



Handbook on Collaborative Models for Social Innovation in Circular Economy



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1. Introduction to CIRCULAR

CIRCULAR seeks to boost the social innovation ecosystem in Malaysia, Cambodia and Laos by bringing together and reinforcing the links between Teaching, Research, Innovation and Society in order to collaboratively design and test innovative solutions to mitigate waste management problems, promote circular economy approaches and improve the quality of life of local communities. It will pursue the following specific objectives:

- Design a new collaborative model for reinforcing HEIs' third mission and for enhancing effective and successful Knowledge Square cooperation for social innovation with a specific focus on the topic of circular economy.
- Enhance community-based participatory research and citizen science at the same time promoting a new pedagogical framework for embedding community engagement actions as part of Higher Education study programmes.
- Set-up Living Labs as open innovation ecosystems that integrate education, research, development and innovation, and regional development to help trigger the adoption of green and more sustainable practices and a more efficient use of resources.
- Build the capacities of academics to design, organise and implement collaborative social innovation programmes that promote students' active citizenship and simultaneously contribute to solve everyday sustainability and climate-change problems.
- Build the capacities of researchers on new methodologies and updated strategies to conduct community-based research activities on the topic of circular economy and waste management.
- Empower students and young people to become socially-engaged, climate-conscious and active citizens and raise the awareness of students, young people and members of local communities on the topic of circular economy and sustainable development, and promote alternative consumption habits and waste management practices underpinned by knowledge, research and innovation generated by Higher Education Institutions.

The CIRCULAR Consortium brings together nine multidisciplinary institutions from Malaysia, Cambodia, Laos, Spain and Portugal as follows.

Number	Role	Short name	Legal name	Country	PIC
1	COO	USM	Universiti Sains Malaysia	MY	997941627
2	BEN	UNIMAS	Universiti Malaysia Sarawak	MY	997587674
3	BEN	RUPP	Royal University of Phnom Penh	KH	999845543
4	BEN	SRU	Svay Rieng University	KH	948131545
5	BEN	NUOL	National University of Laos	LA	984078484
6	BEN	SKU	Savannakhet University	LA	923006411
7	BEN	UAL	Universidad de Almeria	ES	999884440
8	BEN	IPC	Instituto Politecnico de Coimbra	PT	972374658
9	BEN	INCOMA	International Consulting and Mobility Agency Sociedad de Responsabilidad Limitada	ES	950157487



1.1 Purpose of the document

This handbook is to describe the CIRCULAR model and proposed approach which will provide a framework for all the partners to appropriately adapt for implementing WP3 and WP4. This CIRCULAR model was developed based on the results of two collaborative workshops by all the consortium partners.

The CIRCULAR Model has two main goals as follows:

1. Sets out the guiding principles and provide a common ground for reinforcing the links between the Knowledge Square (Teaching, Research, Innovation and Society), for boosting social innovation in circular economy, for enhancing community-based participatory research and citizen science, and for promoting a new pedagogical framework for embedding practical projects, experiential learning activities and community engagement actions as part of curricula.
2. Provides a framework that will serve as the groundwork for WP3 (Design capacity building for social innovation) and WP4 (Set up living labs).

The Model consists of three main components: research, teaching and learning, and community participation, which are described in detail in the following sections.

2. CIRCULAR Model and Proposed Approach

Successful collaborative circular model could create joint competitive advantage which could lead to value creation; this in turn could create collaborative advantage to all partners. In this project, the collaborative circular model comprises of three main components, including

- Research component
- Teaching and learning component
- Community participation component

Each component comprises of various elements and activities that need to be implemented to ensure that the objectives of all components are fulfilled.

2.1 Research component

Collaborative research in the circular economy harnesses diverse expertise to design closed-loop systems, tackling complex problems like waste management and resource scarcity. By pooling knowledge from industry, academia, and government, researchers create innovative solutions like bio-based materials, efficient recycling models, and collaborative consumption platforms. This collective effort pushes boundaries, accelerates technology, and unlocks new opportunities for businesses and communities, paving the way for a sustainable future where resources are valued and reused, not wasted.

