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# Knowing Circular Economy in Black Sea Basin



Project BSB1021 CIRCLECON  
Project title: Knowing Circular Economy in Black Sea Basin  
ACTIVITY TITLE: “1.4 Activation”  
Deliverable: T.1.4.1 Round table

## Activation Round Table in the Region of Central Macedonia, Greece:

Programme priority	2. Promote coordination of environmental protection and joint reduction of marine litter in the Black Sea Basin
Programme priority specific objective	2.2 Promote common awareness-raising and joint actions to reduce river and marine litter
Project title:	Knowing Circular Economy in Black Sea Basin
eMS Code:	BSB-1021
Grant contract no	31113/11.03.2021
Project Deliverable:	T.1.4.1 Round Table
Partner	PB2 Greek Exporters Association
Author	NN Advertising - Contractor
Date	June 2023
Checked by: LB, Varna Free University	

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## Preface

PB2, the Greek Exporters Association invited policymakers, technocrats, and scientists to discuss ways to accelerate the implementation of the circular economy in Greece. Before the session, all participants received the main finding and recommendation of the Regional Study that was executed on December 2021.

The key aspect of that abstract has as follows:

### *Conclusions in national and regional level*

*The Region of Central Macedonia lags in achieving the goals of waste collection and recycling. The main problem is the lack of infrastructure in the metropolitan area of Thessaloniki both in waste collection and waste management.*

### *Obstacles*

#### **Business**

*Circularity has financial and practical limitations that should be taken into account. For example, recycling has physical limitations, while the recycling of long lifespan products can be difficult, costly and more energy consuming. Large investments might be required in advanced technologies and in modernizing existing facilities and equipment. Financial barriers could hinder these investments, which require intensive funding and economic incentives.*

*All the companies interviewed are well aware of the growing need for their company to move towards more sustainable operations involving CE concepts. The barriers identified are mainly:*

*Lack of knowledge and experience*

*Lack of investments' governmental support (grants etc)*

*Major barriers for implementation of CE are quality issues in recycled materials, supply chain complexities, coordination problems between companies, design and production of the product, disassembly of products and high start-up/ investment costs.*

#### **Societal challenges**

*Circular economy applications are not feasible without a marked transformation of both production and consumption, which involves the entire supply chain and various sectors. Cultural barriers, lack of consumer interest and awareness are the main barriers for businesses and policy-makers.*

*Meeting the requirements of a true, circular economy isn't always easy. Even the best-intentioned companies run into obstacles when attempting to meet the requirements of the circular economy. For example, organizations can't always access and reprocess end-of-life products. The other four primary challenges are:*

*Ownership of end-of-life materials. Most supply chain organizations lose control of products and raw materials at their respective point of sale. This means they must regain access from the consumer at the end of a product's life. High-tech organizations favor leasing and subscription models because the product will automatically return to them. "Organizations must engage with customers in new ways to gain access to end-of-life materials. Many supply chains rely on new business models or incentives, however 35% rely on customer goodwill," Watt said.*



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*Quantity of materials. One of the key challenges is to collect and centralize end-of-life products for processing in an economical fashion. Most supply chain organizations collaborate with waste vendors, raw material suppliers and reverse logistics providers to gain access to material.*

*Value of raw materials. A circular economy still needs to operate within economic boundaries. Products with low residual value are less likely to be processed. While there may be differences in environmental impacts between materials, most of the organization's decision-making will be based on economics and risk.*

*“There are a couple of reasons why it can be worthwhile to reclaim end-of-life materials with low residual value,” Watt said. “Reclaiming those assets can act as a hedge against price volatility and increase an organization's raw material security. Customer sentiment towards certain forms of materials such as single-use plastics has also changed, presenting a reputational risk, which has been a catalyst for action.”*

### *Challenges for the policy makers*

*Public fiscal, industrial, environmental and regional policies do not yet provide a clear societal goal for the circular economy and a coherent definition of the role of different actors and affected stakeholders. Typically, economic operators tend to avoid risks of disruption and defer the costs of the initial changes that need to be made for the transition to the circular economy. They will continue in their business-as-usual practices as long as price signals favour the linear model. In the case of the market failing to give correct price signals, public policy should provide the right incentives. While there is a positive development, public policy does not yet stimulate sufficiently the changes in economic operators' behaviour. Most notably, the polluter-pays principle is not properly applied in the form of suitable market-based instruments to internalise the externalities associated with the linear material consumption.*

