



# Chapter 7

## PP7 SOFIA MUNICIPALITY

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## I. OVERVIEW

At the time of drafting this report, the project team was able to feed information and partial data sections from one to six of the CircE tool, with some of the sections still being refined and round out.

Following the guidelines in CircE tool, the collected and identified information and data, were used in the completion of steps 1 and 2 of the RIS 3 Strategic Areas and SWOT Analysis, from which the priority innovation regions in Sofia Municipality were outlined from a cyclical economy perspective.

The completed information helped the data feed in Step 3, where Industry representatives (3.1), the R&D Sector (3.2), Education (3.3), the Policy (3.4) were identified as stakeholders.

In order to avoid duplication of the Steps and for greater precision, we have conditionally divide Step 4 in two parts: 4.1. Cross Cutting Projects and 4.2 Good Practices.

Step 4.1 is complete with available information on similar projects in the sector of the circular economy in order to achieve synergy of the project with similar initiatives and in order to upgrade the results already achieved or in progress.

Identified several good practices in Step 4.2 so far. The step are in the process of update according to the progress made and the results of the studies conducted.

Steps 5 and 6 describe the opportunities and barriers identified so far reflecting the progress achieved.

Taking into account the specifics of the sector, we believe that the personal engagement of the identified stakeholders would ensure the achievement of some better and practical results. Following our understanding, the project team has conduct intensive direct contacts with stakeholder representatives whose culmination and expectations alignment has taken place within the framework of the organized workshop and subsequent consultations.

The summarized results of the meeting and analysis of the specially designed to the project survey were present in separate report.

The identified stakeholders expressed willingness to assist in the implementation of the project activities as well as to provide the necessary information and data.

### I.1. STRATEGIC ANALYSIS

The Strategic Analysis section was complete after a careful review of Sofia's Intelligent Specialization Strategy and the Waste Management Program. The two documents manage to summarize the commitment of the economic sectors with the imposed innovative practices and the approach of the Sofia Municipality towards the process of waste management in the perspective of the circular economy.



The SWOT analysis has allowed the definition of specific areas of application of the circular economy by comparing strengths and weaknesses and taking advantage and threats into account to make it easier to specify the specific fields of intelligent waste specialization and management.

As a result of the analysis, two main potential application areas for the application of a circular economy in the Sofia Municipality were defined:

- Environmental management - related to the waste management process;
- Others - covering economic, social, administrative and legislative sectors.

The results obtained have greatly facilitated, at this stage, the CircE information feed in the opportunities and barriers section, which has enabled a smooth, consistent and interlinking transition between the instrument sections.

Participation results, suggestions made and summarized survey data from the stakeholders were present in a separate report.

## **I.2. SECTORAL ANALYSIS**

Based on the defined action fields, a detailed sectoral analysis was carried out to identify the practicable and potentially possible areas of application of the circular economy. Considering the dynamics of the sectors defined in the region, it can be assumed that the present process is a constantly open convergence process.

The data used for analysis were from Sofia Municipality, Executive Environment Agency, National Statistical Institute, Regional Inspectorate of Environment and Water Sofia and the information provided by the interested stakeholders. The following NACE codes were identified analyzing the information and data collected and summarized so far, as well as the defined priority sectors and subsectors:

- C27 - Manufacture of electrical equipment
- C17 - Manufacture of paper and paper products
- F41 - Construction of buildings
- E38 - Waste collection, treatment and disposal activities; materials recovery
- E37 - Sewerage.

In order to complete the CircE tool we used the available public information in Sofia Municipality, Executive Environment Agency, National Statistical Institute, Regional Inspectorate of Environment and Water Sofia. Data complements continue, relying on the assistance of identified stakeholders.

The input of identified stakeholders continued beyond the concluding meeting, and in a permanent dialogue and additional working groups, the need to provide additional information and data to serve as the final completion of the CircE tool was clarified.



### I.3. SYNERGY

Achieving high efficiency and effectiveness of project results predetermines the need to conduct further research on similar projects relevant by result and by goals. Following that road will lead us ensuring a transition between the achieved results and the identified opportunities in the field of the circular economy.

