

## **Action D4 Socioeconomic impact assessment**

### **DELIVERABLE D4.D1**

#### Social LCA Methodology for the “LIFE-IP CEI-GREECE” demonstration areas

Beneficiary Responsible: HUA, Beneficiaries involved: ERS, MEEN

### Summary

This methodology protocol (title: “Social LCA methodology for the LIFE-IP CEI Greece Demonstration areas” Deliverable D.1.D.4) was developed for the monitoring of the social and socio-economic impact of the implementation of the EU – funded LIFE IP - CEI GREECE project on local economy and population, and more specifically, for the monitoring of the pilot actions of the project in its Demonstration Municipalities. It outlines the common structure, objectives and methods to be used for the collection of socio-economic data. The methodological protocol is focused on the assessment of localized socio-economic impacts, with particular view to insular/mountainous areas.

The Deliverable is comprised of the following two (2) parts:

- A thorough definition of the methodology to be used, depending on the scope of the demonstration actions, which will form the basis for the development of the Baseline Assessment in the 2<sup>nd</sup> Phase of the LIFE-IP CEI-GR project. [Chapter 1], and
- The methodology protocol for monitoring the socio-economic impact of the core pilot actions (Concrete Actions) of the project in the demonstration areas. [Chapter 2]. This Part includes a list of indicators, to be deployed for the evaluation of the social and socio- economic impacts of the pilot actions.

On that background the following pilot actions of the LIFE-IP CEI-GR project will be assessed in terms of their socio-economic impacts:

- ***Action C1:*** Construction and operation of three (3) Enhanced Green Centres (EGCs): one (1) EGC in the Municipality of Thessaloniki and two (2) EGCs in the wider area of Attica (specifically one (1) in the Municipality of Athens and one (1) in the Municipality of Vari, Voula, Vouliagmeni).
- ***Action C2:*** Setting-up and operation of the Circular Waste Management Schemes in four (4) insular areas (Paros & Antiparos, Tinos, Thira [Santorini], Alonissos) and one



(1) mountainous (Nafpaktia).

- *Action C3*: Development and operation of a full-scale management system of Hazardous Household Waste (HHW) in the Municipality of Athens and in the Region of Western Macedonia
- *Action C6*: Application of economic instruments in support of Circular Economy (CE). More specifically, the adoption of the Pay-As-You-Throw system in the Municipality of Vari, Voula, Vouliagmeni.

### ***Analysis of the Methodology Protocol***

Monitoring is and will be conducted through the employment of the Social Life Cycle Assessment (S-LCA) methodology, according to the UNEP/SETAC Guidelines (UNEP, 2020). The implementation of the S-LCA methodology within the project, aims to investigate the social impact of the abovementioned actions on the local economy and population, as well as their effects on employment and income at national level.

The S-LCA is a holistic, yet rigorous, assessment technique that intends to identify and assess the social and socio-economic impacts (positive or negative) of a product or a service on the involved stakeholders throughout its life cycle. The ultimate goal of the S-LCA is not to introduce breakthrough solutions, but to gather the necessary information that will further lead to a more efficient and inclusive decision making that will improve all the stages of the production chain, both for organizations and other stakeholders.

The basic four steps of the LCA methodology have been adopted in S-LCA: 1. Goal and Scope Definition, 2. Inventory of the drivers which may lead to an impact, 3. Impact Assessment, based on the selection and calculation of proper indicators of impacts, and 4. Interpretation of the results. The social and socio-economic impacts are the outcome of complex processes and dynamic relations; hence, in order to simplify and measure these impacts, the methodology is based on the definition of subcategories and indicators. The subcategories are themes or attributes that are socially important and affect one or more stakeholders, while the indicators can be qualitative or quantitative. The S-LCA Guidelines of UNEP/SETAC propose five different stakeholder categories: 1. Workers, 2. Local Community, 3. Society, 4. Consumers and 5. Value Chain Actors., and a range of subcategories for each stakeholder. Additionally, for each subcategory different indicators are used. The data needed for the assessment can be collected in the field and/or through a desktop research; in any case, data must be valid, relevant, complete and accessible.

To assess the social and socio-economic impact, it is necessary to classify, aggregate and characterize the collected data in relation to the subcategories and in accordance with the goal of the assessment. It should be noted that S-LCA is a place and case dependent methodology, therefore, the methodology should be tailored to each specific case while maintaining its structure and approach provided by the Guidelines.



In this report, the stakeholders categories are identified as following: businesses, value chain actors, workers, consumers, local community, and society. For each one category of stakeholders, subcategories were defined, focusing on the social aspects of interest, covering a wide range of themes. However, there are some differences from action to action, given that each one of them has its own characteristics and particularities. Indicatively, for the activities and tasks of Action C1, the defined subcategories are shown in Table 1. Similarly, the indicators for each subcategory vary. The number of indicators (parameters) selected for each action are presented in Table 2.

**Table 1:** Subcategories for the social and socio-economic assessment of Action C1

Stakeholder Category	Subcategory
<b>Businesses</b>	Performance Cluster economy Diversity of consumers Spill over effect
<b>Workers</b>	Working conditions Working rights Health and security Satisfaction
<b>Consumers</b>	Living cost Satisfaction Implementation of circular economy
<b>Local Community</b>	Transparency Participation Implementation of circular economy Trust and employment
<b>Society</b>	Performance Correlation to the EU targets Employment
<b>Value Chain Actors</b>	Changes in production

**Table 2:** Number of indicators for each Action and stakeholder category

Action	Number of Indicators per Stakeholders Category					
	Businesses	Value chain actors	Workers	Consumers	Local community	Society
C1	12	6	18	8	14	12
C2	10	6	18	5	18	11
C3	12	6	17	8	11	9
C6	12	6	18	7	11	10

Data collection is dependent on the implementation of the pilot actions. The type of collected data will be both generic and site specific. Therefore, it will be collected through literature review, web research, and questionnaires distributed to the project stakeholders.

Although the report “Social LCA methodology for the LIFE-IP CEI Greece Demonstration areas” is a Deliverable of the 1<sup>st</sup> Phase of the LIFE-IP=CEI-GR project, still it is a living document that might be revised/updated upon the new challenges which may arise over



the process of data collection. This stage will be followed by the necessary analysis and evaluation of the data that will further lead to the impact assessment of each action.

### ***Limitations***

The UNEP/SETAC initiative has adequately standardize the S-LCA methodology. Yet, refinements are needed to further improve the generated analysis and results. In literature the main indicated limitations are as following: data availability, the nature of the assessment is mostly qualitative, lack of standardized indicators.

The project team will tackle these challenges, through research, explicit review of literature, and the establishment of constant feedback loops among project partners and stakeholders to monitor that information is shared properly and timely. More specifically, the inventory for the S-LCA will be built on process data, to the extent they are provided by the relevant core Actions, and it will be complemented with literature information. The S-LCA will be performed using specialised software. In regards to the demonstrative nature of the project, the outcome of the S-LCA analysis will be a semi-quantitative evaluation of the potential social and socio-economic impacts induced by the implementation of the core actions.