### *Challenges for the businesses*

*Campaign to inform and raise the awareness of society; Shaping a framework to develop know-how, information and relevant actions of co-governance will capitalise and outline the set of initiatives and will establish a system for designing, monitoring, information dissemination and familiarisation of competent agencies, society and enterprises with the relevant initiatives and the matter in general. Special emphasis should also be placed on specific early mobilisation actions to facilitate, inter alia, the active mobilisation and involvement of SMEs, small and very small enterprises in ventures and initiatives of circular economy and to contribute towards empowering the productive basis of the country.*

### *Challenges for the consumers*

*Greek society, due to the geographical characteristics presents differences regarding environmental work and awareness. A study found a link between, for example, most regions with a higher GDP are overall regions where the development of ENGOS (environmental nongovernmental organizations) is more evident. The same study also states there is a low level of public awareness about the environment in all Greek regions. On the opposite side, a report from the European Commission reveals that Greek society strongly supports circular economy initiatives and environmental protection measures (for example, more than 90% stated they are concerned about the impact of plastic products on the environment).*

### *Challenges for the local authorities and cities*

*It is necessary to train municipal, regional and decentralised agencies that issue licenses and auditing organisations about the implementation and enforcement of circularity criteria concerning licensed activities (and infrastructure). Municipality and*



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*Agency technicians competent for issuing licenses and inspectors need to acquire knowledge about circularity criteria, so that they may be capable to permit and inspect relevant activities. Training and educational initiatives will also develop in port operation and administration authorities.*

## *Recommendations*

*The Strategy of Circular Economy needs to be incorporated into Governmental planning and Ministerial sectorial policies, into the National Developmental Strategy 2021-27 and its corresponding specific issues, the financial and developmental tools and to mark the overall governmental developmental policy. Successful transition to circular economy requires parallel implementation of actions at all stages of the value chain: In mining raw materials and the design of products and materials (PRODUCTION), movement and consumption of goods, repair, reuse or reconstruction through informing the public, research and innovation (CONSUMPTION) and putting materials and water into new usage (SECONDARY RAW MATERIALS). The holistic approach to the issue of circular economy also requires ways of more collective operation of basic agencies (Administration, Market, Media, Society, Local Authorities, Citizens), as well as improved coordination of Administration (Government, Ministries, Organisations, Agencies)*

*There is an urgent need to characterise circular economy projects through metrics and taxonomy. Definitions, metrics, and taxonomy will enable better assessment of circular risks versus linear risks. Also, the social and environmental benefits of the circular economy should become explicit, quantifiable and disclosed and should be taken into account in financing decisions.*

*No government is capable of carrying out the transition on its own. Cities and local communities play a crucial role in the transition: they are increasingly recognized as the central generators of circular change. In the process of creating the roadmap to circularity, various available resources need to be considered. From guidelines found in EU documents to national documents, but above all, the concrete examples presented in the reports of the Ellen MacArthur Foundation, the Circle Economy – The Circularity Gap Report and various other documents. This will allow the formation criteria for the inclusion of good practices taking into account Greek culture and specifics.*

## The EU new Circular Economy Action Plan

The European Commission approved the new Circular Economy Action Plan in March 2020. It constitutes one of the key pillars of the European Green Deal, Europe's new agenda for sustainable development. The transition to a circular economy in the EU will reduce pressure on natural resources and foster sustainable growth and job creation. It is also a prerequisite for achieving the EU's goal of climate neutrality by 2050 and for halting biodiversity loss.

The new action plan announces initiatives throughout the life cycle of products. It aims to influence product design, promote circular economy processes, encourage sustainable consumption, and ensure waste prevention and resource preservation within the EU's economy for as long as possible.

It introduces legislative and non-legislative measures targeting areas where EU-level action brings real added value.

The Commission will implement the 35 actions listed in the action plan.

In 2023, the Commission revised the monitoring framework for the circular economy, which had previously been approved in 2018. The revision adds new indicators for:

- Material footprint and resource productivity - to monitor material efficiency
- Consumption footprint - to monitor whether EU consumption falls within planetary boundaries

The new framework supports the EU's ambitions for a circular economy and climate neutrality within the framework of the European Green Deal.

## The “Activation” Round Table

The session took place in Thessaloniki at “Nikolaos Germanos” Convention Center on the 9th of June 2023, at 10.00 a.m.

The aim of the session was to find ways as to mobilise the society, the local authorities and of course the business, shifting towards the Circular Economy model.

During the roundtable session, technocrats, scientists and politicians, discussed ways to accelerate the implementation of the circular economy in the country.

