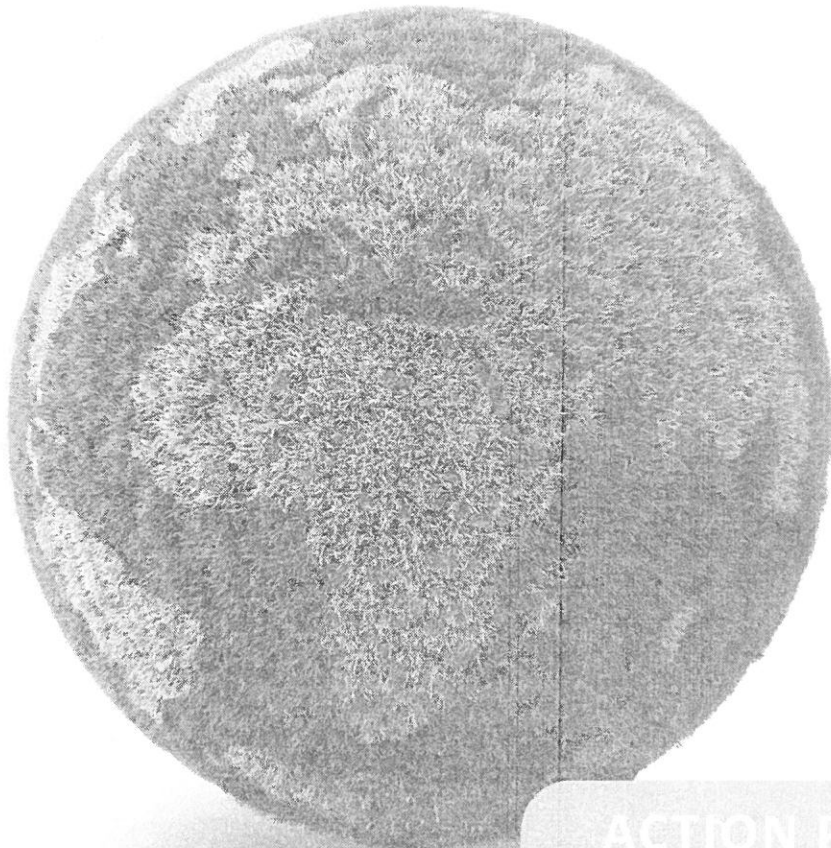


**Industrial Symbiosis for Regional Sustainable Growth and a
Resource Efficient Circular Economy**

SYMBI
Interreg Europe



ACTION PLAN

MUNICIPALITY OF KOZANI

March 2019

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Municipality of Kozani

Action Plan (Greece)

Project Activity: A5.1

Date: 15/03/2019

SYMBI Industrial Symbiosis for Regional Sustainable Growth and a Resource Efficient Circular Economy

About the project

The "SYMBI" project is part of the fourth priority of the Interreg Europe Operational Program, which concerns the efficiency of energy resources.

The "SYMBI" project aims to support and improve the regional policies of the European Regions that are represented in the diffusion of industrial symbiosis, in order to add value, reduce cost production and lead to the alleviation of environmental impacts through increased resource efficiency and the reduction of greenhouse gas emissions. Improving the policy tools of the regions involved is expected to make a positive contribution to regional sustainable development and job creation.

In order to achieve this, the SYMBI project strengthens through its activities:

- a) the exchange of experience between the regions and stakeholders involved in the supply and value chain of resource use,
- b) the incorporation of lessons learned into regional policies and action plans, including indicators for benchmarking, and
- c) the development of broader synergies to support the transition to a circular economy.

The main results / deliverables of the project "SYMBI" include:

- Promoting the exchange of experiences of partners and stakeholders' groups
- Developing Action Plans in order to improve the policy related plans of those involved, along with the Managing Authorities and the tool beneficiaries.
- Summary of newsletters addressing public services that include public services that are not involved in the project and will include the knowledge resulting from its implementation.
- Thematic studies and analyses on circular economy and industrial symbiosis.

