Nordic project ” Strategies and methods for implementing CE in construction activities in the Nordic countries – supporting cases”

Margareta Wahlström, project presentation for CITYLOOP on June 16, 2021
Project team

Margareta Wahlström, VTT

Anke Oberender, DTI

Carl Jensen, RISE

Eirik Rudi Wærner, Multiconsult

Malin zu Castell-Rüdenhausen, VTT

Thilde Fruegaard Astrup, DTI

Pernilla Johansson, RISE

CircCDW
STRATEGIER OCH METODER FÖR IMPLEMENTERING AV CIRKULÄR EKONOMI I BYGGVERKSAMHET I NORDEN – KARTLÄGGNING AV GODA EXEMPEL OCH HINDER
Objectives of the study
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• to identify and present good examples/cases and experiences from the implementation of circular economic concepts at local level in the Nordic communities with a focus on construction, renovation and demolitions.

• to map which digital solutions are applied or expected to be applied as tools to boost a circular economy in the Nordic countries

• to analyse barriers and drivers for uptake of circular economy in the Nordics by analysis of good examples in the implementation

• to present policy recommendations for uptake of CE in construction sector

• Project duration: March – November 2020
Strategies mapped

- Start: mapping of national strategies (waste management plan, prevention plan, resource efficiency strategies, sustainability…)
- Selection of some municipal and local strategies for further analysis
- If possible, analyse types of CE actions initiated by local strategies
CE actions in focus in constructive activities

<table>
<thead>
<tr>
<th>Life cycle stage</th>
<th>Circular economy aspect</th>
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<tbody>
<tr>
<td>Design</td>
<td>DfD&lt;br&gt;Design for adaptability and flexibility&lt;br&gt;Design for standardisation&lt;br&gt;Design out waste&lt;br&gt;Design in modularity&lt;br&gt;Specify reclaimed materials&lt;br&gt;Specify recycled materials</td>
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<tr>
<td>Manufacture and supply</td>
<td>Eco-design principles&lt;br&gt;Use less materials/optimise material use&lt;br&gt;Use less hazardous materials&lt;br&gt;Increase the lifespan&lt;br&gt;Design for product disassembly&lt;br&gt;Design for product standardisation&lt;br&gt;Use secondary materials&lt;br&gt;Take-back schemes&lt;br&gt;Reverse logistics</td>
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<tr>
<td>Construction</td>
<td>Minimise waste&lt;br&gt;Procure reused materials&lt;br&gt;Procure recycled materials&lt;br&gt;Off-site construction</td>
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<tr>
<td>In use and refurbishment</td>
<td>Minimise waste&lt;br&gt;Minimal maintenance&lt;br&gt;Easy repair and upgrade&lt;br&gt;Adaptability&lt;br&gt;Flexibility</td>
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<tr>
<td>End of life</td>
<td>Deconstruction&lt;br&gt;Selective demolition&lt;br&gt;Reuse of products and components&lt;br&gt;Closed-loop recycling&lt;br&gt;Open-loop recycling</td>
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<td>All stages: management of information including metrics and datasets</td>
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Key findings
Implementation of local CE strategies

- Local and national strategies: measures to reach the set targets in the implementation of CE strategies
- Several local strategies focused not only on circular economy aspect, also on climate effects.
- The local strategies rather generally formulated.
- The requirements of the City of Copenhagen “Sustainability in construction and civil works” are a good example of a tool for implementing a number of strategies, including KBH 2025, the Climate Plan, the Resource and Waste Plan 2018 and the Climate Adaptation Plan.
- Example of tool: GPP in construction (more effective and demolition
- Challenge: difficulties to find acceptable products suitable for the construction at right time

Ref. Copenhagen city, 2016. [LINK](https://www.copenhagen.dk)
Ref. Malmö city 2020. [LINK](https://www.malmo.se)
Ref. Copenhagen city, 2016. [LINK](https://www.copenhagen.dk)

At start, collection on information on national strategies and examples of local strategies and tools/criteria
Digitalization

- At start, collection on information on digitalization examples
- Focus on digital solutions on documentation of waste flows and treatment of CDW through traceability and marketplaces
- The level of digitalization generally low in the construction and demolition sector in the Nordic countries, and many digital solutions are at early development stages.
- Documentation of C&D waste flows and development of national waste statistics are done differently in the Nordic countries.

Ref. Norway: Diktoratet for byggkvalitet: New Digital platform for building and demolition permission applications [LINK]
Mapping of cases

- First, 113 cases were collated from Denmark, Finland, Norway and Sweden for further analysis.
- Many cases could not be linked to a national or local strategy
- Cases more linked to a funding body and related calls or to national waste management plan aiming for waste prevention and improved recycling.
Selected cases (14):

- Criteria for selection of cases developed
- Cases covered:
  - Design (2 cases)
  - Construction – material efficiency (3 cases)
  - End-of-life products: Market places (4)
  - Recycling of C&DW (4 cases)
  - Others (1 – resource mapping)
Cases: analysis of drivers and barriers

- Focus on selected cases (Note! numerous reports available on drivers and barriers)

- Grouping of observations:
  - Technical specification – CE-marking/certification
  - Supporting quality and collection
  - New business models for reuse – e.g. market places
  - Market pull – policy instruments for market uptake
  - Indicators - Reuse and recycling targets
  - Others (e.g. awareness, education)
Policy recommendations

• Recommendations drawn up based on findings in cases

• 10 recommendations formulated:

  1. Local CE strategies – guidance documents with concrete criteria
  2. GPP in construction and demolition work
  3. Indicators for CE actions - Nordic input to EC
  4. Reuse and CE marking – Nordic input in revision of Construction Prod Regulation
  5. Digital solutions – competence in the entire value chain
  6. Conformity assessment – tools (End-of-waste concept/certification, guidance)
  7. Promoting market for CE solutions – fiscal instruments
  8. Funding of new technology demonstrations
  9. Education in (applied) universities on CE solutions in construction
  10. Awareness raising, education of professionals

Ref. Gothenburg city. 2020. Slutrapport från projektet Upphandlingskrav för cirkulära flöden i bygg- och rivningsprocessen LINK
Further information:

Report: [https://pub.norden.org/temanord2021-508](https://pub.norden.org/temanord2021-508)
Policy brief: [https://pub.norden.org/nord2021-014](https://pub.norden.org/nord2021-014)

Acknowledgment:

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THANK YOU!