There were 21 participants representing:

- The EU,
- Regional and Local Government,
- The Academic community,
- Entrepreneurship,
- Civil Society.

The following individuals, invited to speak, provided their views among the 21 participants:

- Symeon Diamantidis, President of the Association of Exporters - SEVE.
- Giorgos-Stavros Kremlis, EU DG ENV Adviser on Circular Economy, former Director of the European Commission.
- Georgios Zalidis, Professor at the Department of Agriculture, AUTH, Scientific Responsible of the Balkan Environmental Center.
- Sofia Natalia Boemi, Co-Manager of the Digital Transition and Climate Policies Sector at the Cluster of Bioeconomy and Environment of Western Macedonia.
- Spyros Ignatiadis, Advisor, Craftsmen's Chamber of Thessaloniki.
- Anna Michou, President of the Environmental Division of the Technical Chamber of Central Macedonia.
- Gregoris Zarotiadis, Dean of the School of Economic and Political Sciences, AUTH.
- Katerina Roumelioti, Head of Europe Direct Central Macedonia.
- Yiannis Anastasiadis, EES "ELIKAS."
- Nikolaos Tzollas, Representative of the Region of Central Macedonia.
- Michalis Koupkas, Deputy Mayor for E-Governance, Municipality of Thessaloniki.

The session was coordinated by Alkis Stavridis, Project Manager of the BSB1021 CIRCLECON-Black Sea Basin project.

## State of the Art

The Greek Climate Law is one of the strictest and most comprehensive in Europe.

The Circular Economy Strategy in Greece has been ratified by a Ministerial Council act and includes more than 70 axes.

The country has adopted a series of strategies and action plans to address the climate crisis. The enactment of Law 4936/2022, aiming for climate neutrality by 2050 and intermediate emission reductions, will serve as the basis for shaping future policies and strategies and will require significant investments through private and public funds.

## Regional Data

Four years ago, SEVE was one of the first entities to strategically promote the circular economy by participating in the Circlecon and CarbonFree projects.

The Technical Chamber of Greece – Macedonia Dep. has established two CE hubs in Greece and Bulgaria to identify the potential of new scientists to create circular economy businesses. There are 31 applications that will be supported in implementing their business plans.

The Black Sea Environmental Center will serve as the Center of Excellence for carbon in all of Europe.

The Cluster of Bioeconomy and Environment of Western Macedonia has progressed with the participation of the five-helix model in implementing nine projects in the broader Kozani region for the circular economy and bioeconomy, always including up-skilling and re-skilling.

AUTH hosts, on behalf of the United Nations, the headquarters of the Sustainable Development Solutions Network (SDSN) promotion network for the Black Sea. It has also established the observatory for the implementation of the Sustainable Development Goals (SDGs) in the Black Sea, in collaboration with the union of the 112 Universities of the Black Sea. The regional hub of the Black Sea, in cooperation with the Black Sea Economic Cooperation organization, has prepared studies for the framework to start operating the observatory.

Regarding retraining and the development-evolution of skills, AUTH through KEDIVIM can provide accessible, flexible, and effective design and implementation of educational activities targeting the workforce, not necessarily university graduates.

The Region of Central Macedonia has drafted an action plan for the promotion of the CE model in the SMEs; moreover, the Region participates in many EU-funded projects dealing with Circular Economy, having achieved a well standing level of know-how on the topic.

The Municipality of Thessaloniki leads in recycling at national level. The initiative "OK Thess" contributes to the collection and conversion of plastic packaging into new products through 3D printing.

The Chamber of Craftsmen, in collaboration with the Regional Development Fund, is initiating a pilot project on the application of the principles of Circular Economy and Industrial Symbiosis in the SINDOS Industrial Area.

## Concerns

The **main concern** of this roundtable is "how we will achieve the transition from the linear model with the participation of society, academics, and the business world."

The practical implementation of the circular economy remains a significant challenge in critical areas such as waste management, recycling, and the degree of material circularity. Material circularity reached 5.4% in 2020 (compared to 2.4% in 2016), while the EU average is 12.8%.

Greece ranks as 17th in the EU in terms of eco-innovation, which refers to the development of innovative products, materials, services, and processes that protect the environment and make the most efficient use of available resources.

Resource productivity, the indicator that expresses how efficiently the economy uses material resources to generate wealth, although improving steadily in the last decade, still lags behind in Greece (€1.77 per kg compared to €2.09 per kg on average in the EU).