Part I - General information

Project: SYMBI Industrial Symbiosis for Regional Sustainable Growth and a Resource Efficient Circular Economy

Partner organisation: Municipality of Kozani

Other partner organisations involved (if relevant): _____

Country: Greece

NUTS2 region: EL53 – Western Macedonia

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Part II – Policy context

- The Action Plan aims to impact:
- Investment for Growth and Jobs programme
 - European Territorial Cooperation programme
 - Other regional development policy instrument

Name of the policy instrument addressed: Special Development Programme of Western Macedonia

Basic information about the policy instrument: The Special Development Programme, which is directed to areas threatened by environmental degradation due to the production of fossil fuel energy, is managed by the Special Development Programme (SDP) of the Region of Western Macedonia. The Municipality of Kozani is one of the two beneficiary regions, responsible for the management of the local SDP provisions. The SDP has been active since 2002 and finances projects and activities until all the funds of the present programming period are used. At the moment the available budget for the Municipality of Kozani is estimated at 10.000.000,00€ and the proposed activities of the Action Plan will

be financed from this amount after submitting a technical description of the proposed activities to the Region of Western Macedonia. This Action Plan of the SYMBI project of the Municipality of Kozani intends to influence the output indicator "number of new enterprises or business expansions" of Axis 2 of the Policy Tool by giving initiatives and assisting enterprises and businesses starting up or expanding their activities according to Circular Economy. Additionally, it will contribute to introducing new measures and eligibility criteria, according to Circular Economy principles, for the next programming period.

Part III – Details of the actions envisaged

INTRODUCTION

Industrial symbiosis and circular economy projects are rare in Western Macedonia Greece and, in general, as concepts are not well known among regional authorities that do not include it in their development strategies. Similarly, usually Greek industries do not take advantage of opportunities to develop industrial symbiosis.

Greece has not yet developed a national action plan for Circular Economy and its concept exists only as a suggestion and is based on the instructions given by the European Union. On the other hand, individual spontaneous efforts, mainly in order to comply with environmental legislation have driven small companies and industries to co-operate with each other and create such circular economy industrial ecosystems.

1. OBJECTIVES OF THE ACTION PLAN

The Core Objective of the Action Plan of the Municipality of Kozani is the "Transition of the Economy of the Region from Linear to Circular". The core objective is specified in the Specific Objectives of the Action Plan as follows:

- Increase the use of public green procurements.
- Increase of cooperation between industries and industry-public bodies
- Increase of funding and financial incentives for industrial symbiosis

2. REGIONAL ANALYSIS OF THE CURRENT SITUATION

- a) **Key intermediate actors in the promotion of industrial symbiosis and circular economy in the region (please include actors from the Quadruple Helix* concept if possible)**

The Key Intermediate Actors, who will be involved in the realization of the Action Plan come mainly from the stakeholders, bodies involved in the Phase 1 of the project, individual companies, commerce and industry chambers. More specifically:

Actor 1: Government (Region of Western Macedonia, Regional Association of Municipalities of Macedonia)

Actor 2: Industry (Development Agency of Kozani, Waste Management Company (DIADYMA), Municipal Water Company of Kozani (DEYA), PPC SA, Bioenergy and Environment Cluster of Macedonia)

Actor 3: Academia (University of Western Macedonia, Technical Education Institute of Western Macedonia, Centre of Research and Technology / Institute of Solid Fuels Technology and Applications)

Actor 4: Citizens (Technical Chamber of Western Macedonia, Kozani Chamber of Commerce,

b) Main barriers that hinder industrial symbiosis or circular economy development

The local group of stakeholders acknowledged the key factors that hinder industrial symbiosis and the circular economy in the region through a participatory process and exchange of experience and knowledge during the first phase of project implementation. There were nine (9) critical barriers to industrial symbiosis and the circular economy, which are relevant to local or general/national policy.

