



# D.1.4.1 Monitoring and Evaluation Framework based on the Circular City Project Excellence Model (CC-PEM)

Activity 1.4 Framing of our pilot, knowledge and exchange offer

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## 1 OBJECTIVES OF THE DOCUMENT

The implementation of pilot projects forms the backbone of the NiCE approach to promote circularity in city centres. Pilot projects will be elaborated and assessed under Work Package 2 following shared principles, but with differences in their scopes, implementation methods and actual activities.

In order to provide such a shared approach, a Monitoring and Evaluation Framework should be set up to be followed by all Project Partners before, during and after the implementation of pilot projects.

According to the project documents, activities 1.1 to 1.3 of Work Package 1 will be used 'to frame our pilots (WP2), our knowledge offers (platform, educational materials) and exchange formats (WP3) to meet the priority needs ("big points") of our target groups and support an uptake of circular lifestyle offers at central places in cities'. To this effect, a joint effort has been made to elaborate a Monitoring & Evaluation Framework for the pilots:

*This M&E Framework provides a profound basis for the development of our solutions (WP2) and their transfer (WP3). PP7 leads this process. The Framework will be applied in all pilot cities/pilot neighbourhoods to get a baseline before the start of the pilot testing phase. The methodology for the pilot status quo assessments will comprise the living lab approach (PP3 and PP8 are experienced in it), interviews and stakeholder mapping. The baseline reports will be compared with the pilot evaluations after the finalisation of the pilot test phases.*

In order to design the right M&E Framework a number of issues have to be tackled, since both pilot cities and pilot projects are diverse in nature and thus aim at different sets of objectives, require different measures and are expected to achieve different results.

While no assessment tool can be developed, which can be used equally effectively to all pilot projects, efforts have been made to provide an overarching framework, which can be used in various settings.

The purpose of the M&E Framework is not to directly compare pilot projects and their results, but rather:

- to guide the preparations and implementation of the projects,
- to provide feedback during and after implementation to facilitate fine tuning and,
- to identify the benefits and drawbacks of the various projects for future use.



The following document is the final version of the M&E Framework after discussions with Project Partners. This version should be used by all Project Partners during the implementation of Work Package 2.

First, the theoretical underpinnings of sustainability performance evaluation will be provided in the next section. Second, frameworks available to evaluate projects will be introduced followed by the demonstration of the suggested framework for the purposes of the NiCE project. The Circular Cities Project Excellence Model (CC-PEM) has been finetuned and finalised for the use of the M&E Framework.

## 2 BACKGROUND – EVALUATING ENVIRONMENTAL PERFORMANCE

Pilot Projects should aim at the promotion of the Circular Economy in Central European city centres.

The Circular Economy Action Plans of the European Union (EU) aim to transition the EU towards a more sustainable economic model by minimizing waste generation, promoting resource efficiency, and fostering innovation. Some of the key objectives of these action plans typically include:

- **Minimizing Resource Use:** Encouraging the efficient use of resources and reducing the consumption of raw materials through measures such as recycling, reusing, and refurbishing.
- **Reducing Waste Generation:** Implementing policies and initiatives to decrease the generation of waste at all stages of the product lifecycle, from design and production to consumption and disposal.
- **Promoting Recycling and Reuse:** Increasing the recycling and reuse rates of materials and products to keep valuable resources in circulation for as long as possible.
- **Fostering Sustainable Production and Consumption:** Encouraging businesses and consumers to adopt more sustainable practices, such as eco-design, product durability, and responsible consumption habits.
- **Stimulating Innovation:** Supporting research, development, and innovation in areas such as eco-friendly materials, waste management technologies, and circular business models.
- **Creating Jobs and Economic Growth:** Recognizing the potential for the circular economy to generate new economic opportunities, including job creation, business growth, and competitiveness.



- **Addressing Environmental Challenges:** Tackling environmental issues such as pollution, greenhouse gas emissions, and biodiversity loss by transitioning to a more resource-efficient and less wasteful economy.
- **Enhancing Resilience and Security:** Building resilience against supply chain disruptions and resource scarcity by diversifying sources of materials and reducing dependence on finite resources.
- **Improving Quality of Life:** Contributing to improved well-being and quality of life for EU citizens by fostering cleaner environments, healthier communities, and more sustainable lifestyles.

