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POLICY BRIEF 10

THE CONDEREFF PROJECT

"CONDEREFF - Construction waste management and demolition policies to improve resource efficiency" is an INTERREG Europe project that aims to accelerate policy work on construction waste management and demolition (CDW), improving resource efficiency in partners' countries.

Accordingly, the project aims to support the development of legislative frameworks and strengthen the capacities of public authorities in regulating C&D waste management, public procurement practices, landfill restrictions, recycling facilities, public perception, awareness and acceptance.

To achieve these objectives, the project will exchange experiences and practices, as well as studies on C&D waste, on how project partner regions can move towards adoption and greater exploitation of best practices and measures applied in the field of waste management. The overall objective is to transfer lessons learned to regional policies and action plans.

POLICY BRIEF OVERVIEW

The CONDEREFF project brings together 8 partners from 7 countries to exchange experiences and practices on how to move from existing procedures in the management of CDW to the adaptation and greater exploitation of best practices and measures applied in the field.

CONDEREFF's objective is to enable participating regions to advance their goals for resource efficiency and green growth through the exchange of best practices, and methodology and estimation tool developed in this activity aim towards this goal. Therefore, in this policy brief Activity A4.2 aims to provide a methodology and a tool that will help partners estimate the costs and benefits of best practices as presented during the implementation of Activity A4.1.

AIMS AND OBJECTIVES OF METHODOLOGY

The re-evaluation of resource efficiency regional policies presents a significant opportunity for the CONDEREFF regions to valorise and fine-tune their regional policy instrument, Also, to address multifaceted challenges such as lack of investment (and skills) on infrastructure; weaknesses in policy coherence; lack of efficient procurement procedures and lack of administrative capacity of public authorities to manage relevant projects and programmes. Last, the project enables participating regions to boost demand for C&D recycled materials and support at the same time sustainability and recycling in the construction sector.

Definition:

A **Cost Benefit Analysis (CBA)** (also known as a benefit cost analysis) is a process that enables organisations to analyse decisions, systems or projects, or determine a value for intangibles. The analysis is based on identifying the benefits of an action as well as the associated costs and subtracting the costs from benefits. When completed, a cost benefit analysis yields concrete results that can be used to develop reasonable conclusions around the feasibility of a situation.

Organisations rely on cost benefit analysis to support decision making as it provides an agnostic, evidence-based view of the issue being evaluated—without the influences of opinion, politics, or bias.

The cost benefit analysis is a **systematic** process for calculating and comparing the benefits and costs of a project. Therefore, this methodology's objective is to identify and quantify all the positive (the benefits) and negative factors (the costs). The difference between the two will indicate whether the planned action is advisable to be applied in the future by relevant stakeholders.

Overall, this cost benefit analysis will form a valuable tool for partners as it will allow them to develop policies, strategies and allocate resources or purchase decisions.