Barrier 1: Lack of awareness, raising awareness and staff training for local actors

Barrier 2: Non-implementation of green procurement

Barrier 3: Lack of integration of knowledge from research projects into commercial products and services

Barrier 4: Lack of use of ICT and Big data

Barrier 5: Non-integration of industrial symbiosis into the Special Development Programme and the ROP of Macedonia

Barrier 6: Lack of the necessary infrastructure to implement industrial symbiosis programs (eg industrial sites)

Barrier 7: Lack of appropriate legal framework / specifications for products derived from by-products

Barrier 8: Insufficient institutional and regulatory framework for PPPs

Barrier 9: Lack of cooperation / trust / information between operators / industry in the region

3. IDENTIFICATION OF BEST PRACTICES IN THE IMPLEMENTATION OF INDUSTRIAL SYMBIOSIS AND CIRCULAR ECONOMY PROMOTING ACTIVITIES:

During the implementation of the SYMBI experience sharing actions, several good practices were recorded in the regions of project partners related to the utilization of industrial symbiosis and the

promotion of the circular economy. Some of these good practices have features that can be transposed and implemented in Greece to address the obstacles mentioned above, such as:

Example 1: “Guidelines on how to capitalise green procurement as an enabler of industrial symbiosis.” This paper was prepared by the lead partner of the SYMBI project, FUNDECYT within the context of activity A1.1. It outlines the results of an analysis of the level of development of green public procurement (also GPP hereafter) in SYMBI partnership regions. The paper concludes with the presentation of a typology of the level of development of GPP in EU countries and of a roadmap for its development which includes and outlines different policy recommendations for different types of GPP development.

Example 2: CELCYCLE - Slovenia: A national initiative to promote the bio-economy in Slovenia by using a circular economy approach to utilize biomass resources to explore the potential of biomass resources (in the form of timber, agricultural by-products and green residues) to be used as an alternative source of energy and / or raw materials for the development of advanced materials and organic products.

Example 3: Kaiserbaracke Industrial Cohesion Network - Belgium: The Kaiserbaracke industrial ecosystem, located within the Amel Community (Walloon), has emerged as a collective approach to improving economic and environmental performance, by using by-products as substitutes for raw materials and conventional energy. Four companies active in the wood and cogeneration sector have decided to replace the previous energy supply (i.e. fossil fuels) with alternative, more sustainable sources. Companies have built a cogeneration unit, which is a biomass system that burns wood waste to supply companies with heat and electricity.

Example 4: FRUSH - Finland: FRUSH is an annual event for businesses, experts and funding for the circular economy, which takes place in Forssa, Finland. It is organized by the Häme University of Applied Sciences and the Municipal Business Development Company of Forssa. There are similar types of matching events for start-ups and SMEs, but FRUSH is the only one that focuses on the circular economy.

4. IDENTIFICATION OF ACTIONS TO BE IMPLEMENTED

4.1. Action 1: *Development of human resources competences on elaborating Green Public Procurement.*

A. The Background

Green Public Contracts (GPP) can act as a guide to industrial symbiosis by introducing and specifying industrial symbiosis practices in public procurement procedures. An example would be the promotion of

secondary materials in the provision of infrastructure or services or the introduction of targets for reuse rates in public works. In addition to the direct effect of promoting green production methods (one of which is industrial symbiosis), the introduction of green public procurement practices will introduce a new progressive attitude towards public bodies and companies involved in public procurement by making them more the "green economy" friendly. The Guidelines on how to capitalise green procurement as an enabler of industrial symbiosis, a paper prepared by the lead partner of the SYMBI project, FUNDECYT within the context of activity A1.1., presents the level of development of green public procurement (also GPP hereafter) in SYMBI partnership regions, and outlines policies and measures that support the utilization of GPP for the initialization and advancement of industrial symbiosis and circular economy in the partnership countries.