In this project, collaborative research in circular economy consist of several elements, including:

- Collaborative research on waste management and 5 Rs.
- Community-based participatory research in circular economy.
- Living laboratory for circular economy.
- Collaborative research on waste innovation to promote circular economy.



Table 1: Summary of elements, activities, and stakeholders for research component

	Element	Research Topics/Activities	Stakeholders
1)	Collaborative research on waste management and 5 Rs	<ul style="list-style-type: none"> - Collaborative research on willingness to pay for a Refund-deposit system - Developing new bio-based materials from food waste or plastic to replace traditional, resource-intensive materials. - Designing smart waste collection systems that use IoT technology to optimize routes and improve efficiency. - Exploring innovative recycling technologies like chemical recycling or pyrolysis to address challenging waste streams. - Testing deposit-refund schemes to incentivize the return of beverage containers and reduce plastic pollution. - Building community-owned recycling and composting facilities to create local jobs and boost circular economy initiatives. 	<ul style="list-style-type: none"> - Researchers from academia - Communities - Government agencies - University staff and students
2)	Community-based participatory research in circular economy	<ul style="list-style-type: none"> - Waste management and informal sector. - Upcycling practice in rural and urban communities. - Collaborative design of circular business models. 	<ul style="list-style-type: none"> - Researchers from academia - Communities - Government agencies
3)	Living laboratory for circular economy	<ul style="list-style-type: none"> - Mondragon Unibertsitatea Campus Circular y Sostenible (MUCS), Spain. - The Fab Lab Barcelona, Spain. - Social Cooperative Palm Work & Project Onlus, Italy. - Karlsruhe Transformation Center for Sustainability and Cultural Change (KAT) establishment project, Germany. - Waste Management Project of Faculty of Environmental Sciences, National University of Laos, Lao PDR. - The Seoul Circular City Living Lab, Korea. - The Bioeconomy Village, Turku, Finland 	<ul style="list-style-type: none"> - Researchers from academia - Communities - Government agencies - University staff and students
4)	Collaborative research on waste innovation to promote circular economy	<ul style="list-style-type: none"> - Collaborative research on plastic waste upcycling - Collaborative research on bio-based packaging solutions 	<ul style="list-style-type: none"> - Researchers from academia - Industries - Communities



1) Collaborative research on waste management and 5Rs

Collaborative research in waste management and recycling weaves a vibrant tapestry of diverse expertise, aiming to advance knowledge through cross-pollination of ideas and tackle complex challenges with holistic solutions. It pushes boundaries through synergistic innovation, strengthens research with rigorous peer review, and boosts efficiency through resource sharing. Ultimately, its objectives seek to address global challenges, facilitate knowledge transfer, and develop practical, sustainable solutions grounded in real-world testing and community engagement, transforming waste from a burden to a springboard for a circular economy.

The potential research topics include:

- Collaborative research on willingness to pay for a Refund-deposit system
- Developing new bio-based materials from food waste or plastic to replace traditional, resource-intensive materials.
- Designing smart waste collection systems that use IoT technology to optimize routes and improve efficiency.
- Exploring innovative recycling technologies like chemical recycling or pyrolysis to address challenging waste streams.
- Testing deposit-refund schemes to incentivize the return of beverage containers and reduce plastic pollution.
- Building community-owned recycling and composting facilities to create local jobs and boost circular economy initiatives.

2) Community-based participatory research in circular economy

Community-based participatory research in circular economy aims to empower communities, by allowing them to join conducting researches with researchers in academia. It weaves a rich tapestry of collaboration, where researchers and locals co-create solutions to waste and resource challenges, building trust and social capital along the way. This shared knowledge accelerates the circular economy transition, informing policy, and promoting environmental justice, ultimately weaving a future where communities and sustainability flourish together.