COST AND BENEFIT INDICATORS

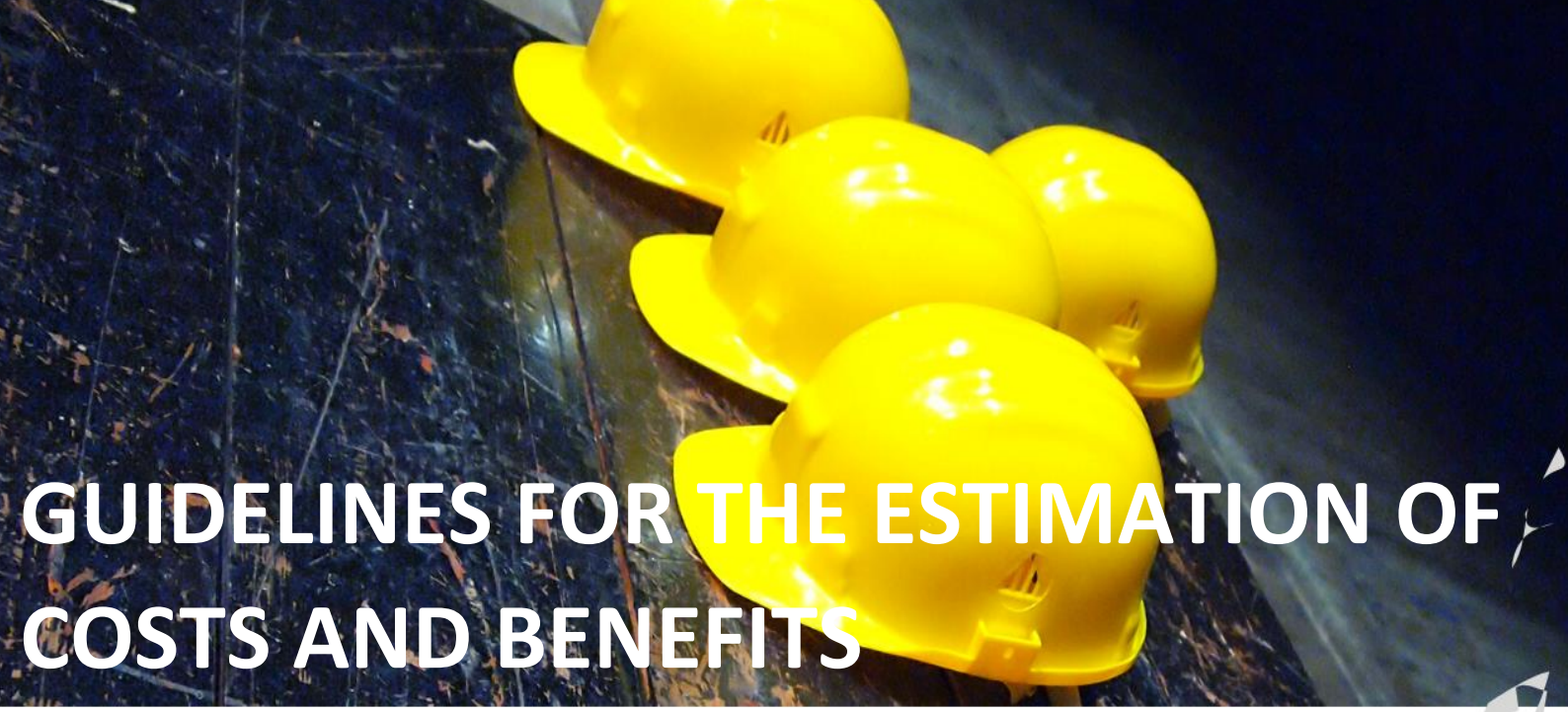
The main activities in a typical waste management process in a construction project are: a) Collection waste materials; b) Transport materials to storage area located on-site; c) Sorting materials to different waste types, and d) Storage in waste material bins until off-site transport begins. Therefore, in the evaluation of costs and benefits of practices of reuse and recycling, is essential to consider all parameters.

Disposal cost factors and types to be considered by partners while identifying the costs and benefits of best practices in most cases may comprise:

- **Personnel costs** for employees who are directly involved in the collection, separation, transport, storage or processing of residual materials within a company.
- **Costs** for the use of **packaging** and for the return and further processing of packaging that has been brought into circulation by the company. For example, in the fees form for participating in a return system such as "Green Dot".
- **Costs for special systems or processes** to process residual materials in a way that they are harmless or can be disposed of.
- **Costs for the collection**, storage and disposal of waste such as transport costs, containers, storage spaces, special protective devices.
- **Costs for the disposal of waste materials** by recycling by service providers or by landfill (final storage), incineration or composting; Costs for the recycling or disposal service provider.
- **Costs for planning** the disposal and implementation of the legal regulations.
- **Costs for raising awareness** promote activities such as communication activities, waste prevention and prevention of littering campaigns.

