Input study on "How to stimulate secondary raw material markets" Workshop

Chamber of Commerce of Molise

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1 Introduction

The “Industrial Symbiosis for Regional Sustainable Growth and a Resource Efficient Circular Economy – SYMBI” project aims to improve the provisions and support the implementation of policy instruments and measures for the diffusion of industrial symbiosis, to add value, reduce production costs, and relieve environmental pressures through increased resource efficiency and greenhouse gas emissions. The overall improvement is anticipated to positively contribute in regional sustainable development and job creation.

This document is the first deliverable of SYMBI Activity A3.2, which foresees the organisation of an interregional workshop on the stimulation of secondary raw materials markets. The input paper will be used as the primary source of knowledge for the capacity building and interregional learning processes of the policy workshop. In particular, it will:

- Outline the objectives and themes of the workshop
- Introduce the most relevant issues to be discussed and addressed by regional authorities
- Develop recommendations for workshop topics and focal points
- Deliver guidelines on planning and organising structures and activities

The report is structured as follows: section 2 outlines the key activities of the SYMBI project; section 3 demonstrates the added value and strategic orientation of interregional workshops; and section 4 defines the scope and themes of the workshop. Section 5 presents the background research carried out to better define the topics related to the regulation of secondary raw materials markets. Section 6 provides recommendations in the form of topics to be presented and discussed in the workshop. Finally, section 7 elaborates on the organisational issues of the workshop, including the provision of a draft agenda.

2 The SYMBI project

The “Industrial Symbiosis for Regional Sustainable Growth and a Resource Efficient Circular Economy – SYMBI” project aims to improve the provisions and support the implementation of policy instruments and measures for the diffusion of industrial symbiosis, to add value, reduce production costs, and relieve environmental pressures through increased resource efficiency and greenhouse gas emissions. The overall improvement is anticipated to positively contribute in regional sustainable development and job creation.

The environmental pressures from production and consumption, the climate change, and the increasing scarcity of resources necessitate the transition to a sustainable growth model, to gradually replace the resource intensive "take-make-use-dispose" economy. Circular economy is an emerging model that keeps resources in the economy as long as possible. Resources can be reused, creating further value while relieving environmental pressures. Resource efficiency, as outlined in the circular economy model, is primarily based on: a) the "cradle to cradle" principle, focusing on eco-design and regenerative modes of consumption, and b) industrial symbiosis, which involves territorial synergies to manage waste and share services, utilities, and by-product resources. The territorial aspect of industrial symbiosis brings regions to the forefront of the transition towards circular economy.

Industrial symbiosis requires policy reforms measures at different levels. EU regions show very different levels of performance on each area relevant to industrial symbiosis, and advance at a different pace towards green growth models. There is thus a need to share and exchange practices, experiences, and knowledge within this fragmented context to: a) lift barriers by following successful examples, b) foster balanced territorial development and reduce disparities, and c) reverse the backwardness of least-favoured regions.

2.1 SYMBI activities

The SYMBI project brings together 9 partners from 7 countries to diffuse industrial symbiosis and align regional policies with the circular economy package of the European Commission (EC). To support the transition towards a resource efficient economy, the project includes a wide range of activities, focusing

on promoting the interregional learning process and the exchange of experience among regional authorities. Project activities include:

- Evaluation and analysis of existing regional and national policies on industrial symbiosis and circular economy.
- Mapping the investment potential of participating regions in industrial symbiosis.
- Identification of good practices and benchmarking of eco-systems of by-product and energy exchanges.
- Prescribing green public procurement as an enabler of industrial symbiosis.
- Promoting public dialogue and consultation process to build consensus and ensure the successful implementation of regional action plans, through the support and participation of key regional stakeholders.
- Fostering interregional learning and capacity building through workshops, study visits, and policy learning events.
- Joint development of action plans to promote the improvement of the policy instruments addressed by the project.
- Increasing awareness, promoting and disseminating the project results and knowledge beyond the partnership.

2.2 SYMBI expected results

SYMBI will improve 8 policy instruments, relevant to the abovementioned policy areas; 6 of the managing authorities participate in the consortium, so as to secure the impact of the project. SYMBI activities will:

- Incentivise regional waste transformation systems and cross-sectoral synergies
- Promote the use of secondary raw materials
- Prioritise green procurement
- Unlock investments by regional and local financial actors
- Explore, assess, expand, and enhance current practices in ecosystems of industrial innovation
- Build consensus between regional stakeholders

2.3 SYMBI partners

Country	Partner
	Foundation FUNDECYT Scientific and Technological Park of Extremadura (FUNDECYT)
	Environment and Territory Regional Ministry (ANDALUSIA)
	The Malopolska Region (MALOPOLSKA)
	Chamber of Commerce of Molise (CoC – Molise)
	Government Office for Development and European Cohesion Policy (SVRK)
	Municipality of Kozani, Development and Planning Bureau (KOZANI)
	Pannon Novum West-Transdanubian Regional Innovation Non-Profit Ltd (PA-NOV)
	Regional Council of Häme (HAME)
	Häme University of Applied Sciences Ltd (HAMK)

3 Added value and strategic orientation of SYMBI workshops

Exchange of experience through workshops is an interregional learning process, which is considered the main catalyst for generating the expected policy change in the participating regions. The production of new knowledge at the regional level relies on multi-actor innovation networks/communities, in which key stakeholders and policy makers come together to find solutions and answers to various social, economic and environmental problems, associated with policy development.

The INTERREG programme suggests that knowledge and expertise sharing should be an indispensable component of the efforts of regional authorities to build capacity and drive sustainable policy development. The rationale is that the co-production of knowledge and mutual understanding constitutes a co-created and sustained process, where various partners bring different knowledge, information and ideas to the table, and the consultation process ends up yielding added value for all parties involved; preventing inter alias the duplication of efforts and waste of resources.

During interregional workshops, project partners have the opportunity to gain insights and understanding of the political priorities and initiatives in the field, identify challenges and needs to be addressed at the action plans implementation phase (project phase 2), as well as to ensure the involvement of key stakeholders in the facilitation of action plans.

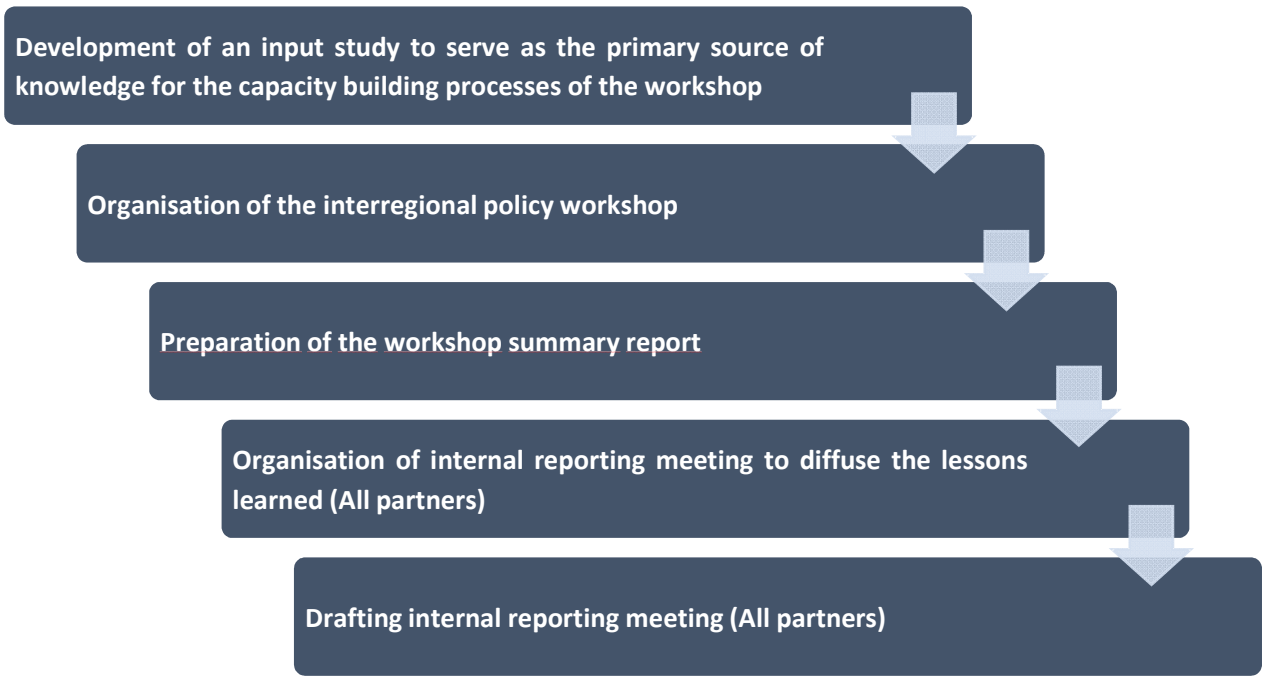
The interactions and discussion to take place during interregional workshops will enable project partners to a) discuss about how they can stimulate the creation of regional secondary raw materials markets, elaborating on measures to overcome the prevailing barriers to circular economy, b) evaluate the scalability and transferability of (potential or existing) policy measures and interventions into other industrial and geographical contexts, and d) contribute to policy development, taking into account regional specificities.