The potential research topics include:

- Waste management and informal sector.
- Upcycling practice in rural and urban communities.
- Collaborative design of circular business models.

3) Living labs for circular economy

Living labs are like science cafes where everyone works together to test ideas for "reusing everything, wasting nothing." Businesses, researchers, and even neighbours work with leftovers to make new things, like turning food scraps into fertilizer or plastic bottles into clothes. By trying things out in real life, they learn what works and what doesn't, helping everyone figure out how to make the switch to a circular economy faster.

Examples of existing living labs include:

- Mondragon Unibertsitatea Campus Circular y Sostenible (MUCS), in Spain. The project's goal is to design and implement a methodology for identifying, evaluating, prioritizing, deploying, and monitoring circular economy strategies, which will improve the efficiency of resource management (energy, water, materials) on the different campuses of Mondragon University and contribute to achieving the Sustainable Development Goals 2030.



- The Social Cooperative Palm Work & Project Onlus, Italy, is a social cooperative whose mission is to create harmony between ecology and socio-economic systems. Following the criteria of eco-design, it has been promoting the work placement of young people with disabilities. Through an innovation and social carpentry lab, the project enhances a systemic approach to design and upcycling in the creation of eco-furniture for the home and community.

- Karlsruhe Transformation Center for Sustainability and Cultural Change (KAT) establishment project. The KAT wants to accompany and initiate transformation processes towards sustainable ways of life and sustainable business activities. It also promotes research (transformative sustainability research), experimental spaces (in form of a real-world lab), innovation & action (sustainable development in all areas of life), education about sustainable development at university, schools and public level as well as advice and consulting about sustainability, communication & networking with different stakeholders or companies and to establish a space for reflection and contemplation as well as a thinking space open for the community.

- The case study in Laos is the Waste Management Project of Faculty of Environmental Sciences, National University of Laos. It aims at practicing waste separation at source, promoting the application of 3Rs principle, and introducing Refund-Deposit Scheme (RDS) called waste recycle bank. Waste recycle bank aims at increasing students' awareness of the value of waste.

- The Seoul Circular City Living Lab, Korea, tackles electronic waste (e-waste) through innovative recycling and upcycling initiatives. Residents can drop off used electronics at designated points, with some transformed into art installations or educational tools. The lab also promotes repair cafes and responsible e-waste management practices.

- The Bioeconomy Village, Turku, Finland, is a living lab focusing on bio-based materials and circularity in the construction industry. Here, researchers and companies test innovative building materials like mycelium bricks and wood-based insulation, aiming to reduce reliance on traditional, resource-intensive materials.

- The Fab Lab Barcelona, Spain, is a community-driven makerspace that fosters circularity through upcycling workshops, collaborative design projects, and access to digital fabrication tools. Local residents learn to repair broken items, create new products from discarded materials, and share their circular innovations with the community.

4) Collaborative research on waste innovation to promote circular economy

Collaborative research on waste innovation weaves a vibrant tapestry of expertise, aiming to unleash ground-breaking solutions for a circular future. It pushes boundaries through cross-pollination of ideas, strengthens research through diverse perspectives, and boosts efficiency through resource sharing. Ultimately, its objectives strive to tackle global challenges, facilitate knowledge transfer, and develop sustainable, scalable solutions grounded in real-world testing and community engagement, transforming waste from a burden to a springboard for a circular economy.

The potential research topics include:

- Collaborative research on plastic waste upcycling
- Collaborative research on bio-based packaging solutions.



2.2 Teaching and learning component

The circular economy is an innovative approach to resource management that seeks to reduce waste, maximize resource efficiency, and promote long-term sustainability. Its guiding principles and possible benefits for industries, communities, and the environment. It provides teachers and learners with practical guidance and educational strategies for understanding and implementing circular economy ideas in a variety of areas. Real-life examples, case studies, and interactive activities are included.