In the Polish procurement system, with some exceptions, the decision to include environmental criteria in the procurement process depends on the contracting authority. Despite the fragmentary character of its expansion, GPP has made headway in Poland and this is evidence of the potential for expansion of sustainability practices within developed economies. The Italian Government has made several attempts to regulate the topic of GPP in a deeper manner, aiming to use it as a strategic leverage to push economy toward a circular model and to foster as a subsequent effect the expansion of industrial symbiosis. Slovenia managed to adopt the EC GPP criteria into national legislation relatively quickly and efficiently and is still among few countries in EU that has entirely regulated GPP processes. Green Public Procurement (GPP) is an increasingly important issue for policy-makers in Spain and its 17 Autonomous Communities. The main GPP instrument in Spain is the Green Public Procurement Plan for General Government Administration and Public Bodies and institutions operating Social Security Schemes in Spain. It was adopted in 2008. Finnish innovation fund SITRA has created a publication "Finland's circular economy road map". The road map highlights best practices and pilots that can be easily replicated and provide added value on a national scale. The roadmap includes public procurement as a way to make circular economy a strong part of the Finnish economy in a way that it can be also replicated to international level.

Based on the analysis made during this SYMBI research a typology of GPP development that can be easily utilized by organizations and territorial authorities has been created. The results of the typology are presented in the form of roadmap for GPP development and specific measures are proposed for developing GPP procedures.

B. Action

The scope of this action is to assist the public employs, involved in Public Procurements Procedures, to develop their competence on using Green criteria and Circular Economy Principles. In order to achieve this, specific activities will be undertaken:

- 1.1. Seminars of local government officials on public green contracts
- 1.2. Consultation of companies on "green" criteria in public "green" contracts
- 1.3. Handbook with Instructions to Contracting Authorities of Local Government Authorities for Green Public Procurement

The purpose of implementing these activities is to **inform at least 50 employees** of Local Government Bodies and **15 employees of companies** on public green contracts and produce a relevant **Handbook for Contracting Authorities**. The aim of the above is to announce at least two public "green" contracts from the Local Authorities of the RWM that include criteria on the principles of the circular economy, as will be specified by the Action.

C. Players involved

Player	Role
1. Region of Western Macedonia	Participating in Activity 1.1 Participating in Activity 1.3
2. Municipal Water Company of Kozani	
3. Waste Management Company	
4. University of Western Macedonia	
5. Technical Chamber of Western Macedonia	Participating in Activity 1.2 Participating in Activity 1.3
6. Kozani Chamber of Commerce	
7. Technical Education Institute of Western Macedonia	
8. Municipality of Kozani	Participating in all Activities / co-ordinator

D. Timeframe

Second half of 2019 – permanent task

E. Costs and funding sources

Cost: 5.000€ - Funding source: the policy instrument addressed in SYMBI otherwise self-financed.

F. Monitoring of actions

- Indicators:* (a) Number of employees participating in workshops
 (b) Number of suppliers participating in workshops
 (c) Number of green public procurements implemented by the Municipality of Kozani

4.2. Action 2: Support for the development of collaborations in the circular economy and industrial co-operation

A. The Background

Industrial symbiosis and circular economy concepts are very new in Greece. This is one of the reasons why it is difficult for companies, industries and government bodies to understand the meaning of the concepts and develop these concepts. Support for the development of partnerships for eco-industrial symbiosis can be organized in a range of services such as (a) dialogue (mobilizing members of a network), (b) link (knowledge sharing), (c) co-creation (trade facilitation and synergy implementation).

Among good practices, described in the in the SYMBI publication FRUSH Event-Finland can be transferred in Municipality of Kozani and assist on boosting Industrial symbiosis and circular economy. FRUSH is an annual circular economy business, expertise and funding event held in September in the city of Forssa, Finland.

FRUSH entails:

- speeches by respected professionals, decision makers and innovators
- workshops etc. for students to encourage them to develop CE and IS
- pitching competition for start-ups to find investors
- business to business matchmaking meetings
- exhibition of new innovations and products based on CE
- international event for exchanging experiences and to develop collaboration.