The SYMBI project includes the organisation of 4 interregional workshops to promote interregional learning and capacity building, as presented in the following table:

Table 1: SYMBI workshops

#	Title	Host	Country	Date
A3.1 (a)	Interregional workshop on how to create attractive market conditions for private sector investments	PA-NOV	Hungary	Semester 2
A3.1 (b)	Interregional workshop on how regional authorities can develop public-private partnerships to foster industrial symbiosis	KOZANI	Greece	Semester 3
A3.2	Interregional workshop on the stimulation of secondary raw materials markets	CoC-Molise	Italy	Semester 4
A3.3	Interregional workshop on industrial symbiosis demonstration projects	Andalusia	Spain	Semester 5

Figure 1: Diagram presenting the structure of SYMBI workshops



4 Interregional workshop on the stimulation of secondary raw materials markets

The Chambers of Commerce of Molise (CoC-Molise) will organise and host a two-day workshop for regional authorities on how to stimulate the creation of regional secondary raw materials markets, to support the transition towards circular economy. The purpose of the workshop is to facilitate the exchange of ideas and experiences, and acquisition of operational and technical knowledge on how to steer policy implementation to promote the use of recyclables and secondary raw materials and support the emergence of relevant markets.

Three thematic axes will be covered in the workshop, as defined in the Application Form:

1. Regulatory measures to promote the use of secondary raw materials and stimulate the creation of regional markets
2. Pricing schemes for secondary raw materials and ways to shield the market from price volatility
3. Regulatory and administrative barriers to creating regional secondary raw materials markets and potential solutions to overcome them

All partners will participate with members of their stakeholder groups and external experts, to discuss regional strategies, advancing interregional learning and capacity building. During the workshop, regional authorities' representatives will have the opportunity to exchange views with their peers, familiarise themselves with existing policy measures and strategies, and co-shape a common approach to boost economic activity in secondary raw materials markets, setting the ground for the emergence of a single market in the EU.

5 Thematic background

5.1 Regulatory measures to promote the use of secondary raw materials

This section describes a number of potential policy interventions to boost economic activity in secondary raw materials markets, including:

a) Adopting additional measures to improve waste management at regional level
b) Integrating environmental criteria for sustainable production
c) Environmental labelling to promote products manufactured using secondary raw materials
d) Promoting Green Public Procurement (GPP)

5.1.1 Sustainable waste management

Waste management refers to the activities employed for managing waste from its inception to its final disposal (incl. administrating procedures and tasks). This includes the collection, transportation, and disposal of garbage, sewage, and other waste products, encompassing the management of all the processes required for sustainable waste handling from maintenance of transport trucks and disposal facilities/sites (e.g. landfills, waste collection centres) to compliance with environmental laws and regulations on recycling.

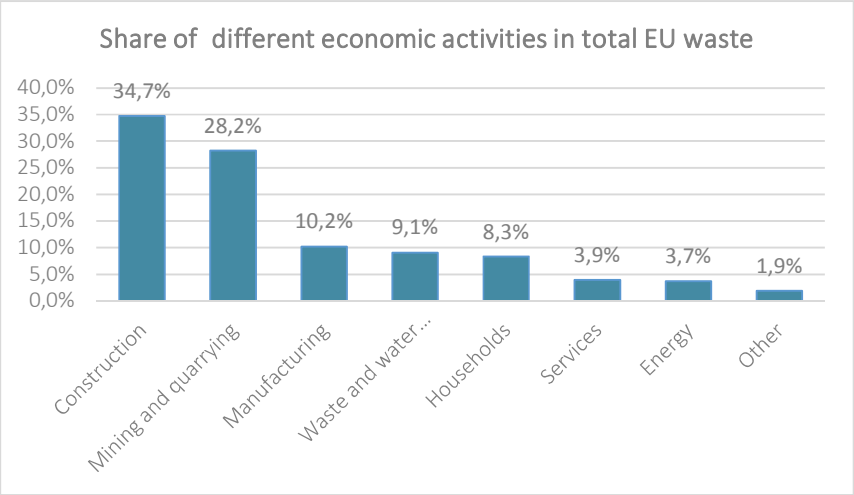
5.1.1.1 Waste management in the EU policy context

According to Eurostat, the total waste generated in the EU-28 amount to 2.5 billion tonnes; which means that each person in Europe is currently producing (on average) more than half tonne of such waste. All this waste puts pressure on the natural environment, contributing to climate change by causing pollution and increasing greenhouse gas emissions. Figure 1 highlights the share of different economic activities and households in total waste generation (EU-28, 2014).

From this amount only a small share (approximately 36%) is recycled and returns to the market as new products or secondary raw materials; the rest are landfilled or burned through incineration. The EU

economy loses a significant amount of potential 'secondary raw materials' such as metals, wood, glass, paper, plastics present waste streams, considering that more than 600 million tonnes of waste (that remain unexploited) could be recycled or reused; whilst reducing Europe's dependency on importing raw materials from international markets.

Figure 2: Share of different economic activities in total EU waste (2014)

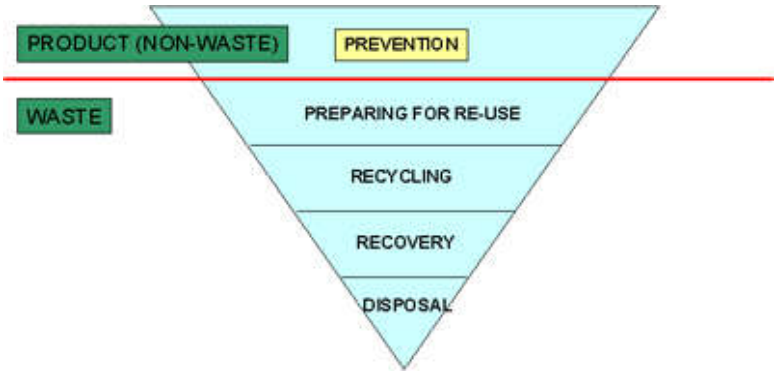


The EU makes explicit mention on the value to turn waste into resources, in order to accelerate the transition to a sustainable growth model (i.e. circular economy) that will gradually replace the resource intensive "take-make-use-dispose" economy. To this end, the EU has adopted several policies and measures (e.g. 7th Environment Action Programme) to promote sustainable waste management, by stimulating innovation in recycling, limiting the use of landfilling, and providing incentives to change consumers' behaviour towards more sustainable patterns of consumption (e.g. improving citizens' perceptions of products made using recycled materials).

The Waste Framework Directive (2008), which is considered the cornerstone of EU waste policy, has introduced a five-step waste hierarchy to underlie the shaping of national/regional waste policies and drive waste management/treatment at the operational level. The waste management hierarchy (figure 3) indicates an order of preference for actions to reduce the total generated waste, where prevention is

the best option, followed by re-use, recycling and other forms of recovery, with disposal such as landfill or incineration to be the least preferred option.