There are five components of teaching and learning in the circular economy namely:

- Clean and Green Student Association
- Student engagement in circular awareness
- Learning approach of circular economy
- A Dynamic model that can be adapted to the different needs that can vary in each country
- A practical and participatory approach to the circular economy

For more detail see Table 2 below for a summary of elements, activities, and stakeholders for the teaching and learning component. According to Table 2 describes more detail each element as follows:

1) Clean and Green Student Association

The student association places a high priority on engaging in activities that focus on teaching and learning about the circular economy. Through various initiatives and programs, they aim to educate and raise awareness among students about the principles and benefits of a circular economy. By emphasizing the importance of reducing waste, reusing resources, and recycling materials, the student association aims to foster a sustainable mindset and encourage responsible consumption and production practices.

Various activities include:

- Organizing interactive sessions where experts and practitioners can share their knowledge and experiences regarding the circular economy.
- Assign case studies or group projects that require students to analyze and propose solutions based on circular economy principles.
- Organize visits to businesses or organizations that have successfully implemented circular economy practices.
- Collaborate with other student associations or organizations that share similar goals, such as environmental clubs or sustainability initiatives.

2) Student engagement in circular awareness

To prioritize student engagement in the circular economy, one key element is hands-on experiential learning. This involves providing students with opportunities to actively participate in and observe circular practices, such as through field trips to recycling centers or waste management facilities. Experiential learning helps students connect theoretical knowledge with real-world applications, fosters critical thinking, and cultivates a deeper understanding and commitment to the principles of the circular economy. By prioritizing experiential learning, students can develop practical skills, engage with professionals in the field, and become active participants in creating a more sustainable future.



To encourage student engagement in the circular economy, several activities can be prioritized including:

- Prioritize the integration of circular economy concepts and principles into the school curriculum.
- Providing students with hands-on learning experiences related to the circular economy.
- Fostering partnerships between educational institutions and local businesses that embrace circular practices.
- Organize competitions focused on the circular economy.



Table 2: Summary of elements, activities, and stakeholders for teaching and learning component

	Elements	Activities	Stakeholders
1	Clean and Green Student Association	<ul style="list-style-type: none"> - Organize interactive sessions where experts and practitioners can share their knowledge and experiences regarding the circular economy - Assign case studies or group projects that require students to analyze and propose solutions based on circular economy principles. - Organize visits to businesses or organizations that have successfully implemented circular economy practices - Collaborate with other student associations or organizations that share similar goals. 	Students, CE experts, Businesses or organizations, Other student associations
2	Student engagement in circular awareness	<ul style="list-style-type: none"> - Prioritize the integration of circular economy concepts and principles into the school curriculum. - Providing students with hands-on learning experiences related to the circular economy. - Fostering partnerships between educational institutions and local businesses that embrace circular practices. - Organize competitions focused on the circular economy. 	Lecturers, Students, Educational institutions, Local businesses
3	Learning approach of circular economy	<ul style="list-style-type: none"> - Providing formal and informal education programs, workshops, and training sessions to equip individuals, businesses, and communities with the knowledge and skills needed to contain circular economy principles. - Promoting collaboration among stakeholders, including businesses, governments, academia, and civil society, to share experiences, insights, and lessons learned. - Building the capacity of individuals, businesses, and institutions to implement circular practices through skill development, access to resources, and support networks. 	Individuals, Businesses, Communities, Governments, Academia, Civil society
4	A Dynamic model that can be adapted to the different needs that can vary in each country	<ul style="list-style-type: none"> - Promoting the efficient use of resources through measures such as eco-design, product life extension, and resource recovery. - Encouraging the development of circular supply chains by promoting the use of renewable materials, reducing waste in production processes, and facilitating the reuse and recycling of products. - Fostering collaboration between governments, businesses, academia, and civil society to develop and implement circular economy strategies tailored to each country's specific needs. - Raising awareness and providing education about the principles and benefits of the circular economy to encourage behavioral changes and promote sustainable consumption patterns. 	Governments, Businesses, Academia, Civil society