Overall, the Circular Economy Action Plans of the EU aim to drive systemic change across various sectors of the economy, promoting sustainability, resilience, and prosperity for present and future generations.

As with most objectives closely related to Sustainable Development, the ultimate goal of the Circular Economy is to improve the state of natural ecosystems and mitigate social problems while also considering the economic implications of the measures undertaken.

However, actors who may contribute to a more sustainable society, namely businesses, governments at different levels, civil society organisations and individuals most often are distanced from the actual state of ecosystems and society by several factors.

### *The Pressure-State-Response Model of environmental assessment*

In order to evaluate projects aiming at environmental benefits, it is important to understand through what mechanisms measures undertaken effect natural ecosystems.

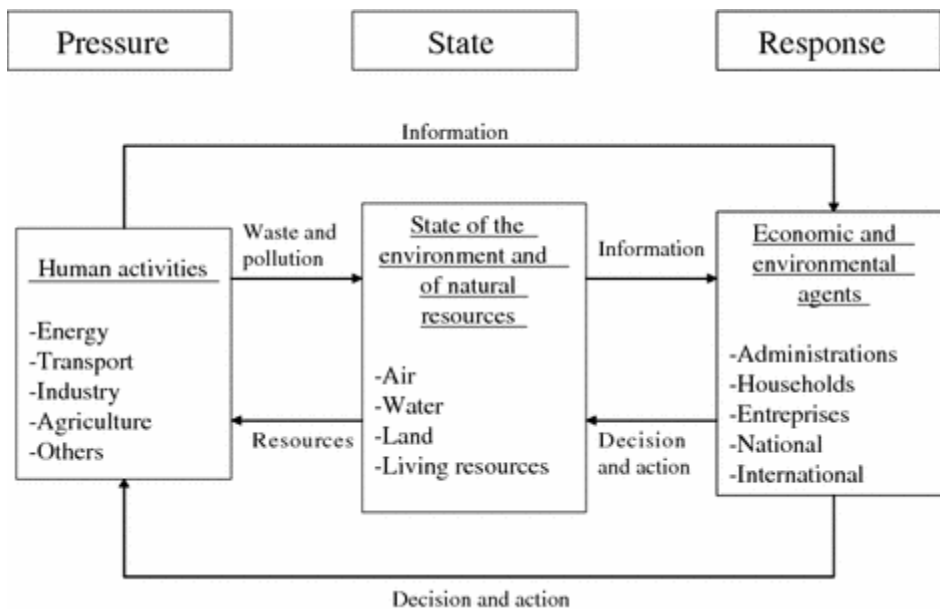
In the environmental management literature it has been long acknowledged that while the use of environmental management tools (e.g. environmental assessment, ISO14001, environmental accounting etc.) have a potential environmental benefit, their ultimate impact on the state of the environment depends on a number of factors. Environmental management tools prompt the implementation of environmental protection measures, which in turn influence (mitigate) the environmental impacts of the organisation. However, whether the measures undertaken are effective and how they actually effect natural ecosystems is a complex issue to understand.

A widely used model in both theory and practice is the Pressure-State-Response Model (PSR), which has been applied by the OECD since the 1970's. The Model is based on the work of



Friend and Rapport, who developed it for the purpose of analysing the interactions between environmental pressures, the state of the environment and environmental responses. In developing the core set of environmental indicators, OECD countries agreed that ‘the PSR model was a robust and useful framework and should continue to be used in OECD’s work on environmental data and indicators’ (OECD). Interesting fact that the European Bank for Reconstruction and Development (EBRD) applies the PSR model of indicators on cities.

The PSR model (Figure 1) is based on the concept of causality: human activities exert pressures on the environment and change its quality and quantity of natural resources (“state”). Society responds to these changes through environmental, general economic and sectoral responses (“societal responses”).