Figure 3: EU waste hierarchy



In this context, the EU has set a number of priority objectives to promote waste management such as a) reducing the amount of waste generated, b) maximising recycling and re-use, c) limiting incineration to non-recyclable materials, d) phasing out landfilling to non-recyclable and non-recoverable waste; and e) ensuring full implementation of the waste policy targets in all Member States.

When it comes to recycling, the EU has defined specific recycling targets for many types of waste ranging from vehicles, electronic equipment, batteries and packaging to municipal waste and waste from construction and demolition activities. Overall, member states shall adopt policy measures to achieve the following targets (as defined in the Waste Framework Directive):

- Increase by at least 50% the preparing for re-use and the recycling of waste materials such as at least paper, metal, plastic and glass, coming out from households and/or other origins as far as these waste streams are similar to waste from households (by 2020, with 2011 as baseline year).
- Increase by at least 70% the preparing for re-use, recycling and other material recovery, including backfilling operations using waste to substitute other materials, of non-hazardous construction and demolition waste excluding naturally occurring material (by 2020, with 2011 as baseline year).

5.1.1.2 Waste management targets at sub-national level

Regions play a crucial role in promoting resource efficiency and recycling towards sustainable regional development. Public authorities have direct responsibilities to facilitate the transition to a circular economy model, including: a) waste management (waste separation, waste to energy), b) local taxation (encourage recycling; discourage or ban landfilling of valuable materials), c) public procurement (criteria for resource efficient and low carbon goods and services), d) regional innovation programmes (criteria for resource efficient and low carbon goods and services), and e) regional advisory business centres (advise SMEs on energy and material efficiency).

What is more, the EU waste policies include minimum requirements for managing certain waste types at regional and local level. The most relevant targets for regional/local waste comprise: a) the Landfill Directive's (EC, 1999) landfill diversion targets for biodegradable municipal waste; b) the Packaging and Packaging Waste Directive's (EC, 1994) recycling targets; and c) the Waste Framework Directive's (EC, 2008) target on recycling and preparing for reuse (more precisely, the target applies to specific types of household and similar waste).

According to the European Environment Agency, the total municipal waste generated in the EU countries has been declined by 3 % in absolute terms and average generation per person by 7 % from 2004 to 2014. Nevertheless, municipal waste vary considerably from country to country; ranging from 789 kg per capita in Denmark to 286 kg per capita in Poland. Wealthier countries tend to produce more municipal waste per person, while higher generation rates have been witnessed in countries, whose economy is highly dependent on tourism (e.g. Greece, Cyprus and Malta).

These variations do not only reflect differences in consumption patterns and economic structure, but also depend on how municipal waste is being collected and managed. Major differences can be found on the waste treatment method (or combination of methods) employed by public authorities, such as landfilling, incineration, recycling and composting.

Even though more waste is being generated across the EU countries, the total amount of municipal waste landfilled has diminished, whilst the rates of municipal waste recycling (covering material recycling, composting and digestion of bio-wastes) has been significantly increased, accounting for 44%

relative to waste generation. However, the data suggest large differences in recycling performance among countries; for example Germany and Austria recycle at least half of their municipal waste, while Greece only 13%.

Despite the progress made in this area (i.e. recycling), EU public authorities should adopt additional measures to improve waste management at sub-national level, increasing recycling rates and stimulating the use of secondary raw materials. Better regional/local waste management will help to a) reduce greenhouse gas emissions (directly by cutting emissions from landfills and indirectly by recycling materials which would otherwise be extracted and processed), b) address negative impacts associated with unstainable modes of waste management including landscape deterioration due to landfilling, local water and air pollution, as well as littering, c) pave the way for industrial symbiosis schemes through secondary raw materials availability, and d) improve citizens' health status and well-being.

Figure 4: Waste management scheme

Targets for sustainable waste management

- **Develop comprehensive regional/local waste management plans**. Waste management planning is the cornerstone of any national, regional or local policy on waste management. Such plan allows a) evaluating the existing situation to identify strengths and weaknesses, b) setting qualitative and quantitative waste management objectives (incl. recycling targets for secondary raw materials), c) formulating appropriate strategies to achieve goals, d) identifying the necessary implementation means, and e) establishing monitoring and evaluation schemes to track progress.

  Quantitative target: To have 1 waste management plan for each region participating in the SYMBI consortium.

- **Establish Extended Producer Responsibility (EPR) systems for different types of waste** (e.g. paper, batteries, and packaging) to be used as secondary raw materials in industry. EPR is an environmental policy approach in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle. In practice, EPR involves producers taking responsibility for collecting end-of-life products, and for sorting them before their final treatment, ideally, recycling.

  Quantitative target: To establish 1 EPR scheme for secondary raw materials.

- **Design and organise collection systems for secondary raw materials**. In general, waste collection systems can be classified by a) the type of waste segregation model (multiple fractions, mixed waste) and b) the location of the collection system (e.g. surface containers, door-to-door, buried containers). Waste collection / sorting through bins (in selected locations throughout the territory) in different colours for the different types of secondary raw materials (e.g. glass, paper, plastic) will be a good starting point.

  Quantitative target: To organise and implement at least 2 collection systems (e.g. door-to-door, surface bins) for secondary raw materials in your region.

- **Promote the construction of Mechanical Biological Treatment (MBT) plants**. These plants are used to treat household and commercial waste. The collected waste is delivered to a fully encapsulated plant to extract secondary raw materials such as metal, wood and plastic before it is fed into a mechanical shredder. The remaining waste is then reduced in size and homogenized before being separated into two fractions: a) the organic fraction which is treated biologically and b) the fraction containing high calorific material which turns into refused-derived fuel.

  Quantitative target: To develop 1 action plan setting the ground for the construction of a Mechanical Biological Treatment (MBT) plant in your region.

- **Establish a pay-as-you-throw scheme**, which is a usage-pricing model for disposing of municipal solid waste. Users (e.g. households, companies) are charged a rate based on how much waste they provide for collection/recycling to municipality services or waste treatment operators. Special rates could be calculated for secondary raw materials.

Quantitative target: To develop 1 action plan to introduce a pay-as-you-throw scheme in your region for charging users on how much waste they dispose of or/and recycle. Pilot-test such a pricing scheme in selected municipalities.

- **Raise public awareness on environmental protection and recycling**, whilst highlighting the need to promote resource efficiency, using secondary raw materials as well as material efficient processes. Regional/local authorities are encouraged to develop waste management concepts for neighbourhoods, enterprises and schools, to create an attitude towards sustainable environmental management, recycling, resource efficiency, whilst introducing the public to the concept of circular economy and industrial symbiosis.

  Quantitative target: To issue 10 press releases (during the project lifecycle) in order to communicate the value of recycling and using secondary raw materials in production processes.

5.1.2 Environmental criteria for sustainable production

Sustainable production refers to the creation of manufactured products through economically-sound processes that minimise negative environmental impacts while conserving energy and natural resources (Kulatunga, 2015)[1]. The goal is to fulfil the products' commercial purposes in a more sustainable way, which includes using renewable, non-hazardous and secondary raw materials, seeking to promote resource efficiency and conserve biodiversity and natural resources. Production processes should integrate the following underlying principles to promote sustainability.

- Promoting energy efficiency, targeting for 100% renewable sources of energy
- Conserving natural resources by using secondary raw materials
- Employing non-material ways for delivering product's services to end-users
- Recirculating ecologically safe wastes and materials that can be used as input (i.e. secondary raw materials) into new production processes

[1] Kulatunga A., Karunatilake N., Weerasinghe N., Ihalawatta R., (2015), "Sustainable Manufacturing based Decision Support Model for Product Design and Development Process", Procedia CIRP, Elsevier, vol. 26, pp. 87-92.