5	A practical and participatory approach to the circular economy	<ul style="list-style-type: none">- Facilitating dialogue and collaboration among businesses, governments, communities, and consumers to collectively identify challenges, set goals, and develop strategies for implementing circular economy practices.- Implementing small-scale pilot projects to test and demonstrate the feasibility and effectiveness of circular economy practices in specific sectors or communities, these projects can serve as learning experiences and inspire broader adoption.- Engaging local communities through initiatives such as community-based recycling programs, repair cafes, or sharing platforms to encourage resource sharing and reduce waste generation.	Businesses, Governments, Communities, Consumers
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3) Learning approach of circular economy

The learning approach of the circular economy emphasizes the importance of continuous learning, knowledge sharing, and capacity building to drive the transition towards a more sustainable economic model. It recognizes that education and awareness are key drivers in fostering understanding, engagement, and action towards circular practices.

Several activities can be prioritized to enhance the approach of the circular model including

- Providing formal and informal education programs, workshops, and training sessions to equip individuals, businesses, and communities with the knowledge and skills needed to embrace circular economy principles.
- Promoting collaboration among stakeholders, including businesses, governments, academia, and civil society, to share experiences, insights, and lessons learned.
- Building the capacity of individuals, businesses, and institutions to implement circular practices through skill development, access to resources, and support networks.

4) A Dynamic model that can be adapted to the different needs that can vary in each country

The dynamic model of the circular economy is a useful framework that can be fitted to meet the unique requirements of each country. It recognizes that the needs and circumstances may differ from one nation to another, allowing for customization and adaptation. This model promotes sustainable practices by emphasizing efficient resource utilization, waste reduction, and the establishment of closed-loop systems where materials are reused, recycled, or repurposed. By accommodating varying country-specific needs, the dynamic circular economy model enables the optimization of economic, social, and environmental benefits on a global scale.

Activities can be implemented including

- Promoting the efficient use of resources through measures such as eco-design, product life extension, and resource recovery.
- Encouraging the development of circular supply chains by promoting the use of renewable materials, reducing waste in production processes, and facilitating the reuse and recycling of products.
- Fostering collaboration between governments, businesses, academia, and civil society to develop and implement circular economy strategies tailored to each country's specific needs.
- Raising awareness and providing education about the principles and benefits of the circular economy to encourage behavioral changes and promote sustainable consumption patterns.

5) A practical and participatory approach to the circular economy

The practical and participatory approach of the circular economy emphasizes hands-on implementation and active involvement of stakeholders. It goes beyond theoretical concepts and focuses on practical solutions that can be implemented at various levels, from individual actions to systemic changes. This approach recognizes the importance of engaging all relevant actors, including businesses, governments, communities, and consumers, to collectively drive the transition towards a circular economy. By involving stakeholders in decision-making processes, fostering collaboration, and encouraging innovative solutions,



the practical and participatory approach aims to create a more inclusive and sustainable circular economy that addresses the diverse needs and challenges of different contexts.

Several activities can be implemented to foster engagement and drive sustainable change including

- Facilitating dialogue and collaboration among businesses, governments, communities, and consumers to collectively identify challenges, set goals, and develop strategies for implementing circular economy practices.
- Implementing small-scale pilot projects to test and demonstrate the feasibility and effectiveness of circular economy practices in specific sectors or communities, these projects can serve as learning experiences and inspire broader adoption.
- Engaging local communities through initiatives such as community-based recycling programs, repair cafes, or sharing platforms to encourage resource sharing and reduce waste generation;

2.3 Community participation component

Community participation is a critical component driving sustainable change in the circular economy. By applying the circular economy concept, local communities can generate positive changes towards environmental conservation and effective use of resources. The community has played a crucial role in reducing, reusing, and recycling waste. Doing these activities on a regular basis is important for ensuring environmental and socio-economic sustainability. Policies to promote community participation in the circular economy can be done through various activities, such as encouraging community-industry engagement, checking the challenges and needs of communities, and awareness of communities in the living labs for waste management.