Following the understanding, that synergy is a convergence process, the monitoring will continue through the project duration.

### I.4. GOOD PRACTICES

Despite the ongoing process of this activity, so far we have been able to identify some good practices, listed below. The stakeholders helped a lot during the process of good practice suggestions on the meeting and in the discussion panel and conducted constructive dialogue before and after the workshop. The good practice identified so far falls within the scope of both smart specialization and waste management sectors.

The finalization of the current activities and the analysis results will serve as a basis for cross-sectorial and cross-regional analysis.

All the data collected so far allow us to feed the CircE tool, and the full completion of this section will allow initiating effective cross-sectorial and cross-regional analysis.

The identified so far good practices are as follow:

- WEEE door to door collection - Free of charge collection of WEEE from households with mobile team collectors. Collection is organized on schedule after processing the household's phone requests;
- Old Paper for New Book - Under the motto "Clean Up and Read Up", the children had the opportunity to learn more about recycling, how they can help save and protect nature and how to collect waste separately, and could get a free book of their own choosing. Each child who, together with an accompanying adult, handed over for recycling at least 5kg of old paper was entitled to a free book of choice, as well as gifts from the event partners;
- Legislative CDW targets clarification - Provide comprehensive and up-to-date information on the requirements for achieving targets in the CDW sector. The members of the association are in time informed of the expected changes in the sectoral legislation;
- RRR of municipal and biodegradable waste - MEWT Sofia is responsible for treatment of municipal waste of Sofia municipality. The generated municipal waste are RRR in modern, compliant and integrated municipal waste management system;



- Waste recovery - Recovery of generated sewage sludge on the territory of Sofia municipality;
- Education to practical sector expectations - Highlighting the learning process towards innovative elements and approaches to: Addressing risky and key financial and environmental issues; Managing the most dynamic component of technologies - biological systems - active sediments, sediment communities, biofilms, etc.; Use of different bioaccumulating factors - ecological, microbiological, nano-particles; Innovation in technology control; Waste management - Methods for control, Technology and innovative processes for transformation, recovery and recycling of waste, transformation and raw material; Renewable energies and clean energies; Innovation in the educational algorithm; Special ecosystem environment for developing entrepreneurial skills and orientation towards pragmatism and efficiency;
- IT waste management system - Implemented in Sofia municipality integrated waste management system;
- Sofia Tech Park - The main goal of the company is to boost the development of research, innovation and technological capabilities of Bulgaria through implementing different projects. For this purpose, “Sofia Tech Park” will collaborate with private and public institutions in order to create and manage a unique environment for innovation, build and implement educational programs and provide support to the commercialization of new technologies, products and services.

## 1.5. OPPORTUNITIES

Despite the fact that the current activity is not yet fully covered and cross-sectorial and cross-regional analysis are not over, we manage to identify several potential opportunities. Under the opportunities as well as under the Good practices Step it is not appropriate to set a boundary or describe the concrete input of stakeholders. During the implementation on both Steps and in all project activities, we considered stakeholders as equal project partners. We believe that that approach imposed by the project team is fundamental to the mutual trust, personal attitude and personal commitment of the identified stakeholders to the project results.

We present bellow the opportunities identified per sector so far:

### BIODEGRADABLE WASTE

- Establishment of a center within the Municipal enterprise for waste treatment - Sofia for training of staff for the operation of composting plants, seeking an adequate response to the growing need of such specialists in the country. The present opportunity is to create a practical training center, located on the territory of the Sofia waste treatment plant. The specialized training of students about the processes and technology of pre-treatment



and composting plant will be performed. Organizing such training will contribute to the better prepared potential future employees in the enterprise;

- Start meetings and talks with the hotel industry and municipal hospitals for separate collection of biodegradable waste. The possibility of establishing a system for separate collection of biodegradable waste generated by the hotels located on the territory of Sofia municipality and municipal hospitals is under exploration. Increase of separate collection of the biodegradable waste and achieving a high frequency of collected biodegradable waste is expected with practical implementation of such a separate collection system.