The obstruction of local communities to the installation of renewable energy plants is a significant issue. While they constitute a minority, they are an organized minority with whom dialogue must take place, as stipulated by the Aarhus Convention, an emblematic legal instrument for environmental democracy. It needs to be understood by society that the circular economy ensures human sustainability and is not a directive imposed by EU.

Furthermore, there is a significant lack of information regarding the benefits of the circular economy and environmental legislation. A successful transition to a circular economy can only be achieved through joint efforts, which require exchange and dissemination of knowledge and innovation among the various value chain stakeholders. The lack of information exchange system poses an additional obstacle to the effective adoption of circular business models. Confidentiality and lack of trust hinder the exchange of knowledge and information about products among companies and impede production, innovation, and effective end-of-life management of products.

Green public contracts have been adopted in national legislation for the past 1.5 years but have not adopted yet. The challenge of integrating green contracts into economic activities relates to both the potential preferential

relationship that can be formed with specific suppliers and the readiness of Greek businesses to respond.

Social and environmental governance is gaining ground and is practically mandatory for major economic entities. However, without a predetermined institutional framework, its implementation within the organization, without examining my customers and clients, ultimately becomes just a marketing tool and not a real contribution to the circular economy.

Phasing-out lignite, compelled by the climate crisis rather than EU requirements, has led to exporting of lignite to Northern Macedonia and its use there, 30 km away from Greece. The paradox of the economic activity of "exporting" materials that are no longer used and "importing" them in the form of pollution, creates a vicious cycle with no positive impact on the energy transition strategy and climate change mitigation.

A prerequisite for the implementation of the circular economy is its sustainability, achieved through the production of high-value-added products and services. There is virtually no proper sorting at the source or processing infrastructure to reintegrate materials into the economic process.

The food cycle: In addition to the well-known "food waste" at the consumer level, both as consumption residues and due to expiration, there are significant primary quantities of crops that are not used for human consumption or biogas/composting and remain unused. Residual material from rice cultivation, straw, and seaweed "waits" to be sustainably transformed into a source of income for the local community.

## Challenges

It is evident that challenges in waste management, circular economy, and environmental controls need to be addressed. For the Circular Economy, acceleration is needed in both the implementation of regulations and the necessary infrastructure for the country to achieve its goals and avoid incurring fines of millions for informal landfill operation and €500 million for ineffective hazardous waste management. Additionally, the €12 billion from the Recovery Fund, which is designated for climate objectives, reforms, and investments for transitioning to a low-carbon economy, constitute a major opportunity for the country.

Interventions in the agri-food sector are the top priority. Adopting the circular economy, bioeconomy, organic farming principles, precision agriculture systems, and certification standards lead to better products, better prices for producers, and sustainable agricultural models. Environmental Product Declaration (EPD) certification for agricultural products is the challenge for exporting Greek products.

The second major challenge concerns the construction sector and building materials, which dominate our economy as an economic sector and generate more than 40% of the waste. Changing the consumption model in construction projects by incorporating Life Cycle Assessment (LCA) in studies and tenders for public works, using recycled secondary materials in public contracts, and specifying their requirements are certainly a priority for the



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industry. Mandatory improvement in the energy efficiency of buildings will significantly increase GDP and simultaneously improve the environmental footprint of the building stock.

Glass from packaging, glass from buildings and construction waste, as well as automotive glass, are not utilized in other productive structures (e.g., ceramics) and end up as waste, while in the rest of Europe, they serve as raw materials. Since there is no Greek production capacity to reuse them, at the very least, their export should be ensured, with proper sorting at the source playing a role in this.

The inadequacy of infrastructure for separate collection, processing, and utilization of secondary materials poses a huge challenge, aiming at the recovery of these materials in sufficient quantities and appropriate quality.

Thessaloniki's Chamber of Crafts 32,000 members need information about what circular economy is and why it is crucial for their sustainability and competitiveness. SMEs must realize that the CE will provide them with a competitive advantage. To achieve this, they need to be informed and trained. This can be done in collaboration with the Central Administration, the Regions, and, of course, the University. Concepts such as "extended producer responsibility" are still completely unknown to Greek SMEs.

The introduction of the circular economy in local government constitutes a reform. Typically, reforms in Greece are limited to institutional regulations. The circular economy in local government should not be limited to the pages of the national plan and implementation decisions but should support the education and awareness of the staff.