1. Figure The pressure–state–response framework. Source: OECD (1994)

## Pressures

Environmental pressures relate to pressures from human activities exerted on the environment, including natural resources. “Pressures” cover underlying or indirect pressures, which act as driving forces for environmental issues (i.e. the activity itself and trends of environmental significance), as well as proximate or direct pressures (i.e. the use of resources and the discharge of pollutants and waste materials). Indicators of environmental pressures are closely related to production and consumption patterns; they often reflect emission or resource use intensities, along with related trends and changes over a given period. They can



be used to show progress in decoupling economic activities from related environmental pressures. They can also be used to show progress in meeting national objectives and international commitments (e.g. emission reduction targets).

## State

Environmental conditions relate to the quality of the environment and the related effects or impacts, and the quality and quantity of natural resources. They cover ecosystems and natural environment conditions as well as quality of life and human health aspects. As such they reflect the ultimate objective of environmental policies. Indicators of environmental conditions are designed to give an overview of the situation (the state) concerning the environment and its development over time. Examples of indicators of environmental conditions are: concentration of pollutants in environmental media, exceedance of critical loads, population exposure to certain levels of pollution or degraded environmental quality, the status of wildlife and of natural resource stocks. In practice, measuring environmental conditions can be difficult or very costly. Therefore, environmental pressures are often measured instead as a substitute.

## Response

Societal responses show the extent to which society responds to environmental concerns through environmental, general economic and sectoral policies and through changes in awareness and behaviour. They refer to individual and collective actions and reactions that are intended to:

- mitigate, adapt to or prevent human-induced negative effects on the environment;
- halt or reverse environmental damage already inflicted;
- preserve and conserve nature and natural resources.

Examples of indicators of societal responses are environmental expenditure, environment-related taxes and subsidies, price structures, market shares of environmentally friendly goods and services, pollution abatement rates, waste recycling rates. In practice, indicators mostly relate to abatement and control measures; those showing preventive and integrative measures and actions are more difficult to obtain.

The principles identified by the PSR Model can be applied to the evaluation of the environmental performance of organisations and can also be applied to projects.

In the case of projects (with an environmental objective or not) this means that it is not enough to assess the impact of the actual measure taken, but potential changes in the state of the



environment should also be evaluated. Most organisations, however, are distanced from changes in natural eco-systems by a number of factors:

- The state of ecosystems is determined by the activities of a number of organisations and not only one or a few.
- The mechanisms through which emissions effect ecosystems are not always well known and can be influenced by many different factors.
- There may be a considerable time delay between the pressure exerted on the environment and the resulting state.
- Changes in the state of the environment are influenced by other factors not under the control of the organisations.

These circumstances result in a situation where the most important factor, namely the state of ecosystems is not assessed by individual organisations, which in turn they can not take into consideration when making decisions. In such cases environmental policy has to interfere to avoid suboptimal decisions.

In the case of the assessment of the sustainability performance of projects similar problems may arise, which may or may not be resolved during the time span of the project.

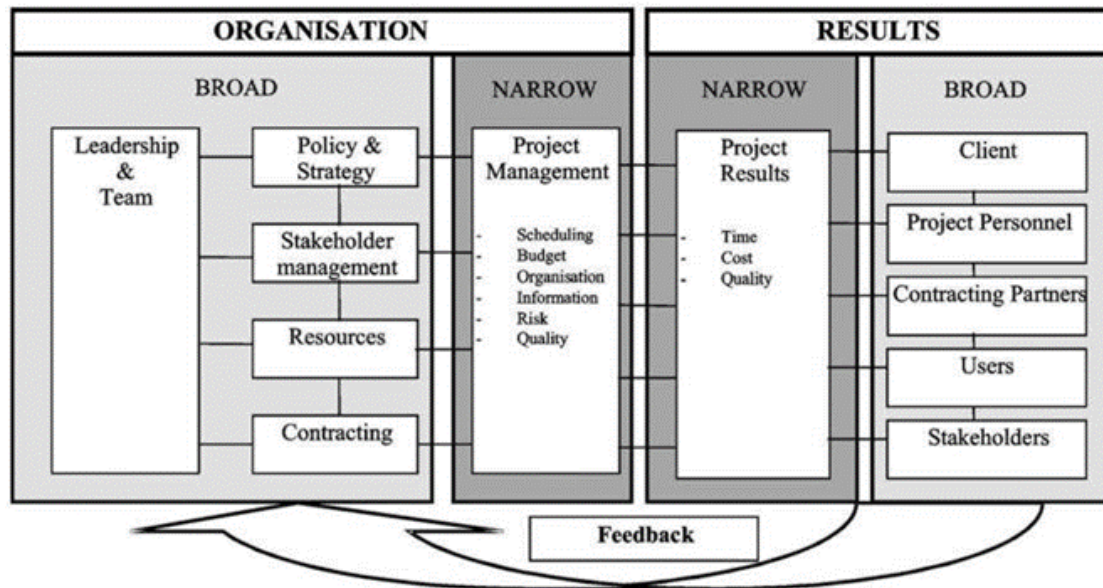
### 3 EVALUATING PROJECTS – THE PROJECT EXCELLENCE MODEL