- Extending the life duration of the product whilst maintaining the quality of services and materials
- Protecting biological and social diversity with the aim to improve trough the delivery of their products consumers' quality of life

Public authorities should create a framework based on environmental and sustainability criteria to regulate the process of manufacturing commercial products in a manner that promotes sustainability and contributes to the stimulation of secondary raw materials markets. Such criteria should reflect the most critical environmental aspects / impacts and apply to all the stages of the manufacturing process, as follows.

1. Raw materials sourcing: Raw materials (also known as a feedstock or unprocessed material) refer to the basic materials that are used/processed by manufacturers to produce several goods, finished products and intermediate materials. The type of raw materials required in every single manufacturing procedure depends on the type of product envisioned to be launched/delivered in the market. Sustainability should be an integral part of every company's philosophy to promote resource efficiency and environmental protection. This requires to integrate sustainability and environmental criteria along the entire value chain and especially as regards sourcing decisions. The goal is to increase the use of secondary raw materials in production processes, whilst yielding several benefits for both the enterprise and the society.

2. Product design: Product design should follow sustainability principles to ensure that the final product will comply with environmental regulations and promote resource efficiency. Theoretically, sustainable design aims to reduce or completely eliminate products' negative environmental impacts through skilful and sensitive design (McLennan, 2004). Sustainable design principles include: a) diminishing energy and water consumption through the entire lifecycle, b) mitigating climate change effects by reducing greenhouse gas emissions, c) minimising the use of virgin materials and natural resources by utilising renewable sources of energy or/and secondary raw materials, and d) reducing or eliminating waste production by minimising consumption, reusing when possible, and recycling when necessary. Overall, there are different design strategies focusing and addressing different environmental issues/problems such as energy and water efficiency, waste management, disassembly and recycling.

3. Production technologies: Sustainable production technologies are designed to schedule the manufacture of products in a manner not only to optimize costs, minimise stock inventory and maintain a steady work flow but also to promote the efficient use of resources, reduce environmental footprints (e.g. greenhouse gas emissions) and stimulate a circular pattern for materials use. The selection of production technologies should rely on environmental criteria such as energy and water consumption, greenhouse gas emissions, re-usability of raw materials, whilst ensuring that the chosen technology will meet company's operational needs and provide competitive and sustainable solutions in the production processes.

4. Packaging: Packaging refers to the process of enclosing and protecting a commercial product (by wrapping material around the item) to contain, identify, describe, protect, display, promote and otherwise make the product marketable and keep it clean. The role of packaging is not limited to the final product's protection but extends to fulfil critical functions such as to attract customers' attention, assist in promotion and marketing, provide machine identification (e.g. barcodes), convey additional information (e.g. reuse and recycling details), and help in utilisation. A well-designed packaging can perform many useful functions (as presented above); however the process should be supported by effective recovery and recycling systems so as to reduce product waste and protect resources. To this end, the packaging process should meet the following environmental requirements across its entire life cycle:

- To be designed holistically with the product in order to optimise overall environmental performance; whilst being safe and healthy for individuals and communities
- To be manufactured from recycled or environmental friendly sourced materials; whilst optimising the use of renewable or recycled sourced materials (e.g. secondary raw materials)
- To be designed to protect the product and keep it safe throughout its life cycle
- To meet market criteria (for performance and cost) and satisfy customers' expectations
- To be recovered efficiently after product's use to promote reusability and recyclability

5.1.3 Environmental labelling

Environmental labelling is a voluntary information and certification scheme that helps consumers make purchasing decisions, by providing information on products' environmental quality and performance. It is an integral part of communication between all actors involved in the commercialisation process (i.e. producers/businesses, public administrations and consumers).

Labels enable consumers to identify environmentally friendly products whilst prompting the market to produce less harmful and more sustainable products. In general, environmental labels offer several advantages to consumers, producers and public authorities:

- They allow consumers to make an informed decision for purchasing products that comply with environmental criteria and sustainability principles.
- They allow products with enhanced green performance to stand out, offering a good marketing opportunity for producers/companies to increase their market share and survive the competition.
- They enable public authorities to integrate environmental and sustainability criteria in public tenders, by requiring labels as prerequisites for awarding contracts.

There are many different environmental performance labels and declarations being used or contemplated across the EU. The main types are outlined as follows:

1. **Third-party certified environmental labelling (Eco-labels)**: It is a voluntary, multiple-criteria based, third party certification scheme that defines standards and criteria under which products are being assessed and compared with others within the same category. Such programs award labels to products that are environmentally preferable throughout their life cycle.
2. **Self-declaration claims:** Claims for products made by their manufacturers, importers or distributors. They are not verified by an independent third-party based on pre-defined and generally accepted criteria and standards; whilst being the least informative and reliable type of label to rely on for making purchasing decisions.
3. **Quantified product information label:** This label type presents quantified environmental information on product's environmental performance throughout its life cycle in order to enable

comparisons between products fulfilling the same function. Such declarations are based on independently verified life cycle assessment (LCA) data, using pre-defined categories of parameters and verified by a qualified third-party organisation. Compared to the first type, they do not award labels but they are restricted to provide environmental information and data.

4. **Single issue eco-labels:** These labels have a verification and certification process, which is similar to that of the first type (eco-labels), but focuses on a specific issue such as energy consumption, raw materials sourcing.

The most reliable labels are those using objective and transparent criteria/standards and which are awarded by an independent third party; not influenced by a company that seeks certification (Type 1). Eco-labels are based on lifecycle assessment (LCA), which includes analysing and evaluating the environmental impacts (e.g. greenhouse gas emissions, air pollution, use of non-renewable) underlying all the stages of a product's lifecycle from raw materials' extraction, through production and distribution, the use phase, and final disposal. Indicative examples include the EU Eco-label, the Nordic Swan and the Blue Angel.

Targets for measures:

1. Eco-labelling rules should be amended to look into the wider environmental impact of manufactured products such as raw materials sourcing. This will make companies find ways to optimise their products and production processes to comply with environmental requirements, facilitate consumers to choose recycled and resource efficient products, whilst stimulating the demand for secondary raw materials and recycled products.
2. Public authorities should rely on existing environmental labels (e.g. eco-labels) to promote products manufactured using secondary raw materials. These labels can play a key role in simplifying the administrative process required to develop technical specifications, define award criteria and verify contractors' compliance.

5.1.4 Green Public Procurement

Green Public Procurement (GPP) can be defined as "a process whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured" (EC, 2008). GPP has been recognised as a vehicle for green growth in a number of EU policies, including the Circular Economy Package adopted in December 2015.

Public authorities have the potential to make a considerable contribution to sustainable consumption/production by using their purchasing power to procure environmentally friendly goods, services and works, whilst stimulating eco-innovation, resource efficiency and green growth. This is because public authorities' expenditures for good, services and works are estimated to reach approximately 1.8 trillion euro annually, representing 14% of the European Union's GDP.

Secondary raw materials still account for only a small proportion of production materials used in the EU. Green Public Procurement (GPP) can be utilised to stimulate a critical mass of demand for products made with secondary raw materials, which otherwise would be difficult to get onto the market. This means more emphasis on buying solutions which have a lower total life cost, demonstrate strong technological performance and are more sustainable overall; such practices should be included in the regulations governing the structural funds, as this is a way of enhancing the entry into the market of secondary raw materials.

In addition, public authorities (by promoting and using green criteria in procurement) can provide major sectors of the EU economy (e.g. construction, public transport, manufacturing, electricity, food and catering services) with strong incentives for developing and offering to the market environmental friendly technologies and products/services, using secondary raw materials. This will result in a significant increase in the amounts of recycled products and secondary raw materials available on the market.

Evidence shows that public procurement is a powerful tool for addressing environmental problems/challenges, including resource efficiency, waste management/collection, deforestation,

greenhouse gas emissions and air pollution. PWC (2009)[2] has estimated an average 25% decrease of greenhouse gas emissions, resulting from the integration of environmental criteria into tendering procedures in seven European countries (Sweden, Austria, Germany, Finland, the Netherlands, Great Britain and Denmark) for certain types of products (Testa et al, 2016). Relevant results could be achieved for secondary raw materials.

