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This text describes Mikkeli's experience in circular procurement for the demolition contracts for Tuukkala Hospital and Pankalampi Health Centre. The sections come from Mikkeli's CityLoops demonstration report available [here](#).

Introduction

The procurement activities included the procurement of demolition contracts for Tuukkala Hospital and Pankalampi Health Centre. Mikkeli's Building Services were responsible for the procurement. The demolition of Tuukkala Hospital and Pankalampi Health Centre were tendered as separate contracts, but contractors could also present their offer as a package for both. The demolition contracts included the demolition work of buildings including their foundations. The demolition contracts also included demolition of structures, equipment, technical systems and surface structures in the yard area.

The role of the CityLoops-team was to comment on the procurement documents and to make proposals regarding the incorporation of circularity issues in the procurement process.

The digital marketplace was procured by Miksei Ltd. The offer request was published in public procurement database in June 2020. Social responsibility reports were required as eligibility requirements in the procurement. Sustainability reference in the procurement criteria was awarded with 10 % of the total amount of points at maximum. References of previous solutions for circular economy was assessed with max 35 % of total points.

Miksei received two tenders, and Metatavu Oy was selected to deliver the digital marketplace program.

Land use plans of demo sites and new construction plans

The Pankalampi Health Centre is in the Mikkeli town plan area, which is bordered on the east by the Pankalampi recreation area, on the north by a cemetery and on the west by a residential area, a service building and a commercial building. The town plan dates from 1975. The property is allocated for the hospitals and other social buildings (plan area Y, i.e., public buildings). The town plan for the area of the health centre was scheduled to be completed during 2022. The future of the area is planned by means of a partner planning plan, i.e., with one or more construction companies. A design competition has been considered to identify partners and operating models. According to initial plans, the area will become a small-house-dominated area.

Tuukkala Hospital is part of the Moisio-Kyyhkylä partial master plan area. The plan was prepared in 2014. There is no town plan for this area. The hospital belongs to the service and workplace area in the zoned part. To the north of it is a gas station, to the east is a "study area with interests in recreational activities and land use" and a field of great (historic) value. To the

south is a service housing unit. The city has no new usage plans for the property so far. The options are either residential construction or a commercial building.

As there were no new construction plans for the property at either demo site, it was not possible to plan the re-use of building parts or recycling crushed concrete or excavated soil on the demolition sites. All demolition materials had to be removed from the site and the trenches levelled and filled with soil from the site in accordance with the owner's demolition program.

Legislative requirements related to the circular economy

The statutory requirements and other national control measures set out in the Finnish Land Use and Construction Act and the Waste Act can be summarized as follows:

- The owner of the demolition project must apply for a demolition permit and submit an estimate of the types of waste generated and a plan for their waste management.
- The project owner must ensure that the project is planned and implemented in such a way that usable objects and substances are recovered and reused, and that the operation generates as little and as harmless construction and demolition waste as possible.
- The holder of construction and demolition waste must organize separate collection for the 11 types of waste listed in the Waste Decree and they must be recovered to the highest possible quality in accordance with the waste hierarchy
- For shipments of construction and demolition waste, a waste transfer document must be generated for each load and, on request, submitted to the authority
- A nationwide target of 70% has been set for the recycling of construction and demolition waste.

Preparation phase of the tender

The CityLoops project had the opportunity to influence the preparation of the tender at stakeholder meetings from August to December 2020. The call for tenders was launched in December 2020.