Research on constructing a management model for projects started with the assumption that the distinction between results and organisation can be made – two topics recurring in the literature on project management. In this respect the project success criteria can be seen as result areas and the success factors as organisational areas. The Project Excellence Model (Figure 2) is based on the assumption that in order to manage a project successfully the project organisation has to focus on: RESULT AREAS (Project success criteria) and ORGANISATIONAL AREAS (Critical success factors) (Westerveld, 2003).





### PROJECT EXCELLENCE MODEL



2. Figure The Project Excellence Model. Source: Westerveld (2003)

#### Project success criteria (result areas) include the followings:

- Classical project goals:
  - budget
  - schedule
  - quality
- Appreciation by client
- Appreciation by project personnel
- Appreciation by users
- Appreciation by contracting personnel
- Appreciation by stakeholders

#### Critical success factors (organisational areas) include the followings:

- Leadership and team
- Policy and strategy
- Stakeholder management
- Resources
- Contracting
- Project management:



- Scheduling
- Budget
- Organisation
- Quality
- Information
- Risks

The Project Excellence Model is used to lay the foundations of the Project Excellence Award by IPMA, the International Project Management Association. Its modified structure includes the following components.

### 3.1 Enablement Criteria

- Leadership
  - Leaders are role models of excellence
  - Leaders engage with stakeholders
  - Leaders ensure flexibility
- Objectives and strategy
  - Dealing with stakeholders
  - Dealing with objectives
  - Strategy for the project management
- People
  - Dealing responsibly with people
  - Enablement
  - Empowerment
- Partnerships and resources
  - Partners and suppliers
  - Financial resources
  - Materials, knowledge and other resources
- Methods and processes
  - Project management methods
  - Communication and social processes
  - External interfaces and processes of projects

### 3.2 Results Criteria

- Customer satisfaction
  - Customer perception
  - Performance indicators



- People satisfaction
  - People perception
  - Performance indicators
- Satisfaction of other interested parties
  - Perception of other interested parties
  - Performance indicators
- Objectives fulfilled
  - Project success – Results
  - Project success – Performance

## 4 CHARACTERISTICS OF CIRCULAR ECONOMY PROJECTS

When developing the Monitoring and Evaluation framework, the characteristics of projects aiming at the promotion of the circular economy should be taken into account. These include the followings:

- Ambiguous understanding of the concept and the objectives
- Existence and relationship of direct and indirect impacts
- Understanding and measurement of the potential impacts
- The importance of economic vs. social vs. environmental benefits
- The scale of the projects
- Barriers and enabling factors
- Endogenous and exogenous factors of implementation

The Circular Economy is an appealing concept, however, its interpretation may raise a number of questions. The CE concept provides a systemic approach to dealing with a number of environmental problems and embraces both hard (i.e. technological) and soft (i.e. behavioural) solutions. It is generally understood that such an approach is required to solve sustainability problems, which are often portrayed as ‘wicked problems’.

However, the broad approach of the CE also opens the door for misinterpretation and even deception e.g. by overemphasizing the importance of certain solutions over other, more effective solutions as a result of particular interests. At its core, the concept of the CE challenges the foundations of the consumer society, which can result in resistance to certain solutions (e.g. the reduction of consumption).



Hence it is of utmost importance to agree upon the priorities of CE projects among those implementing the projects and to identify all potential solutions as well as their sustainability implications.

CE projects often define their objectives in terms of resource use and the utilisation of waste materials. However, projects should aim at the reduction of material flows in the first place by choosing the most effective method to achieve it. The effectiveness and efficiency of achieving the objectives (namely actual sustainability outcomes and the cost of achieving these) should also be distinguished.

