-clasroom-czyli-tajemnice-odwroconej-lekcji

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B. Learning scenario:
- **LOCAL GOVERNMENT UNITS**
- **NON-GOVERNMENTAL ORGANIZATIONS**

THE FUTURE OF A SUSTAINABLE ORGANIZATION: STEP BY STEP TO GREEN TRANSFORMATION

Target group: Local Government Units (LGUs) / NGOs/entrepreneurs, representatives of organizational units

General objective: To introduce participants to the idea of a sustainable organization and to present practical tools for diagnosing and implementing the principles of sustainable development in their institutions.

Specific objectives:
Participant:

- explains what a sustainable institution is;
- lists the most important pro-ecological projects/activities/investments carried out in the municipality and the office in recent years;
- lists ways to improve the key elements that are required for a sustainable institution to function;
- raises awareness of the impact of everyday behaviour at work on the environment and climate.
- lists ways to increase the pro-ecological awareness of the municipality's inhabitants by the employees of the office;
- uses the "Eco schedule" mobile application[6];
- analyzes the problem of illegal landfills occurring in the municipality and lists ways to reduce their occurrence;
- designs instructions on the correct waste segregation;
- develops a specific development path for their organization, using the Gantt schedule;
- evaluates the level of their knowledge in a survey after participating in the workshops.

[6] If a given municipality uses the EcoSchedule application

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Duration: 3 hours

Useful materials: multimedia projector, computer workstations, whiteboard, office supplies: A3 sheets, markers, crayons, pens, notebooks

Circular Economy practices addressed in this workshop (tick the appropriate ones): **Refuse**, **Reduce**, **Reuse**, **Refurbishing**, **Repairing**, **Repurposing**, **Recycling**, **Sharing**, **Leasing** tags.

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Course of the class - sample diagram / phrases

Admission

1. **Presentation and definition of the objectives of the workshops. Introduction to the topic, activation of participants.**

Introduce yourself, introduce the participants to the topic of the workshop. Identify the main issue raised during the meeting.

Establish a common goal of the meeting, referring to its topic.

Process

2. **What is a sustainable institution?**

a) The use of the activating method – brainstorming/mind map and the serving method – talk

Write the following question on the board: WHAT IS A SUSTAINABLE INSTITUTION? Encourage participants to answer the question. Create a mind map together with the students' suggestions.

As a summary of the topic, give a short talk about the three key dimensions of a sustainable institution: economic, social and environmental, with particular emphasis on the latter.

3. **Diagnostics of the institution.**

b) The use of the serving method, informative lecture:

Focus on the environmental dimension of a sustainable institution.
- presentation of figures/statistics on the fulfilment of the objectives of the EC Directive 2008/98/EC on waste
[Poland achieved a waste recycling and municipal waste composting rate of 40.3%. The average of EU countries is 49.6%, and the EU target in this area is 60% by 2030]
- discussion of completed projects/activities/investments that implement the goal of a sustainable institution, ecology and circular economy.

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4. **Ways to improve.**

c) Use of the activating method, group work, metaplan:

Write the following question on the board: What actions can be taken to make our organization more effective in the field of ecology?

Divide the participants into 4 groups. The task of each team is to provide their proposals for pro-ecological activities that they can implement in their daily work. Each group receives a different scope of activities:

GROUP I: ways to use recycled items + minimizing the amount of packaging/waste in office work.

GRUPAII: ways to effectively segregate waste in employee rooms or in the corridor + eliminate the use of disposable products during meetings and workshops.

GROUP III: ways to save energy and water by office employees/representatives of NGOs/local entrepreneurs.

GROUP IV: conducting purchases and services taking into account their impact on the environment + ways to reduce the number of printed documents.

Time for the task – about 15 minutes. Then the representatives of the groups present the works of their teams.

5. **Raising awareness.**

d) Use of the serving method, lecture/talk:

Write a question on the board: Do you know how your daily work behaviors affect the environment and climate?
Providing numbers and examples indicating the improvement of the environmental situation by performing the activities discussed above.

6. **The impact of the training participants on spreading pro-ecological awareness among the inhabitants of the commune/within organizations/local communities.**

e) the use of the activating method – brainstorming + the exposition/software method – using a computer and a smartphone.

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- cascade learning – sharing the acquired information with family and friends;
- a short introduction of the Ecoschedule application;
- mention of illegal landfills + discussion on eliminating this problem;
- practical exercises with the use of computers, group work – preparation of an ingenious instruction showing the correct waste segregation. Browsing through the most original designs and creating your own.

The best designs, after taking into account graphic processing, will be ready-made materials that can be implemented in the commune.

Ideas for implementation:

- hanging materials by bins located in public buildings: in offices, schools, libraries, in buildings of other organizational units,
- publication of materials on the websites of the office and organizational units,
- making materials available in the official social media of the commune, organizational units and encouraging them to share them through non-governmental organizations from the commune - associations, foundations, Rural Housewives' Associations on their social media

Remark!
It is recommended to put as much information as possible in digital form instead of printed in order to eliminate unnecessary printing.

7. **Practical actions.**

f) The use of the activating method, decision-making games:

- Presentation of the importance of planning activities and selecting people responsible for individual tasks.
- Overview of the GANTT schedule – what it is, what are its benefits
- Jointly developing a specific path of action for your organization, with the designation of a timeline and responsible persons.

Summary

- Conducting an evaluation survey – checking the participants' knowledge

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Summarize the workshop and share your conclusions.

Encourage participants to use what they have learned in their daily work. In your speech, emphasize the effects of the actions of an individual, group, institution and what impact they have on improving the ecological situation of the region. Encourage participants to promote pro-ecological ideas among the inhabitants of the commune.
Thank them for their attention and time spent effectively.

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