B. Action

Emphasis in Action 2 is on information and awareness-raising, match-making, and knowledge transfer to effectively promote industrial symbiosis.

In order to achieve this, specific activities will be undertaken:

- 2.1 Raising Awareness Events - business briefing
- 2.2. Business Workshops – Business match - making
- 2.3. 1st Regional Conference of Circular Economy and Industrial Co-operation

The purpose of implementing these activities is to inform at **least 15 companies** and at least 10 to participate in the above-mentioned industrial symbiosis schemes. The aim of the above is to establish **two industrial** symbiosis schemes, that their start-up will actually be financed by the Policy Instrument

addressed and will be promoted by it through the conference. Furthermore, at the final conference the lessons learned through the implementation of the action will be presented and a paper introducing new measures and financing eligibility criteria, according to Circular Economy principles, for the next programming period of the financing tool addressed.

C. Players involved

Player	Role
1. Waste Management Company	Participating in Activity 2.1 Participating in Activity 2.3
2. Technical Chamber of Western Macedonia	
3. Geotechnical Chamber of Western Macedonia	
4. Technical Education Institute of Western Macedonia	
5. University of Western Macedonia	
6. CLUBE Cluster	
1. Waste Management Company	Participating in Activity 2.2 Participating in Activity 2.3
2. Kozani Chamber of Commerce	
7. Municipality of Kozani	
7. Municipality of Kozani	Participating in all Activities / co-ordinator

D. Timeframe

Second half of 2019 – permanent task

E. Costs and funding sources

Cost: 20.000€ - Funding source: the policy instrument addressed in SYMBI otherwise self-financed.

F. Monitoring of actions

Indicators: (a) Number of enterprises participating in events
(b) Number of closed workshops implemented
(c) Number of industrial eco-synergies started

4.3. Action 3: Mitigation of Actions for the National Fair Transition Fund

The Greek Ministry of Environment and Energy is in the process of setting up a "Special Account for the Fair Transition of Lignite Areas" in order to finance projects and actions, which diversify the economic activities of the lignite areas of the Region of Western Macedonia (Kozani and Florina) and the Municipality Megalopolis. The Special Account will be funded with at least 60 million € for the 2018-2020 period. For the years 2019 and 2020, an open consultation is planned to add new axes based on development plans and road maps drawn up by the Local Government in the lignite areas. The Scope of this action is to assist the transition of local economy to a Low-Carbon Circular Economy.

During the implementation of the 1st Phase of SYMBI Project, a large number of Good Practices combining Circular Economy principles and Low-Carbon Economy have been presented by the project's web-site, and the participants (partners and stakeholders) had the chance to even visit some of them. So a "list of ideas" with measurable outcomes and results exists; from this list new projects adapted in Municipality of Kozani needs will arise.

A. Action

The action will focus on the development of proposals by the Municipality of Kozani, specifically on the financial axis of the circular economy / utilization of secondary materials of the National Fund for Fair Transition and includes the following activity:

3.1. Preparing proposals for the National Fund for Fair Transition

The aim of the above action is to submit two proposals from the Municipality of Kozani to the National Fund for Fair Transition.

B. Players involved

Municipality of Kozani

C. Timeframe

All the time of Phase II

D. Costs and funding sources

Cost: 4.000€ - Funding source: the policy instrument addressed in SYMBI otherwise self-financed.

Only the necessary preparatory activities for the proposals will be funded from the policy tool addressed in SYMBI project. The implementation of the proposal, if it is approved will be financed by the Special Account for the Fair Transition of Lignite Areas.

E. Monitoring of actions

- Indicators: (a) Number of project proposals submitted
(b) Number of project proposals financed

Signature

Date: _____

Signature: _____

Stamp of the organization (if available):



The image shows a blue ink signature written over a circular official stamp. The stamp contains the text 'ΔΗΜΟΤΙΚΗ ΕΠΙΧΕΙΡΗΣΗ ΕΛΕΥΘΕΡΙΟΣ Δήμος Κοζάνης'.