CE projects usually define a number of potential direct impacts to be achieved, but they may also have various indirect impacts, which are not resulted immediately from project activities. These indirect impacts may not be consciously addressed and may stay even unnoticed although their importance may be compared to those of direct impacts. (e.g. social goals vs. environmental goals). In fact, it is important to determine if a certain objective is an indirect or a direct impact (e.g. in the case of the NiCE project, some of the improvements in the well-being of citizens are foreseen as direct impacts, while other indirect impacts may also arise).

CE projects often entail a mix of economic, environmental and social effects. The identification and assessment of these effects is important to provide a full picture of the sustainability benefits of the projects. While these effects may supplement and even reinforce each other, trade-offs between (and even inside) these domains is also possible. It is thus important to balance the objectives aiming at the different domains.

Many well-meaning and professionally designed projects aiming at the CE have an overall positive impact on sustainability, however, their scale is limited and thus cannot achieve social transformation. What may work at a small scale may not be possible at the large scale. Therefore, it is important to estimate the scale of potential impact of the projects and make sure that they can reach as many stakeholders as feasible.

Like any other sustainability projects, CE projects have to face a number of barriers both within and outside of project boundaries. It is important to identify and prepare for these barriers before the project is started and strategies should be developed to mitigate them. Some factors fall under the control of the project team (endogenous factors), while others are determined by the external environment (exogenous factors). It is important to identify both factors and make sure that the project team has the capacities to address them during implementation.



## 5 THE CIRCULAR CITIES PROJECT EXCELLENCE FRAMEWORK (CC-PEM)

The proposed framework, namely the Circular Cities Project Excellence Framework (CC-PEM) to be used for the monitoring and evaluation of NiCE pilot projects is based on the revised Project Excellence Model and takes into account the specific characteristics of CE projects described in the previous section.

During the development of the model an earlier framework elaborated by Szabo (2016) (PSEM, the Project Sustainability Excellence Model) was consulted, however, the specific needs of the NiCE project and the need to design a framework, which can be used in practice necessitated the elaboration of a new model.

The different elements of the framework are detailed below.

### 5.1 Enabling factors

#### Scope and objectives; project strategy

- What is the geographical scope of the project?
- What are the environmental objectives of the project?
- What are the social objectives of the project?
- What are the economic objectives of the project?
- Who are the stakeholders of the project?
- What project management strategies will be used?

When discussing the objectives of the project environmental, social and economic objectives should be clearly identified including direct and indirect impacts. While the ultimate impacts on the state of the natural environment and society may not be possible to quantify, a reference to these should be provided indicating the clear benefits of the pilot projects.

The model of the Circular Economy developed by Reike et al. (2017) should be used to identify the scope of the project (see Appendix).

Potential trade-offs between project impacts should be identified and a strategy for the mitigation of these should be developed, if needed.

The stakeholders of the project should be identified and their relationship to both project implementation and potential results should be provided.



## Project leadership

- Do project leaders share a common understanding of the concept of CE?
- Do project leaders share a common understanding of project objectives?
- Do project leaders engage with stakeholders?
- Do project leaders have an understanding of short and long term impacts?
- Do project leaders understand and manage the direct and indirect impacts of the project?

The successful management of CE projects requires a shared understanding of the concept of the CE and project objectives. Leaders are expected to engage with stakeholders in order to better understand local problems and priorities and design pilot projects with maximum sustainability benefits.

Project leaders should also be aware of the direct and indirect impacts of their projects, as well the short and long term implications of their work.

## People

- Who are the main beneficiaries of the project? How are they managed?
- Who are other stakeholders of the project? How are they effected by the project implementation?
- Who are effected by project outcomes? How?
- How can project leaders guarantee that all social groups effected will benefit from the project (or at least are not harmed)?
- How is the participation of stakeholders enabled during project implementation?
- How can stakeholders be empowered?

CE projects in city centres require the cooperation of different stakeholders during project implementation and effect various social groups after the projects have been implemented. Therefore, it is important to design processes, which guarantee that the well-being of stakeholders will improve as a result of the project.