### **SUSTAINABLE TOURISM**

- Promoting the possibilities of maintaining composts in guest houses as part of the sustainable ecotourism. The possibility to develop a green composting system, using garden composters in guesthouses and the suburban hotels are under investigation. The goal is to participate the owners with the benefits and benefits of home composting opportunities. Effective joining the system through the production and recovery of compost will allow the owners to join a platform for sustainable ecotourism.
- Promoting bicycles as an opportunity to move to a central city area. The bicycle roads in the central part of Sofia creates a good prerequisite for the use of bicycles as a means of transport. Increasing a rent a bike services will be a good opportunity for circular economical model.

### **BUILT ENVIRONMENT**

- Preparing business models to promote cross-sectoral links, by creating secondary raw materials markets or promoting so-called “Industrial symbiosis”. The main goal of that opportunity is to create a platform for the exchange of information and data on the proposed and demanded recyclable raw materials generated by the demolition process. The creation of such a publicly accessible platform will not only facilitate the demand and supply of recycled building materials, but will also increase their share of construction sites.
- Preparation of guidelines containing sequence actions taken in case of destruction of buildings and the subsequent treatment of generated waste. The guide could be use by contracting authorities in a process of demolition plans preparation and pricing the services. The control bodies will be able to check the stage of work and the action taken so far on demolition sites. Practical implementation of the guidelines will contribute to the share of recycled material from the demolition.
- Construction of a pellet plant for utilization of wood waste generate from Municipal enterprise for waste treatment – Sofia and feeding the administrative buildings of Sofia



Municipality. With the construction of a pellet plant on the territory of Municipal enterprise for waste treatment – Sofia, an opportunity for the recycling and recovery of incoming wood waste from households will be provided. Separated biodegradable waste not suitable for composting will be used in the production of pellets, which will increase the share of recycled / recovered municipal waste.

### EDUCATION - SOCIAL

- Building an ECO-INDUSTRIAL PARK, representing a multifunctional complex, illustrating the idea of resource efficiency and circular economy. The park will essentially be a preparation center for re-use and recycling, but at the same time it will be designed as a visitor center for social and cultural events, recreation areas to attract the attention of visitors and to increase their awareness and ecological issues.
- Design of centers for reuse, repair and preparation of waste to reuse, including provision of facilities and equipment on the territory of Sofia Municipality - Municipal - Eco Parks, through which to seek a point of intersection between the interest of the business, the municipality and the inhabitants;
- Innovative and applied potential of a competence center “Clean technologies for sustainable environment - water, energy, waste for the circular economy - Clean & Circle” - The idea of the center is the development of specific technologies and innovations for the different types of waste to become resources;
- Conduct of campaigns, meetings, seminars and public discussions on raising awareness of the transition to a circular economy opportunities. Updating the Waste Management Program of Sofia Municipality with a circular economy section will be initiated. The action plan for this section will include measures to promote circular economy models. Campaigns, events, seminars, etc. for different target groups (citizens, industry, manufacturing industry, etc.) will be covered. In such scenario, the entities will be informed about the possibilities of the circular economy, which will stimulate the construction of new models of circular economy and improve the efficiency of the already established ones.
- Preparation and signing a partnership and mutual assistance agreement in the field of environment and the circular economy with specialized in these sectors universities (for example, University of Chemical Technology and Metallurgy, University of Forestry and etc.) By signing a partnership agreement, it will be possible to involve university sector in the development of strategies, plans, models, etc. at the municipal level. In addition to joint participation in future projects, partners will also be able to rely on competent experiences in the environmental and circular economics sectors during implementation of local policy. On the other hand, students will be able to participate



on practical situation in these sectors at the local level, which will provide them with additional competitiveness.

## POLICY

- Initiate steps to modify waste management programs with the inclusion of a circular economy section. This action will provide an additional focus on the circular economy by adding to Waste Management Program of Sofia municipality circular economy section. By setting and implementing specific tasks of the Action Plan to this section, the practical implementation of measures related to the circular economy in the waste management sector will be ensured.