Contracting authorities (i.e. public administrations) have the legal right to define technical specifications for the type of materials used in the manufacturing process. They can specify that the product they are purchasing should be made from a specific material, or contain a certain percentage of recycled or reused content (e.g. secondary raw material). The same stands for production processes, where the EU procurement directives allows public authorities to include requirements concerning the production method employed (e.g. green production technologies) in technical specifications for supply contracts. For example, the Bulgarian Ministry of the Environment and Water chose to specify 100% recycled fibre when ordering paper for use in its office. A pre-procurement market analysis revealed that this switch to more environmentally-friendly paper could be done without increasing the price.

To be effective, GPP requires the inclusion of clear and verifiable environmental criteria for products to account for the following considerations:

- The environmental impact of raw materials used during the manufacturing process (e.g. has the manufacturer used secondary raw materials?)
- The environmental impact of the production processes employed (including product design, production technologies, packaging)
- Durability / lifespan of the final product
- Potential for recycling / reusing the product at the end of life
- Transportation and delivery modes

Furthermore, environmental considerations can be extended for contractors' services following the delivery of the final product such as the management procedures put in place to minimise the

[2] PricewaterhouseCoopers, "Collection of Statistical Information on Green Public Procurement in the EU: Report on Data Collection Results", January 2009.

environmental impact of the services or/and the amount of waste generated in carrying out support services.

Figure 5: Case study: Procurement of printing services (Source: ec.europa.eu)

Case study – Procurement of Printing Services

SYMBI
Interreg Europe

Background

The Municipality of Cognac has a sustainable procurement policy which requires the inclusion of relevant green and social criteria into tenders. In the past, a number of inefficiencies had arisen as a result of devolved, non-coordinated spending on print by various departments - each procured their own posters, flyers, tickets etc. Cognac therefore decided that a cross-cutting print strategy was needed and that all print services should be consolidated under a framework contract.

Criteria used

1. Points awarded for printing companies that use vegetable-based inks, which have a neutral effect on humans and the environment
2. Points awarded for the supply of recycled paper or paper derived from certified forests
    a. For the lots covering magazines, monthly internal documents and print for administrative purposes, 100% recycled paper is preferred.
    b. For the lots covering season tickets, flyers, posters, official government documents, higher quality, and durable paper is preferred.
    c. Maximum points are awarded for 100% recycled paper. Points will also be given for mixed or non-recycled paper, if it is shown that the forests it was derived from were sustainably managed.
    d. It must be shown that the forests the paper was derived from were sustainably managed.

Impact

Detrimental environmental and social impacts including losses in biodiversity, land use change and degradation are avoided by opting for recycled timber products, or those from sustainably managed sources. GPP also raised the demand for recycled content in paper products, helping to drive down unnecessary waste generation as well as contributing to increase the use of secondary raw materials.

5.2 Pricing for secondary raw materials

5.2.1 Pricing schemes

The landscape of secondary raw materials markets is still evolving; hence there do not exist established pricing schemes to facilitate the use of recycled and secondary materials in production processes. This section includes a background research on the different pricing schemes that have been used by companies across all sectors to maximise their sales and profits, so that we can derive the most appropriate ones to be applied for secondary raw materials.

Overall, a pricing scheme can be defined as the strategy to define a number of standard prices for a product/service in addition to the default price by creating special pricing for a) specific customers, b) end-users originating from particular marketing campaigns and communication channels, c) specific volumes of goods/services and d) different geographical locations.

1. Market pricing

This scheme includes setting the price for secondary raw materials – be this paper, scrap iron, glass, steel or plastic – according to the price offered in international market, where the former is determined by supply and demand, following the trends in each industry. The price of secondary raw materials is determined by a) crude oil prices, b) demand for virgin materials, c) the overall economic conditions, including growth of industries using secondary raw materials to manufacture new products, and d) other factors such as regulation (i.e. taxation system) and seasonality. Nevertheless, this pricing model takes into account transportation costs and sales taxes, leaving thus room for setting the sales price for secondary raw materials (to be used as input for manufacturing new products) lower than the market price, especially in the case for by-product exchanges in eco-industrial parks or other industrial symbiosis schemes.

2. Tiered or volume pricing

Tiered pricing includes providing secondary raw materials at different prices based on the quantity ordered. This pricing strategy encourages companies/industries to buy larger quantities of a secondary material (or combination of by-products) by offering bulk or quantity based discounts. These discounts

may be "tiered" so that they increase as the order amount is raised. Typically, the greater the number of tonnes purchased, the greater the discount allowed.

3. Bundle pricing

It refers to the pricing strategy of placing several types of secondary raw materials together in a single package and selling for a lower price than the one would be charged if these types of by-products were sold separately. Adopting a bundle pricing scheme allows to decrease the cost of purchasing secondary raw materials, which are necessary to develop more sustainable and environmentally friendly products, by offering companies/industries a significant discount. This scheme is more suitable for companies that have a versatile production scope, offering a diverse product mix. Bundling is particularly successful for economies of scale in production and economies of scope in distribution; as it is the case for eco-industrial parks and circular economy endeavours. The biggest advantage of price bundling is that it allows to utilise a big volume of by-products and waste generated, by enforcing companies to purchase a diverse and greater amount of secondary raw materials to address their production requirements/needs.

4. Geographical pricing

In marketing, geographical pricing refers to the practice of determining different market prices based on the geographical location of the buyer; a scheme that reflects the additional cost of transportation and shipping to different locations. Shipping costs raise considerably the market price of secondary raw materials as the fright, which is determined on the basis of materials' quantity, weight, and distance from seller, represents a large part of total variable costs. Public authorities may determine geographical price zones for the delivery of secondary raw materials based on the demographics of a certain area and costs of transportation. This will also enable public authorities to identify regions/areas that lag behind (characterised by low recycling rates and poor waste treatment), taking up measures to boost recycling, improve resource use, and open new markets for secondary raw materials. In contrast, this is not the case for by-product exchanges carried out in eco-industrial parks; where the shipping cost is eliminated and companies/industries enjoy lower prices than the ones offered in the market.

5. Project based pricing

Project-based pricing is a flat fee arrangement to be agreed to at the outset of an industrial symbiosis project. All the involved actors may make an estimate of the quantity of secondary raw materials they will need to address their production requirements throughout the project lifecycle, and set a fixed price accordingly. However, it is highly recommended to allow for adjustments, accounting for the price volatility of recyclable and secondary raw materials, which can be (in some cases) five times greater than price fluctuations for virgin materials. This will offer companies the necessary flexibility to adjust prices, maintaining the competitive advantage of exchanging by-products at a lower than the market-based rate.

5.2.2 Managing the risk from secondary raw materials' price volatility

Price volatility for secondary raw materials is particularly high - and in some cases five times greater – than price fluctuations for virgin materials that are close substitutes. This price volatility leads to uncertainty, and discourage investments, thus undermining the financial viability of secondary raw materials markets. Notwithstanding, the factors affecting secondary raw materials' price volatility are the same as in any commodity/product market, where prices are mostly determined from the interplay between supply and demand and their primary material substitutes in the market. But what can public authorities do to protect secondary raw materials markets from pressures that cause shifts in the demand curve such as sudden drops in virgin materials?

Eunomia (2015)[3] suggests three price risk management mechanisms to shield secondary raw material from fluctuations in prices, namely: a) setting margins, b) risk-sharing contracts, and c) financial instruments (e.g. taxation, subsidies).

Setting margins on secondary raw materials implies that the prices charged for the collected waste and recyclables will remain unchanged regardless the market pressures affecting demand elasticity (e.g.

[3] Eunomia, "Managing the Risk from Secondary Raw Material Price Movements", Resources & Waste UK, Championing the future of resource management, September 2015.

crude oil prices, regulation, trends in industries). The use of bottom margins to keep prices for secondary raw materials lower than those of virgin materials represent a trade-off situation. Such an intervention may sustain the demand for secondary raw materials at normal levels but will transfer the risk down the supply chain, where waste management companies will have to deal with increased costs for waste collection and treatment.