Promoting community-industry engagement

The circular economy model can bring a great opportunity to foster community-industry engagement. Community participation in the circular economy can expand its demand for clean products. Community residents' behavior will shape the direction of the productive systems and business models providing environmentally friendly products, services, and production processes. In addition, the circular economy model can create job opportunities and local business development. Communities can promote small businesses that focus on recycling, improving services, and producing products with little waste.

The circular economy model that promotes community-industry engagement consists of some activities as below:

- Promoting small community businesses that pay particular attention to environmentally friendly production.
- Expanding the partnership with organizations that provide technical and financial support for community members to do startup business related to the circular economy in their community or collaborate with existing businesses.
- Organizing workshops where community members can meet, share ideas, and collaborate with the business sector in sustainable waste management.



Check the challenges and needs from stakeholders' interviews.

Understanding communities' needs and challenges in waste management is vital for the sustainable practices of the circular economy. Hence, designing and constructing a circular economy model should not disregard insightful information from local community residents. Their experience and perception of the current issues of waste management systems, resource consumption, and sustainable practices can identify challenges in participating and implementing the circular economy principle in the community. This information can be used to design intervention policies and initiatives, address challenges, satisfy the community's needs, and promote more sustainable and equitable circular economy practices.

There are several approaches to check the challenges and needs of local communities in applying the circular economy model.

- Conducting a regular survey of community members' opinions and actions about the principle of the 3Rs.
- Organizing community meetings to compile perceptions on the current environmental issues, waste management practices, and potential solutions.
- Conduct site visits to waste management facilities and recycling sites to better understand the current issues and infrastructure.
- Using various social media, both online and offline, facilitates local community members to share information about implementing the circular economy and other relevant activities.

Raising awareness of communities in the living labs for waste management

Community participation in the living labs for waste management is highly associated with the level of communities' awareness and understanding. Raising their awareness about waste management is expected to influence the success of the circular economy. There are many ways to raise communities' awareness, namely organizing community workshops, seminars, and events. Community members can be motivated to take action when receiving information about the importance of reducing, reusing, and recycling waste and demonstrating the benefits of the circular economy. Another way to raise the community's awareness is to design an inclusive circular model. Communities are included in designing and implementing the process of waste management practice. Given the inclusive model, communities become advocates for the circular economy. Furthermore, it is crucial to communicate the impact of waste management practices so that communities can see the benefits of their action and put more effort into implementing the circular economy.

Activities for raising the community's awareness of the circular economy include:

- Disseminating information through brochures, posters, etc., to ensure that community members understand clearly current waste management practices and the benefits of the circular model.
- Organizing a clean-up event is an excellent way to engage the community in hands-on activities.
- Organizing workshops and seminars regularly in order to educate community members about the circular economy practice.
- Using social media to raise awareness about waste management practices and encourage community members to take action.



3. Strategies to Implement the CIRCULAR Model

Implementing the collaborative model of circular economy requires a multi-pronged approach that engages diverse stakeholders and fosters an ecosystem of shared innovation and action. Here are some key strategies to consider:

1. Build a robust stakeholder network

- Connect diverse players: Actively engage academia, industry, government, NGOs, and communities to create a dynamic network of expertise and resources.
- Establish trust and communication: Facilitate open communication channels, regular interactions, and collaborative planning to ensure all voices are heard and understood.
- Jointly define goals and challenges: Work together to identify priority areas for circularity and co-create a shared vision for a sustainable future.