Indicators to describe the benefits of C&D waste management could include but are not limited to:

- **Economic benefits**: The application of the practice may have led to the reduction of specific costs or fees or the overall waste management budget; the implementation of a policy or legal framework has led to the reduction of waste management costs.
- **Environmental benefits**: The total amount of recycled material produced from C&D waste. This quantity can be related to the consumption of building materials in general in order to quantify the contribution to a circular economy; the greenhouse gas emissions or credits that are produced due to the treatment of C&D waste; the amount of fossil resources that are used or saved (lower consumption of fossil resources).
- **Social benefits**: The application of the practice may have also contributed to the advancement of the society, a certain community or the well-being of individuals.



GUIDELINES FOR THE ESTIMATION OF COSTS AND BENEFITS

The cost and benefit estimation tool will help partners identify the costs and benefits of the best practices presented during A4.1. The tool's format is in line with the format of the A4.1 template in order to secure compliance to existing project activities and facilitate partners in their task to estimate the costs and benefits. Thus, the tool is divided into two main sections:

1. Cost
2. Benefit

Then, the subsections are developed based on the format of A4.1 allowing partners to save time since they will be using their previous templates as a reference. The subsections are as follows:

A. Estimation of C&D waste identification, separation, characterisation;
B. Estimation of C&D waste transport, traceability, storage;
C. Estimation of C&D waste processing, reutilisation, recycling, recovery, quality and
D. Estimation of C&D waste policies, awareness.

To fill out the cost and benefit estimation tool, the respondents can choose between four possible values for each categorical variable (i.e. question/item):

Very low/zero: The costs/benefits are very low or even non-existent.

Low: The costs/benefits are low. In that case, the lower the costs the better, and the lower the benefits the worse. For instance, a waste traceability system that offers high benefits with low costs is considered as a good practice.

Medium: The costs/benefits are average (as compared to similar initiatives).

High: The costs/benefits are high. In that case, the higher the costs the worse and the higher the benefits the better. For instance, if the costs for a waste traceability system that yields high benefits are correspondingly high, the practice will receive a lower score than a practice that yields the same results with lower costs.

EVALUATING BEST PRACTICIES

The design of this research methodology is based on the results of Activity A4.1 and during this activity was developed a questionnaire that was completed by partners to identify best practices on C&D waste management in each partner country. Partners had to fill out four files in total.

The questionnaire themes were divided as follows:

C&D waste identification, separation, characterisation:
This category included good practices carried out mainly in the early stages of the work performed by construction/demolition companies.

C&D waste transport, traceability, storage:
This category included good practices mainly carried out by waste transport companies.

C&D waste processing, reutilisation, recycling, recovery, quality:
This category included good practices carried out by companies responsible for recycling or reuse of construction and demolition process, as well as by companies responsible for ensuring the quality of these processes and products.

C&D waste policies, awareness:
This category included good practices carried out mainly by public administrations.

The respondents will be called to evaluate the costs and benefits of their best practice using four possible values for each categorical variable (i.e. question/item): Very Low-Zero/Low/Medium/High.

After having filled in the tool, two evaluation scores will be calculated (%) for benefits and costs respectively (for benefits the higher score the better, for costs the lower the score the better). A ratio between benefits and costs will also be calculated (B&C ratio) that will lead to the final estimation result:

Good (B&C ratio: >1,2)

Neutral (B&C ratio: 0,8 ≤ B/C ≤ 1,2)

Bad (B&C ratio: <0,8)

ENABLERS FOR CDW REUSE, RECYCLING AND RECOVERY

The key enablers, boosting the uptake of CDW reuse, recycling and recovery arising.

EU Environmental Policy:
Favourable towards circularity and prioritises the CDW stream, thus stirring the member states towards the adoption of relevant measures. The enabler considered to be the most prominent for boosting CDW re-use is the imposition of mandatory requirements targeting recycled CDW (Public Procurement Standards and Introduction of financial incentives for the use of recycled CDW materials in the construction sector).