As a baseline study, the CityLoops team reviewed the documents of some earlier demolition procurement projects carried out in the city of Mikkelin earlier and, for comparison, also selected procurements carried out in some other cities. The aim was to identify methods for the city to promote the principles of the circular economy in its projects. Based on the analysis, it can be stated that the initial situation in the city's procurement practice before the demo projects was as follows:

- the minimum requirements are the contractor's references for the implementation of similar demolition projects and proof of the fulfilment of the contractor's obligations under the statutory obligations (social security etc.)
- the lowest contract price is the only selection criterion. Quality criteria related to waste sorting and circular economy, for example, have not been used in any of the city's demolition projects
- A policy has been agreed with Metsäsairila Ltd, the municipal waste company, according to which *all waste generated in all demolition contracts awarded by the city will be delivered to the municipal waste centre. The contractor is allowed to use the in-house waste fee for each waste type, which is considerably lower than the commercial list price. A flat-rate rebate is paid for scrap metal.*
- Waste charges for contaminated waste, contaminated soil or hazardous waste identified in the pollutant inventory are determined based on the results of the analysis. The consultant hired by the city oversees the unloading and separate collection of the contaminated waste, takes samples and commissions the analyses of hazardous substances and the consultant prepares the shipment documents for delivery to the waste centre.
- Contaminated or hazardous waste that was not detected in the Hazardous Material (Haz Mat) inventory will be delivered to the waste centre at the expense of the customer. Thus, the contractor has no interest in not reporting suspected hazardous waste. If hazardous waste is generated due to the contractor's material handling method (i.e., hazardous waste is mixed with non-hazardous waste), the contractor is responsible for it at his own expense.

Market dialogue in demo projects

Of the two demolition projects selected for the demonstrations, the city's Building Services organized a market dialogue on 27 August 2020 together with Miksei Ltd. The event was announced on the public procurement announcement platform. The event was attended by representatives of two demolition companies and one representative of a consultant. Some companies participated remotely. Contractors were mainly satisfied with Mikkeli's practice of requiring the delivery of all demolition waste to Metsäsairila Ltd. Some contractors informed that they would be able to process concrete waste beyond just coarse crushing to a piece size of less than 150 mm. Contractors could provide crushing either at the demolition site or at Metsäsairila. When crushed on site, the concrete could be delivered directly to the new site (subject to legal conditions). One contractor complained that the compensation for scrap metal (same price per kilo for all types of scrap) did not encourage more accurate sorting of different types of scrap.

Circular economy objectives in tender planning

The following content in the tender documents and the demolition process was created directly through the interaction between the CityLoops project, the city, and the waste company:

- The tender document required that demolition work be carried out as selective demolition, with the different types of waste being separated primarily at the source.
- The contractor was required to present a waste management plan as part of the demolition plan. The request referred to the eight types of waste to be collected separately listed in the Waste Decree and required that the deviation from this sorting be justified.
- The contractor is required to provide a summary of the waste generated. In the past, this has been required, but only as a formality. No *ex-post* assessment of the report has been carried out.
- It was recorded in the contract program that the persons nominated by the CityLoops project will perform seepage water sampling at the construction site, personal occupational hygiene measurements during the manual dismantling phase and environmental measurements, drone monitoring and other demolition work documentation during the dismantling phase. The implementation of these measures is the responsibility of the CityLoops project.

The tender did not include quality criteria that would have promoted the circular economy and related innovations. One of the project's proposals was to include minimum requirements for soft stripping and indoor demolition or quality scores for source separation of wastes but these were not included because there was fear that it could increase the total costs or that the verification of quality criteria could be challenging. For example, the number of types of waste to be collected separately as a quality criterion could only be verified at the end of the contract. The actual recycling rate, on the other hand, cannot be decided by the contractor, as all wastes are delivered to the city's waste management company.

Based on lessons learned from the demolition cases, a useful discussion took place, which later led to the preparation of a procurement guide for demolition projects for future demolition projects.

Outcome of the tender

Six bids were received for demolition of each of the two cases and six bidders offered the demolition of both sites. Ahosen Palvelut Ltd. from Jyväskylä was awarded the contract for Pankalampi and Terra Infra Ltd. from Kouvola won the tender for Tuukkala.

Conclusions

Experience from demo projects has shown that there is a need for development in Mikkeli's tendering practices so that procurement can promote circular economy goals and innovations. Currently, the only benchmark for tendering is the cheapest price. The requirements in the waste legislation are recorded as the minimum requirements for the demolition program. By demanding that all demolition waste must be delivered to the city's waste company, building services wants to ensure that no waste ends up in an inappropriate location. Also, the cost of CDW management is cheaper when using the in-house fees.