2. Foster knowledge sharing and learning

- Organize workshops and training programs: Empower stakeholders with knowledge and skills relevant to circular economy principles and practices.
- Promote knowledge exchange platforms: Create online or physical platforms for sharing best practices, research findings, and innovative solutions.
- Encourage cross-sectoral collaboration: Facilitate joint research projects, pilot initiatives, and knowledge exchange between different sectors and disciplines.

3. Develop and deploy collaborative governance models

- Establish multi-stakeholder governance bodies: Create platforms where stakeholders collectively discuss and make decisions about circular economy initiatives.
- Promote co-creation of policies and regulations: Involve stakeholders in developing supportive policies and regulations that incentivize circular practices and address market barriers.
- Design incentive structures and reward systems: Develop mechanisms to reward collaboration, innovation, and successful implementation of circular economy solutions.

4. Invest in infrastructure and digital solutions

- Upgrade waste management systems: Invest in infrastructure for efficient collection, sorting, and processing of waste streams.
- Develop digital platforms: Utilize digital tools for data sharing, resource mapping, and connecting stakeholders within the circular economy ecosystem.
- Support research and development: Invest in research into new technologies and models for resource recovery, product design, and closed-loop systems.

5. Foster public awareness and participation

- Organize educational campaigns and community outreach programs: Raise public awareness about the benefits of circular economy and encourage individual action.
- Promote circular consumption models: Support initiatives like sharing platforms, product-as-a-service models, and repair cafes to shift consumption patterns towards resource reuse and longevity.
- Engage communities in co-creating solutions: Encourage community participation in local waste management initiatives, upcycling projects, and circular economy pilot projects.



4. Recommendations to Tailor the Circular Framework

Tailoring the collaborative model of circular economy requires a nuanced approach, adapting it to specific contexts and needs. Here are some recommendations:

1. Understand your Local Landscape

- **Identify key stakeholders:** Analyze the relevant players in the local region, including academia, industry, government, NGOs, and communities. Understand their expertise, resources, and interests in circular economy.
- **Map existing initiatives:** Assess ongoing circular economy projects and platforms to identify potential collaborators and avoid duplication of efforts.
- **Analyze waste streams and resource flows:** Understand the local waste generation, material types, and potential for resource recovery to prioritize areas for intervention.

2. Focus on Community-Driven Design

- **Empower communities:** Engage local communities in co-creating solutions. Prioritize their needs, resources, and cultural practices for sustainable waste management and resource utilization.
- **Build trust and communication:** Facilitate open dialogue and shared decision-making processes to ensure community ownership and long-term engagement.
- **Invest in capacity building:** Equip communities with the necessary skills and knowledge to participate effectively in the circular economy ecosystem.

3. Foster Cross-Sectoral Collaboration:

- **Establish multi-stakeholder platforms:** Create dedicated platforms for stakeholders to connect, share knowledge, and co-develop circular economy solutions.
- **Incentivize collaboration:** Encourage knowledge exchange and joint initiatives through funding mechanisms, awards, and public recognition.
- **Address power imbalances:** Be mindful of potential power dynamics within the collaboration. Create mechanisms to ensure fair representation and decision-making processes.

4. Design Flexible and Adaptive Frameworks:

- **Utilize modular approaches:** Develop adaptable frameworks with interchangeable components that can be tailored to specific contexts and evolving challenges.
- **Embrace experimentation and pilot projects:** Encourage piloting innovative circular economy solutions to test their feasibility and refine them before scaling up.
- **Monitor and evaluate progress:** Regularly assess the effectiveness of the collaborative model, using data-driven approaches to identify areas for improvement and adaptation.



5. Leverage Technology and Digital Tools:

- **Develop digital platforms:** Build online platforms for data sharing, resource mapping, collaboration tools, and communication channels to connect stakeholders effectively.
- **Utilize artificial intelligence and data analytics:** Implement AI-driven solutions for optimizing waste management systems, matching resources with demand, and informing policy decisions.
- **Promote transparency and accountability:** Utilize digital tools to enhance transparency in resource flows, project progress, and decision-making processes.