Cost and Market prospects:
Constitute key factors in the uptake of secondary materials. A competitive secondary materials market would create demand for both quantity and quality of waste material, thus directly boosting circularity. Essential the commercial viability of CDW reuse, recycling and recovery for industry actors. The regulatory measures (Green Public Procurement and other financial instruments, such as high landfill taxes) may positively affect the price and marketability of secondary materials.

Trust in quality of secondary materials:
Is highly significant for their marketability, the development of standards for secondary raw materials would increase the trust in their properties. The standardization of demolition/deconstruction and waste management processes among industry stakeholders can also increase the trust in the quality of secondary materials. Investments in the development of technology for efficient removal of hazardous substances and limitation of the use of hazardous materials in new constructions would contribute largely to the marketability of secondary materials. In addition, pre-demolition audits, as well as follow-up checks on the removal of contaminants, may also serve the same purpose.

New constructions:
Material passports can support the registration of the type and volume of materials used. The use of BIM tools may provide information on available materials flows and thus the possibilities for optimising environmental and economic benefits. In addition, adopting the Design for Deconstruction (DfD) approach and drastically reduce waste while making high-value use of the deconstruction materials.

Education and training:
Focus on circular economy practices across the Construction and Demolition value chain (and all levels). Also on networking and exchange of experience activities among CDW value chain actors. Additionally, industry actors and public authorities can contribute to the uptake of CDW reuse, recycling and recovery by a) improving actors' capacity, b) increasing trust towards secondary materials, and c) facilitating the creation of synergies across the value chain.

EXAMPLE OF GOOD PRACTICES

Case study

Partner's country: Austria

Name of the practice: Social Urban Mining

Practice description: The concept of Social Urban Mining is based on the economic values of deconstruction buildings. Influences the planning of deconstruction phase and realizes recovery oriented demolition. Also, creates an added value in the deconstruction work of buildings:

- By manual recovering material (e.g. copper, aluminum and wood)
- In exchange for preliminary dismantling work (e.g. neon tubes, suspended ceilings, double floors, dry work)
- Offering Re-use of building components (e.g. parquet floor, doors, windows, tiles and machines)

Additionally, integrates social businesses in operational activities.

The First Social Urban Miner

- Analysis of the potential for Social Urban Mining
- Planning experts
- Recycling orientated Demolition and Deconstruction engaging social enterprises
- Selling of reuse building parts in an online application
- Construction supervision
- Public relations
- Education/Train the trainer lectures

Lessons Learnt for Dissemination

- Growing media interest in the circular economy
- Daily newspapers, TV, radio, magazines,
- Building journals, scientific journals
- Stories of double success such as:
  - conservation of resources (e.g. 140.000 kg of materials saved at MedUni Campus Mariannengasse) equals climate protection
  - creation of fair jobs (e.g. 5000 h of social economy working hours at MedUniCampus Mariannengasse)
- Tangible stories, concrete re-use stories

RECOMMENDATIONS FOR FUTURE DEPLOYMENT

The recommendations are directed towards a) relevant policy actors and industry actors on a national, regional and local level, and b) industry actors including construction and demolition companies, CDW management and recycling companies, construction materials manufacturing industries, professional bodies, and business support centres.

Recommendations towards policy actors:

- ✓ Introduction of mandatory requirements, such as green public procurement, targeting recycled CDW materials.

Recommendations towards industry actors:

- ✓ Involvement of actors across the value chain (e.g. construction sector) in the development of new sorting and recycling facilities, to make sure that there is a market for the recycled materials.
- ✓ Participation in networking activities and collaboration with other stakeholders across the CDW value chain, aiming at unlocking new opportunities and expanding the market for secondary materials.

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About us

The CONDEREFF project brings together 8 partners from 7 countries to exchange experiences and practices on how to promote green growth and circular economy through sustainable constructions & demolitions (C&D) waste management.

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