## Recommendations

The most crucial factor is **Awareness Raising**:

- Towards the general population: An organized information campaign is required to combat misconceptions and misinformation.
- Towards businesses: Circular economy is not an obligation for businesses; it is an opportunity with multiple medium- and long-term benefits. Rapid adaptation will lead to growth and benefits.

### **Training:**

- Public administration should first be educated to understand the circular economy and then be trained on circular economy issues.
- Entrepreneurs and business personnel need retraining and skills development.
- Young graduates, both from universities and other institutions, need to be trained in the new challenges of the circular economy models.
- Education for sustainability from primary school level is an important factor in raising responsible citizens.
- Adult education and lifelong learning on sustainability issues are prerequisites for people to understand what circular economy means. Implementing the circular economy requires additional knowledge and skills from personnel.

It is important to promote training and development of employees to understand and implement sustainable practices. Moreover, fostering a cultural change and encouraging participation and innovation from employees are crucial.

### **Dissemination of Best Practices:**

- **Central and local government:** Hundreds of successful community examples, at the neighborhood, settlement, or city level, are waiting to be promoted.
- **Chambers of Commerce and Business Associations:** Successful practices that transform "waste in products," from our own country to distant places like Australia, can serve as a source of inspiration and creation for our business environment.
- **Civil Society:** Replicating citizens' initiatives across Europe will improve everyday living conditions, contribute to family finances, and provide hope for a habitable planet for the next generation.

### **Incentives for local government:**

The circular economy in local government should not be limited to the pages of the national plan and implementation decisions but should support the education and awareness of personnel.

**Incentives for businesses**, such as development incentives and tax benefits, are needed to foster circular entrepreneurship. Without these incentives and considering the lack of information, our productive model will not be able to transform and will collapse.

Promoting **Industrial Symbiosis** through the creation of material, quantity, and flow databases to achieve significant synergies, economies of scale, and revenues, while also benefiting the environment. Simultaneous implementation of knowledge exchange platforms, sharing of best practices, materials for industrial symbiosis linked to a reporting and certification system, and information exchange on the demand and supply of secondary and primary materials.

**Entrepreneurship Activation:**

- **Analysis of product life cycles:** Businesses need to evaluate the life cycle of their products, from initial construction to withdrawal and disposal. This will allow them to identify opportunities for recycling, repair, refurbishment, or reuse of their products and materials.
- **Collaboration and networks:** Small and medium-sized enterprises can benefit from collaborating and creating networks with other businesses, service providers, and organizations active in the circular economy sector. Collaboration can involve the exchange of information, joint resource and infrastructure utilization, and the development of common programs and initiatives. This will help businesses address common challenges and better exploit the opportunities offered by the circular economy.

**Financing Mechanisms:**

**Green Bonds:** To implement green bonds, there must be certification bodies to document the required characteristics of investments. The observatory could have the character of an advisory certified body so that businesses or municipalities can substantiate their funding requests. We can innovate in policy implementation and attract capital to **blue bonds**, promoting financing in the blue economy.

## The aftermath

The CIRCLECON project has a very specific tangible deliverable, or even better a legacy: the EGTC, meaning the establishment of a legal entity - a collaboration platform at an international level in the Black Sea Basin.

This result must be capitalized by operating as a *living lab*, drawing expertise from **centers of excellence** and **innovation nodes** that already exist in the region. It should contribute to the creation of a **vocational center** that provides re-skilling and up-skilling based on the needs of the real economy. The EGTC, as a living lab - always involving the quadruple helix and the Aristotle University of Thessaloniki (AUTH) with its observatory and hub - can serve as the means to anticipate the weaknesses of the region.

This conference has created a window of opportunity: Let us try for the first time to converge in this area, in real terms and not as an “obligation” of a CBC project. Successful transition to a circular economy can only be achieved through collective efforts, which require the exchange and dissemination of knowledge and innovation among the various stakeholders in the value chain.

This roundtable will continue to exist with the participation of any interested and capable parties in order to:

- Engage the entire quadruple helix. Engagement is necessary; we need to explore the reasons why we have not succeeded thus far.
- Enable Thessaloniki to assert itself as a political, scientific, and economic initiative for promoting the circular economy and blue growth in Southeast Europe and the Black Sea region.

European Neighbourhood Instrument Cross-Border Cooperation	
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Date	June 2023
Joint Operational Programme Black Sea Basin 2014-2020 is co-financed by the European Union through the European Neighbourhood Instrument and by the participating countries: Armenia, Bulgaria, Georgia, Greece, Republic of Moldova, Romania, Turkey and Ukraine.	
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