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Waste management services

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Introduction

This case study pertains to the waste management of operations in the city of Malmö, including schools, preschools, department offices, and sports halls, among others. The aim is to ensure that every municipal building becomes part of this contract once their current waste management contract ends. The contract focuses on the collection of separated waste like cardboard, plastic and aluminium/tins. While the responsibility for managing these types of waste lies with the producers, it is the municipality's responsibility to organise and cover the costs of collection. On the other hand, residual waste, paper, and food waste are collected through Va Syd, a water and waste company owned by the municipality. The collection of residual waste comes at higher costs, serving as an incentive to encourage waste sorting practices.

Many of the municipal operations already have contracts for collection of waste. However, there has not been a comprehensive municipal-wide contract in place, and many of the department-specific contracts lack environmental criteria. This fragmented approach to waste management contracts hampers effective guidance and control, and it also complicates the monitoring process.

Moreover, the municipality believes that this fragmented approach leads to increased costs and time consumption, as each department must independently undergo the tendering process.

Sorting of waste must be seen as a fundamental aspect towards the implementation of a circular economy. If the basic waste management practices are not effectively established, it can pose challenges in advancing towards a circular economy. Therefore, this procurement is as an important step into the right direction.

Procurement process

The overall goal for this project and procurement is to be able to have an effective monitoring system of waste streams and work towards waste minimisation after the initial implementation phase.

The prestudy for this procurement began in 2019 in response to the needs raised by different departments. A referent group consisting of representatives from all departments was formed and market dialogues were held. The project manager also conducted benchmarking exercises and sought advice from other municipalities. One of the significant issues highlighted during this



process was the lack of data regarding the number of collection points within the municipality. Due to time constraints, the procurement was postponed, but it was eventually resumed in 2021. To restart the process, the reference group reconvened, and a Request for Information (RFI) was sent out. The RFI was followed by telephone calls to seek clarifications and gather additional information.

The tender had to be withdrawn twice due to issues with the pricing model, the bidders could offer high prices on certain services without impacting the total costs. The pricing model had to be adjusted twice before a contract could be awarded. In the end, the added value criteria were set too high, which had an impact on the total pricing model. This was due to limited statistics and uncertainty regarding the pricing offers for different services from the bidders. Since this was the first time the municipality made a framework agreement for waste management, it is expected that creating a more robust pricing model will be easier in the future, with improved data and statistics available.

The environmental and circular criteria

- **Climate demands on transportation:** Added value was given to the suppliers who could live up to climate reduction demands on transportation, resulting in reduced CO₂ emissions. Suppliers with a certain percentage of vehicles running on electricity, hydrogen gas, or biogas ("non-emission" vehicles) received a price deduction. The added value model was constructed as a staircase. If the supplier had 25% non-emission vehicles of the total amount of vehicles used for the contract, they got a deduction on the total price. The deduction was higher if they had 50%, 75%, and highest if all their transports could qualify as emission free.
- **Containers made of recycled material:** Suppliers were required to provide containers made from recycled materials, promoting the use of sustainable resources.
- **Cleaning of containers with just hot water (no harmful chemicals):** Suppliers were expected to clean containers using only hot water, avoiding the use of harmful chemicals that could negatively impact the environment.
- **Educational support on sorting and waste minimisation:** The supplier should offer educational support, on sorting and waste minimisation upon request.
- **Provision of statistics on different waste streams:** The supplier should also provide

statistics of different waste streams so that the city can work with minimising waste activities effectively

- **Reporting and corrective actions for incorrect waste sorting:** To increase sorting of waste and avoid incineration, the supplier should report if sorting has not been done correctly and give the department time to correct it (and then pick up the sorted waste for recycling).

Implementation, contract management and behavioural change

Achieving successful waste sorting requires a behavioural change from those who have not yet adopted this practice. Furthermore, adjustments to the existing infrastructure are required to accommodate the sorting containers. Also, in Sweden as a whole, there is room for improvement in terms of waste sorting levels. During the first two years of the contract, the focus will be on getting all departments on board with the new contract. Once this stage is accomplished, the next step will involve enhancing the level of waste sorting and minimising the generation of waste.

Results

- **Transports:** The supplier uses 8 vehicles for this assignment. 4 diesel trucks, 1 electric truck and 2 biogas trucks. Compared to having only diesel trucks that use HVO100 as fuel (which is standard in this market), we reduce the CO₂ emissions from transports by 27,4 %. The reduction is 4 tons CO₂eq. This is based on calculations of fuel data from the first 6 months of the contract. One year into the contract the supplier should have 50% non-emission vehicles, since they got the award criteria and thereby it is a contract term, so the savings are expected to increase during the contract period. The emission factors for the calculation are based upon data from the Swedish Energy Agency for biogas, diesel and HVO100. For electricity the supplier has an agreement for 100% renewable electricity, which in the calculator used counts as emission free.
- **Containers made of recycled plastic:** Recycled material in the containers are at least 95%. If we only consider the plastic material, we save 62% of the carbon emissions compared to using virgin material. If we consider all components of the container, LCA data shows that reduction in CO₂ emissions is lower, 30-35%.
- **Increased sorting of waste:** Sorting and



recycling of waste gives a saving of CO₂ equivalents compared to process residual waste. It is too early in the contract to get data specific for this agreement, but if the city would be able to provide extended sorting possibilities for about 25% of the city's buildings, we would save about 25200 kilo CO₂eq for aluminium and 24500 kilo CO₂eq for glass.

Lessons learned

It was very challenging to create a good pricing model due to the diverse range of waste streams and services included in the contract. It is essential to have relevant statistics and extensive market dialogue. Although the added value criteria in this case were set too high, to use added value criteria is a good way to challenge suppliers. Such an approach ensures inclusivity but still stimulates the market. Assessing economic value based on sustainability criteria, rather than solely relying on vague descriptions of ambitions, facilitates easier evaluation.

Dare to try! Do extensive market research and market dialogue. Use contract terms to challenge and encourage suppliers to be more sustainable and circular. Not everything has to be in place at the start of the contract, gradual progress can be expected within 6 to 12 months or a similar timeframe. For example, in this contract the added value criteria for sustainable transports were set up in a way so that it was not necessary to have the non-emission vehicles in place at the point of contract start. In this way, we give the suppliers time to exchange their current vehicles into more sustainable options.

Not everything has to be perfect. While we initially requested weight-based statistics for different waste streams, it was discovered that not all trucks were equipped with scales, and the associated costs were deemed too high. Instead we will rely on a calculation model to generate statistics, which may introduce some uncertainty in our monitoring efforts. Nevertheless, it represents a step in the right direction, as we establish a monitoring framework, and by addressing this issue with the suppliers, we aim to improve the quality of statistics in the future.