Public authorities can easily determine the type and quality of secondary raw materials, but they are unable to influence the overall underlying value across the entire supply chain. What they can do is to determine the price they agree for waste collection and management services with their contractors (i.e. private companies). This means preparing tenders for waste management services that will account for potential fluctuations in virgin materials or/and crude oil prices. Such tenders should include clauses that will keep prices for secondary raw materials competitive (compared to virgin materials), while at the same time contractors will not undertake the total cost from incurred production and processing costs.

Another way to shield secondary raw materials from price volatility is to increase the degree of their necessity in the production process. This includes setting specific environmental standards for the manufacturing of new products (covering the entire production process: a) raw materials sourcing, b) product design, c) production technologies, d) packaging); an intervention that will prompt companies to use secondary raw materials as input resources. This can be also achieved by providing procurement incentives that will stimulate the demand for recyclables and create an environmental culture within businesses. As already mentioned, public procurement constitutes a powerful tool to stimulate the use of secondary raw materials and alleviate external pressures on market prices.

Taxation can be an efficient way to shield secondary raw materials from sudden drops in virgin materials' prices. Imposing taxes or charges on natural resources will increase the cost of using virgin materials to manufacture new products and will retain the demand for secondary raw materials despite the prevailing market pressures. What is more, it will contribute to reduce environmental damage, by encouraging the use of less harmful materials or recycled materials be used in the production process and decreasing the waste and emissions associated with extraction of raw materials. In any case, public authorities should tax the consumption of raw materials at a rate that will keep their prices higher the

one for secondary raw materials. A flexible, market-sensitive approach is required to respond quickly to price fluctuations and adjust environmental taxes as appropriate.

Direct funding to companies can be provided to accommodate for sudden drops in virgin materials' prices in an attempt to sustain the demand for secondary raw materials. Funding can be granted to manufacturers in the form of direct payments, with the aim to discourage the use of virgin materials, which are usually offered at a lower price than their substitutes (i.e. secondary raw materials. The rationale behind this intervention is that manufacturers, as actors seeking to maximise their profits, will respond to market signals by producing cheaper goods for consumers using virgin materials. In all cases, public authorities should establish a robust direct support scheme that will not go against the competition in the single market and prescribe specific requirements for funding provision.

5.2.3 Fiscal instruments/measures to further promote the use of secondary raw materials

The production of certain goods and services in the economy entails environmental costs and externalities (e.g. greenhouse gas emissions, scarcity of resources, biodiversity loss) that are not taken into consideration by industries and customers. Fiscal instruments (e.g. taxation, direct subsidies) can be used to incorporate these externalities into products' market prices, diminishing total consumption and alleviating environmental pressures (i.e. environmental economics). This can also result in increased revenues for public authorities, paving the way for investments in green economy. Public authorities should take measures to create attractive market conditions that will promote the utilisation of secondary raw materials towards a circular economic model, by reducing relevant market prices and favouring resource-efficient investments. This sub-section presents a number of policy interventions other than those described in the previous section.

- Phasing out all the subsidies that are detrimental to promoting a circular economy model, including the withdrawal of market incentives that promote the use of new products as well as the disposal of used ones. In contrast, public authorities need to provide companies with incentives for delivering sustainable products and greener services. This may include scheduling corporate tax credits for companies making resource-efficient investments such as the integration of green production technologies.

- Circular economy requires labour-intensive activities including recycling and waste treatment to promote the use of secondary raw materials. Reducing the fiscal pressure on labour can spur sustainable growth, accelerating the transition to a more circular development pattern.
- Establishing attractive pricing schemes for waste disposal to encourage recycling and waste recovery (e.g. pay-as-you-throw scheme). Users (e.g. households, companies) should be charged a specific rate based on how much waste they generate or/and how much they recycle. Special rates could be calculated for recycling raw materials.
- Rewarding consumers with environmental awareness (e.g. tax credits, bonus points) that a) make environmentally friendly purchases (such as products made from secondary raw materials), and b) repair or/and recycle old products.
- Funding companies to adopt innovative technologies to substitute critical raw materials in key industrial sectors such as automotive, machinery, chemicals, aerospace and construction. The scarcity of critical raw materials, together with their economic importance, makes it necessary to explore new avenues towards substitution in order to reduce the consumption of natural resources and decrease the relative dependence upon imports.

5.3 Operational and administrative requirements

This section presents the main regulatory and administrative barriers hindering the establishment of regional secondary raw materials markets and suggest ways to overcome them, prioritising the main issues that need to be addressed and providing potential solutions.

This literature review indicates that there is a broad range of barriers, hampering the transition to a circular economic model. These obstacles can originate from a) the enabling environment, such as policy-making and regulatory framework, b) market structure and operational/administrative requirements (incl. technological capacity), and c) institutional and cultural issues such as the limited environmental awareness among suppliers and customers.

The greatest challenge is to remove regulatory barriers to circular economy. The identified obstacles are manifold and cover all the spectrum of directives, legislations and regulations on circular economy. They can be summarised as follows: a) low implementation of EU legislation at national and regional level, b)

lack of harmonised definitions for the different circular economy concepts such as recycling, reuse and recovery, c) lagging enforcement of waste and recycling regulations, d) conflicting legislation (e.g. health rules versus food waste), and e) absence of end-of-waste criteria for certain product categories. Furthermore, the lack of clarity on several concepts of EU/national legislation such as producer responsibility, quality of separate collection and definitions of recycling, re-use and recovery, make companies reluctant to invest in green economy.

The absence of operational and administrative requirements for waste management and recycling is a further barrier to the creation of secondary raw materials markets. This includes a) the lack of waste separation at source, stemming also from the lack of legislation on the collection and pre-treatment of homogenous waste streams, b) the setting of solely quantitative targets for recyclable materials, neglecting the qualitative attributes of products determining their reusability, c) the insufficient handling/sorting of different types of materials by public administrations' staff or contracting companies, and d) the absence of end-of-waste criteria for certain product categories.

The low market prices for primary resources makes unfavourable the use of recycled materials (as input resources) by industries/companies for manufacturing new products. Public authorities should make targeted interventions to manage the risk from secondary raw materials' price volatility (affected by the low prices of their substitutes), accounting for the environmental costs in product prices by imposing higher taxes on products that use virgin materials or/and integrating mandatory environmental standards for the development of new products.

Finally, the limited environmental awareness among suppliers and customers is widely recognised as a significant barrier to circular economy. The majority of suppliers are not interested in integrating environmental criteria into production processes (e.g. raw materials sourcing, production technologies, packaging), while companies have little influence on their suppliers' engagement in sustainable activities. The same stands for customers, whose purchasing decisions are rarely determined by sustainability criteria.

The following table summarises the main barriers identified from the literature and prescribes potential measures to be taken by (regional) public authorities to create an enabling environment for secondary raw materials markets.