As a direct result of the CityLoops project, new procurement guidelines have been drawn up to promote the circular economy in demolition projects (Mikkeli Development Company Miksei 2021). The guide proposes new qualitative requirements, benchmarks or contractual incentives to promote CE. The procurement instructions are binding on the city's own organization. The CityLoops project also proposes to adopt it in the city's subsidiaries.

The guidelines document the necessary steps to be taken in the procurement process. It does not specify what qualitative criteria or detailed minimum requirements must be used in each individual case, but it lists examples of such criteria.

The comments from the building services stated that the quality criteria must be measurable and comparable between tenders. It was considered problematic to verify that a particular building component or material has been reused or otherwise utilized as promised by the contractor.

Lessons learned

The main challenge was that the CityLoops managers Miksei Ltd. and Xamk are not decision makers in the Mikkeli procurement processes. Miksei provides advice to the procurement units and supports the market engagement events, but the final decisions are taken by the Building Services staff. In the planning phase of the CityLoops project the Building Services agreed on providing the CityLoops team access to information regarding the two upcoming demolition projects. The discussion on the technical changes in the procurement practices started too late for new approaches to be incorporated in the procurement process.

Proposals were made to include qualitative criteria in the procurement document. Some amendments to the standard procurement template were made but the Building Services did not want to use other criteria than the price. Also, the procurement unit was not willing to procure a pre-demolition audit due to additional costs and lack of experience. CityLoops team procured an audit for one of the Pankalampi buildings, but the findings did not have much impact on the procurement.

The main lesson learned was that the organisational change must start from the strategic level. The policy level must set clearly defined circularity goals and indicators to monitor the

implementation. This work has now started in Mikkeli with significant contribution from the CityLoops project. The replication phase of the project will include activities for supporting the realization of the circular goals in all the units of the Municipal Consortium and for ensuring the reporting of progress.

The best practice changes that have been suggested by the CityLoops team include:

1. Adding minimum requirements in the tender documents regarding the source separation of wastes: Specify, based on the pre-demolition audit, which waste types must be collected separately on site. Guidance in interpreting the Waste Decree concerning source separation is needed. Also, economic incentives could be considered to facilitate source separation and upcycling to higher levels than the minimum requirement. A bonus system could be used for this.
2. Quality control of hazardous material audits needs to be improved so that all relevant hazardous materials will be taken into consideration, not only asbestos, also in the demolition projects of other organisations than city-owned demolition sites. Hazardous material audits should be reported so that the contractors can base their waste cost estimate on reliable mass calculations.
3. Procurement units should consider separate tendering for soft stripping services and indoor demolition contracts to facilitate participation of local SMEs and to include criteria for promoting reuse.
4. Fixed price procurement with circularity being the main selecting criteria should be considered in selected cases to promote innovative contractors. The average cost of demolition per floor area is already quite well established so this type of contracting does not constitute a major risk for cost increase.

CITYLOOPS

CityLoops is an EU-funded project focusing on construction and demolition waste (CDW), including soil, and bio-waste, where seven European cities are piloting solutions to be more circular.

Høje-Taastrup and Roskilde (Denmark), Mikkelí (Finland), Apeldoorn (the Netherlands), Bodø (Norway), Porto (Portugal) and Seville (Spain) are the seven cities implementing a series of demonstration actions on CDW and soil, and bio-waste, and developing and testing over 30 new tools and processes.

Alongside these, a sector-wide circularity assessment and an urban circularity assessment are to be carried out in each of the cities. The former, to optimise the demonstration activities, whereas the latter to enable cities to effectively integrate circularity into planning and decision making. Another two key aspects of CityLoops are stakeholder engagement and circular procurement.

CityLoops started in October 2019 and will run until September 2023.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 821033.

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