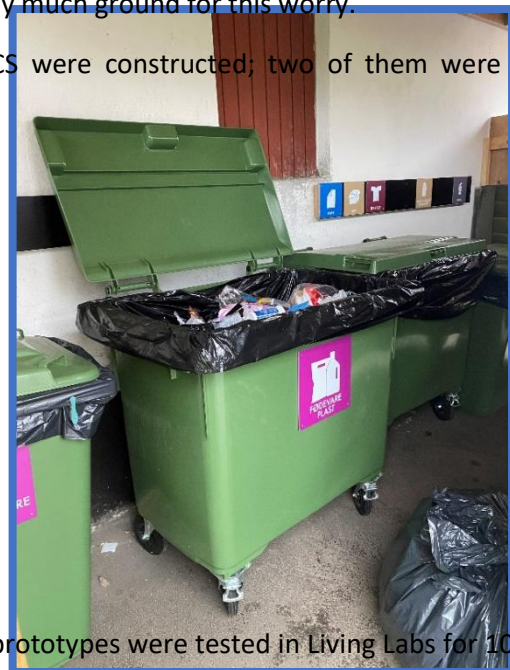


Shared Waste Collection Systems

Shared Waste Collection System (SWCS) are planned to be implemented in the response to several challenges. First of all, there have been problems with accessing households for door-to-door waste collection in certain towns with medieval characteristics in Bornholm. Furthermore, in response to EU and national legislation, BOFA as a local waste management authority in Bornholm, is set to implement a new waste collections system of 12 waste fractions (previously 5) which in practice is going to be solved with large-scale roll-out of SWCS in medieval towns and summer cottage areas. It is important for SWCS to be implemented in a sustainable manner – in this way, BOFA can align with its own vision by 2032 of a waste-free Bornholm and achieve the recycling rates etc. as mandated in EU policy and legislation.

The Waste Framework Directive dictates recycling targets to be achieved by all Member States (as well as new measurement methodologies to be implemented). At this stage, in the waste chain dealing with household waste collection, there is a moderate risk that with shared waste collection systems that the collected waste will have higher impurity rates compared with door-to-door collection, which will have ripple effects downstream, i.e. poor recycling rates. However, the project showed that there wasn't necessarily much ground for this worry.

During project, three different prototypes for the SWCS were constructed; two of them were mobile (movable) and one stationary prototype. The differences were in the waste fractions that could be disposed of in each of the prototypes. For example, in one town, the mobile prototype contained only cumbersome fractions such as biowaste and residual waste while at the same time stationary waste station covered the rest of the "dry" fractions. On the other hand, in another town, the mobile prototype contained all the 11 waste fractions; small-sized electronics (WEEE), batteries, textiles, plastics used for food packaging, other plastics, biowaste, paper, cardboard, metal, glass and residual waste. The prototypes were demonstrated in operational environment and therefore corresponds to TRL 7. These prototypes were tested in Living Labs for 10 weeks in the autumn of 2020 with voluntary participation of citizens.



Within this case, the following ISWM system elements are covered - collection, transfer & transport, treatment & disposal, re-use and recycling of waste gathered in Living Labs. Through Living Labs, BOFA introduced separate sorting and collection of 11 waste fractions (previously 5) through which recycling is increased and therefore negative environmental impacts (aspects) are decreased. Introduction of SWCS is a direct response of technical aspects of limited space and a challenging urban environment that needs to be considered. Additionally, the introduction of the SWCS has the potential to reduce costs compared to door-to-door collection therefore the financial/economic aspects are organized towards the most efficient system. Socio-cultural aspects were considered during co-design and those were attempted to be integrated into the shared waste collection sites. Similarly, as in case of Co-Design, Policy and institutional aspects can be argued to be out of the scope of the WASTEMAN project.

BOFA intends to roll out SWCS to cover 3000 summer cottage households and 2500 households in towns on Bornholm in connection with the new waste collection scheme with 12 fractions to be implemented in 2022. As a result of the project in which SWCS were tested, it was supported that the environmental impact of the Bornholm waste collection and treatment system would be positive since a significant percentage of household waste streams could be diverted to recycling pathways as opposed to waste incineration. During the Living Lab test, it was ensured that the collected waste was recycled and incineration avoided where possible. Although a number of households expressed some dissatisfaction with the aesthetics of the prototypes, there was a general positive/neutral reaction to the extra time and the extra distances involved with SWCS. The prototypes were especially popular among schoolchildren in the dissemination activities that took place after the living labs.

Lessons learned:

1. The design of the shared waste collection sites has a big importance for the citizens. The shared waste collection sites have to fit in well in the urban environment, preferably it has to be hidden, with roof, with enough space for citizens, equipped with light and bins that are easy to dispose waste in.
2. The biggest issues for citizens were within disposal of residual waste and biowaste, which they wish to have as close to home as possible, whereas most of the citizens do not mind to walk extra to dispose of other waste fractions.

ISWM Framework Positioning of the Case Story

Stakeholders: Citizens, Public Authorities

Waste System Elements: Collection, Transfer and Transport, Treatment and Disposal, Re-use, Recycling

Aspects: Environmental, Technical, Financial, Socio-cultural