Barrier	Type of barrier	Potential solutions
Low implementation of the EU Waste Directive	Regulatory	- Transpose the EU regulation on waste management into national and regional policies
Law enforcement and uncertainty about the application of national regulations on recycling, recovery and reuse	Regulatory	- Improve application and unify interpretation (e.g. by guidelines) - Streamline the administrative process - Pursue a long-term policy-making to create favourable market conditions for investments
Regulations that undermine the use of secondary raw materials in production processes (e.g. health & safety and consumer protection)	Regulatory	- Resolve conflicting national / regional regulations and harmonise action plans to stimulate the market for secondary raw materials
Lack of harmonised definitions for the different circular economy concepts such as recycling, reuse and recovery	Regulatory	- Formulate clearer and harmonised definitions for the different industrial symbiosis and circular economy concepts
Absence of end-of-waste criteria for certain product categories (e.g. manure derived products)	Regulatory	- Extend eco-design requirements to include end-of-life options for products
Lack of waste separation at source	Operational	- Develop comprehensive regional waste management plans - Design and organise collection systems for secondary raw materials - Promote the construction of Mechanical Biological Treatment (MBT) plants

Barrier	Type of barrier	Potential solutions
Existing recycling targets focus mainly on quantities, not so much on the quality of recycled materials	Operational	- Set qualitative targets about the materials to be recycled, seeking to retain the value of reusable materials to be used as input resources in production processes
Technological lock-in	Operational	- Financially support R&D in recycling and recovery infrastructure and technologies - Establish innovation support centres - Promote triple helix cooperation schemes to stimulate innovation in the field
Insufficient handling of different types of materials	Operational	- Improve the competencies of public administrations' employees to be able to manage the handling/sorting of different types of materials
Lack of concrete product requirements to promote waste treatment and recyclability	Operational	- Create a framework based on environmental and sustainability criteria to regulate the process of manufacturing commercial products
Lack of transparency in value chains as regards the material components of products	Operational	- Create quality standards for recyclables' treatment - Simplify data collection for more transparent value chains
Low market prices for virgin resources	Economical	- Impose taxes or charges on the extraction/use of natural resources - Set environmental standards for the manufacturing of new products

Barrier	Type of barrier	Potential solutions
High price volatility of secondary raw materials	Economical	- Set margins to keep prices unchanged - Fixed price agreements for waste collection and management services with private contractors - Tax the consumption of raw materials
Lack of environmental awareness among suppliers and customers	Awareness	- Organise communication campaigns to raise awareness about the value of secondary raw materials, prompting suppliers and companies to move towards greener value chains - Create an attitude towards sustainable environmental management, recycling and resource efficiency

6 Topics for discussion

This section provides a very first suggestion on the topics to be presented and discussed during the 3rd SYMBI interregional thematic workshop in Campobasso (Italy). This list is not final and is subject to changes or updates (if necessary), following the review and feedback from the hosting organisation.

The term 'thematic areas' (as indicated below) refers to a broad theme and the term 'topics' refers to the sub-themes in which the core theme is divided. Three distinct thematic areas have been identified for the interregional workshop on secondary raw materials. Each thematic area is divided into a number of (indicative) topics, around which the presentations and discussions of the workshops will revolve. Guest speakers are expected to build upon the research findings by extending the scope of analysis and providing new perspectives for the topics under examination.

Thematic area 1: Regulatory measures to stimulate the creation of secondary raw materials markets

This session will describe a number of potential policy interventions to boost economic activity in secondary raw materials markets. It will present best practices from waste management and the valorisation of recyclable materials and by-products for the manufacturing of new commercial products, and will prescribe regulatory measures/targets for SYMBI regional authorities to stimulate the demand for recyclable materials. An open discussion will follow where participants will be able to share their own experiences from actual implementation. The exchange of views/experience among regional authorities' representatives and stakeholders will enable to reach a common understanding/approach on how to establish a favourable environment for investments in circular economy.

Indicative topics to be discussed

1. State of waste management and recycling process in Italy
2. Valorisation of end-of waste and by-products
3. Environmental labelling to promote the manufacturing of products with secondary raw materials
4. Green Public Procurement (GPP) as an enabler for stimulating the use of secondary raw materials into production processes.

Thematic area 2: Pricing for secondary raw materials

This session will attempt to decode the evolving landscape of secondary raw materials markets (SRMs), whilst presenting a series of pricing schemes that have been used by companies across all sectors to maximise their sales and profits, so as to derive the most appropriate ones to be applied for secondary raw materials in regional markets. The participants will have the opportunity to discuss on potential measures and interventions to keep the demand for secondary raw material unchanged in the case of sudden fluctuations in prices, and co-shape economic tools to further promote the use of secondary raw materials by suppliers and customers.

Indicative topics for discussion

1. Economic tools to further promote the use of secondary raw materials in production
2. The functioning of secondary raw materials markets:
   How are the prices for recyclables determined?
   Pricing schemes for secondary raw materials
3. Ways to shield secondary raw materials from price volatility and sudden drops in virgin materials' prices.

Thematic Area 3: Regulatory and administrative requirements for secondary raw materials markets

This thematic session will provide practical insights about the barriers hindering the valorisation of secondary raw materials into production. This session will also present the opportunities drawn from the development of secondary raw materials markets (SRMs), as a pathway to replace large amounts of primary resources and reduce waste generation. The key objective is to highlight the regulatory, administrative and operational requirements for the functioning of regional SRMs, whilst presenting potential solutions to overcome the identified obstacles. The exchange of views among regional authorities' representatives will enable to identify discrepancies as regards the different and conflicting implementations of national/regional legislations in the context of relevant EU legislation such as the Waste Framework Directive or the Waste Electrical and Electronic Equipment Directive (e.g. quality standards for recyclable materials), hampering the creation of a single market for secondary raw materials.

Indicative topics for discussion:

1. Regulatory and administrative barriers to creating secondary raw materials markets
2. Potential solutions to overcome the prevailing barriers/obstacles
3. Case Study: Lessons learnt from actual implementation.

7 Organisational issues of the 3rd SYMBI interregional workshop

7.1 Date and location

The Chamber of Commerce of Molise (CoC-Molise) will host the interregional thematic workshop on the stimulation of secondary raw materials markets in Campobasso, Italy. The workshop will last two days (the 3rd week of March) and all SYMBI partners will participate, with members of their stakeholder groups and external experts. The working language of the workshop will be English, which means that participants must have a sufficient knowledge of the language to be able to fully participate in the hands-on activities. Following the completion of workshop proceedings, the Steering Group meeting will take place in the same venue.

Table 2: Interregional workshop details

SYMBI - Interregional workshop on the stimulation of secondary raw materials markets	
Thematic focus	Secondary raw materials markets
Host organisation	Chamber of Commerce of Molise
Date	20th - 21st March 2018
Venue	Chamber of Commerce of Molise, Piazza della Vittoria, 1 - Campobasso
Language	English
Number of participants	20 – 35 participants
Type of participants	Regional authorities' officials, stakeholders, external experts
Format	Oral presentations, interactive session
Contact details	Francesca Cuna E-mail: francesca.cuna@molise.camcom.it Telephone: +39 0874 471809

7.2 Attendees

The SYMBI Application Form (AF) foresees that 2 representatives from partners' organisations, accompanied by 1 regional stakeholder / external expert are able to attend the interregional thematic workshop, to be held in Molise Region, Italy.

The target audience include all those individuals, bodies and organisations that can be impacted by the project outcomes and are interested in utilising project outputs to support the diffusion of industrial symbiosis towards circular economy. ANNEX A provides a list of key regional stakeholders per project partner as they appear in the Application Form.

This is only an indicative pool of regional stakeholders identified at an initial stage (i.e. project development phase). During the project lifecycle, partners have managed to expand their network of contacts, adding new stakeholders and interested institutions from across Europe such as regional development agencies, higher education institutes and research centres, chambers of commerce, professional associations and public authorities.

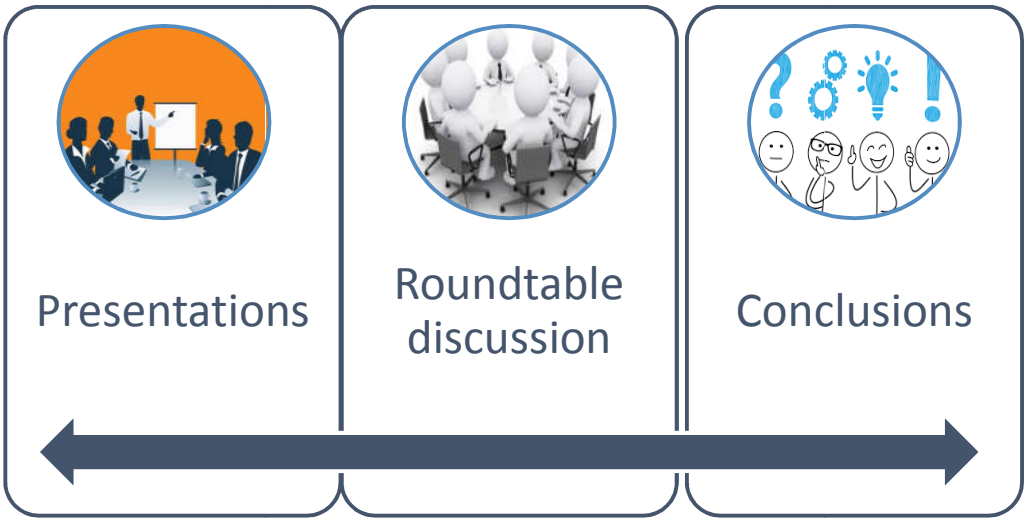
In any case, SYMBI partners are advised to invite any other organisation or body involved in the decision making process and/or interested in triggering policy and behavioural changes towards resource efficiency and circular economy.