## Partnerships and resources

- Who are the partners and suppliers of the project?
- What financial resources are needed to implement the project?
- What physical resources are required (e.g. location, materials etc.)?



- What human resources are required (e.g. knowledge, skills, etc.)?
- What resources are required to sustain project results in the long term?

Resources have to be utilised in an effective and efficient manner in order to achieve maximum benefit to the stakeholders involved.

### Methods and processes

- Which organisations contribute to the project? How?
- What project management methods are used (e.g. budgeting, scheduling)?
- How is the quality of the project defined?
- How can project leaders guarantee that the project is of high quality?
- What risks may arise and how are they managed?
- What kind of information is required for project implementation and how is it collected?
- What kind of information will arise as a result of project implementation?
- What communication and social processes are used?

## 5.2 Result criteria

### Objectives fulfilled

- Have the planned activities been implemented?
- Are there any deviations from the original plans? Why?
- Is the quality of the implementation and results as planned?
- What are the environmental results achieved?
- What are the social results achieved?
- What are the economic results achieved?
- What is the potential of long-term sustainability of project results?
- How can long term sustainability be facilitated?
- Has the project been implemented within the planned time frame?
- Has the project been implemented within the planned budget?

The objectives of CE projects are diverse and may not materialise in the short term. Thus, the measurement of results should concentrate on the implementation of planned activities and when possible, on the environmental, social and economic indicators defined previous to project start. If long term benefits are foreseen, an estimation can be provided based on different scenarios.

The 'classical' result criteria of 'budget, scheduling and quality' should be also measured.



### Satisfaction of direct beneficiaries and other stakeholders in the project cities

- How do different social groups perceive the project and its results?
- Has the impact on direct beneficiaries been measured and what is it?
- Has the impact on other stakeholders been measured and what is it?
- What are the short term and long term impacts on stakeholders?
- How can long term impacts be sustained?

CE projects may benefit an array of stakeholders including main beneficiaries and other social groups. It is important to quantify project outcomes in terms of a change in the well-being of these stakeholders and to explore both direct and indirect impacts.

### Broader impacts beyond the project cities

- What project experiences can be generalised and are there any constraints of spreading the good practice beyond the borders of the project location?
- How can other cities benefit from project experiences?
- How can project results be communicated beyond the location of the project?
- What other tools are available to promote project results?

While the pilot projects to be implemented should have significant impacts on the project cities, their role is much broader: to inform similar efforts in other European cities. Although it may not be possible to assess long term, widespread impacts during the lifetime of the NiCE project, it is important to design and implement pilot projects with such an objective in mind.

## 6 IMPLEMENTATION OF CC-PEM

The rationale of the Circular Cities Project Evaluation Model (CC-PEM) is to identify the objectives, monitor implementation and evaluate the results of pilot projects under the NiCE project as well as provide information regarding their long term sustainability.

Thus, the CC-PEM is to be used before starting the pilot project(s), during the implementation of the pilot project(s) and after finalising them.

Information required in the various phases of pilot project implementation is different, which is reflected by the different indicators to be provided at each stage of the projects.

In practice this means that different excel sheets should be filled in at the different stages of pilot project implementation:





- An Initial data sheet containing the scope and objectives of the project, as well as the planned activities and results.
- Monitoring data sheets after 6 and 12 month of starting pilot implementation containing information regarding undergoing activities, as well any changes in objectives and expected outcomes.
- A Final evaluation data sheet concentrating on the results achieved by the implementation of the pilot project.
- A Follow-up data sheet containing information before the closing of the NiCE project regarding the long term sustainability of the project.

Four Excel documents are provided for these purposes, which contain all the indicators of CC-PEM, but in which only relevant indicators at the different stages of the pilot projects should be filled in (cells in white colour).

*The Excel documents are available for partners via the file sharing platform of the project as well as on the following link:*

[https://drive.google.com/drive/folders/1DzbGVnFz0AEbcvGCeX4Q8LWpur\\_z7NDR?usp=sharing](https://drive.google.com/drive/folders/1DzbGVnFz0AEbcvGCeX4Q8LWpur_z7NDR?usp=sharing)

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# 8 APPENDIX

The concept of the Circular Economy (Reike et al., 2018)