7.3 Work programme

The interregional workshop may include two different types of activities (following the successful workshop implementation in Gyor (HU) and Kozani (GR)) to facilitate the transfer/exchange of knowledge and capacity building among regional authorities' representatives; namely: a) presentations, b) interactive session with a roundtable discussions.

Presentations will provide an opportunity for participants to get a better understanding on a) how the markets for secondary raw materials are functioning and b) potential policy measures to promote the use of secondary raw materials towards circular economy. The presentations will be delivered by field

experts from various professional backgrounds (e.g. academics, policy makers, business executives, researchers) and both theoretical and empirical knowledge on the topics under examination, in order to cover all the aspects affecting policy making for secondary raw materials. Round table discussions will follow the completion of each presentation. Partners and their stakeholders are invited to discuss the issues under examination with slides or spontaneous conversations interacting with each other, promoting networking and equal participation/contribution, triggering and allowing for faster decisions. The interactive phase will enable regional authorities' participants to come up with new ideas for policy measures to promote the use of secondary raw materials, deciding on priorities, strategy and vision, and working towards common solutions.



7.4 Agenda

" INTERREGIONAL WORKSHOP ON THE STIMULATION OF SECONDARY RAW MATERIALS MARKETS"

Molise Region, Italy

(March 2018)

DAY 1

Time/ Duration	Description
09:00 – 09:30	*Arrivals and registration*
09:30 – 09:45	Opening speech
09:45 – 10:00	Objectives of the workshop / Overview of the agenda
10:00 – 12:45	**1. Regulatory measures to promote the use of secondary raw materials** <u>Indicative topics for discussion</u> 1. State of waste management and recycling process in Italy 2. Valorisation of end-of waste and by-products 3. Environmental labelling to promote the manufacturing of products with secondary raw materials 4. Green Public Procurement (GPP) as an enabler for stimulating the use o of secondary raw materials into production processes <u>Format</u> - Oral presentation (about 15 mins for each presentation) - Interactive session (roundtable discussion): participants will discuss specific topics or issues raised during the presentation (45 minutes) - Wrap up: The main conclusions and findings from the interactive session will be presented (30 minutes)
12:45– 14:15	Networking launch

14:15 – 17:30	**2. Pricing for secondary raw materials** Indicative topics for discussion 1. Economic tools to further promote the use of secondary raw materials in production 2. The functioning of secondary raw materials markets: - How are the prices for recyclables determined? - Pricing schemes for secondary raw materials 3. Ways to shield secondary raw materials from price volatility and sudden drops in virgin materials' prices. Format - Oral presentation (about 15 mins for each presentation) - Interactive session (roundtable discussion): participants will discuss specific topics or issues raised during the presentation (45 minutes) - Wrap up: The main conclusions and findings from the interactive session will be presented (30 minutes) **Coffee break after the oral session*

DAY 2

Time/ Duration	Description
09:30 – 12:00	**3. Operational and administrative requirements for secondary raw materials markets** Indicative topics for discussion 1. Regulatory and administrative barriers to creating secondary raw materials markets 2. Potential solutions to overcome the prevailing barriers 3. Case study: Lessons learnt from actual implementation Format - Oral presentation (about 15 mins for each presentation) - Interactive session (roundtable discussion): participants will discuss specific topics or issues raised during the presentation (45 minutes) - Wrap up: The main conclusions and findings from the interactive session will be presented (30 minutes) **Coffee break after the oral session*
12:00 – 13:00	**Final remarks**
13:00 – 14:30	*Networking lunch*

Annex A: Regional stakeholders per project partner

PARTNER	KEY STAKEHOLDERS
FUNDECYT	- Regional Ministry on Agriculture, Rural Development, Environment and Energy (GOBEX) - GOBEXDG de Agricultura y Ganadería - GOBEXDG de Desarrollo Rural - GOBEXDG de Medio Ambiente - GOBEXDG de Industria y Energía - GOBEXDG de Empresa y Actividad Emprendedora - Diputación Badajoz - Diputación Cáceres - GESPESA (Gestión de Ecoparques) - University of Extremadura - Centro Tecnológico FEVAL - CICYTEX - INTROMAC - CTAEX - Extremadura AVANTE - AGENEX - AGEDREX (Asociación de Gestores de la Dehesa) - REDEX - Cámara de Comercio de Badajoz - Cámara de Comercio de Cáceres - PEPSICO - ENCE (ENergy & CEllulose) - DEUTZ -RESILUX
ANDALUSIA	- Regional Government of Seville - Regional Government of Malaga - Regional Government of Cadiz - Regional Government of Granada - Regional Government of Cordoba - Agro-industrial Park of Jerez; - Andalusia Technology Park (PTA) - Alestis Aerospace - Cruzcampo
MALOPOLSKA	- The City of Kraków - Krakowski Holding Komunalny (Kraków Municipal Holding) - The Commune of Zabierzów - The Mineral and Energy Economy Research Institute of the Polish Academy of Sciences - Zakład Przetwórstwa Tworzyw Sztucznych (Plastics Processing Plant) in Kłaj - AGH University of Science and Technology in Krakow - Representatives from Malopolska's largest heavy industries (Polska Grupa Energetyczna, Fiat Auto Poland, Fablok, Polskie Zakłady Lotnicze Mielec). - Representatives from Malopolska's SMEs that collaborate with the regional industrial sector

PARTNER	KEY STAKEHOLDERS
MOLISE	- Regional Government of Molise - Unioncamere (Association of Italian Chambers of Commerce) - University of Molise - Sviluppo Italia Molise (regional development agency) - Associazione Industriali del Molise (Industrial Association of Molise) - Biocompost Cluster - Smaltimenti Sud (company) - Green Eco (company) - Energonunt Hera (company) - Finmolise (regional Financial Institution)
SVRK	- The regional and local Intermediary Bodies (IBs) responsible for the implementation of the OP below the national level - The three public universities - The national innovation agency SPIRIT - The Chamber of Commerce and Industry of Slovenia - The Chamber of Craft and Small Business of Slovenia - SID bank (Slovenska izvozna in razvojna banka) - Eco Fund - Slovene Enterprise Fund
KOZANI	- Technical Chamber of Greece – Western Macedonia Region - PEDDM - Regional Association of Local Governments of Western Macedonia - Centre for Research & Technology Hellas - Chamber of Commerce of Kozani - Public Power Corporation S.A. Hellas
PANOV	- Managing Authority for Environmental Programmes, Deputy State Secretariat of Environmental and Energy Efficiency - Operational Programmes, Ministry of National Development - The National Research, Development and Innovation Office (NRDI Office) - Széchenyi István University / Environmental Engineering Faculty - Chamber of Commerce and Industry of County GyőrMosonSopron - Chamber of Commerce and Industry of County Vas - INNONET- Innovation and Technology Centre - Zala County Foundation for Enterprise Promotion - PANENERG cluster - REKOTECH cluster - West Pannon Regional Development Plc
HAME	- City of Forssa - City of Hämeenlinna - Häme Centre for Economic Development, Transport and the Environment - Natural Resources Institute Finland - Forssa Region Development Centre Ltd - HämePro - Mane