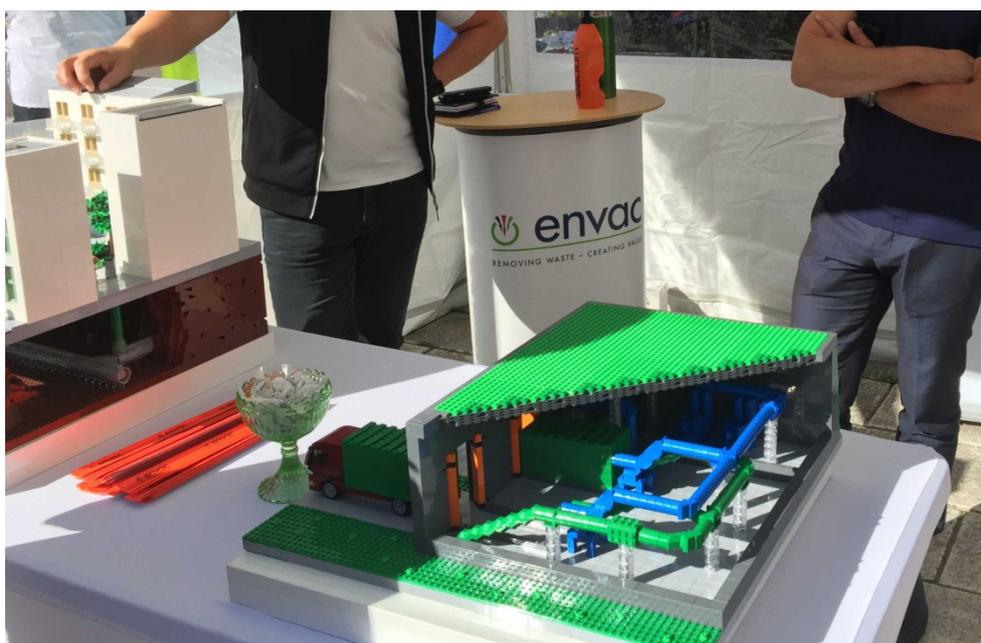


## FACTSHEET

## Smart waste management

### PART OF SMART SOLUTION 7: SMART WASTE COLLECTION



#### INTEGRATED INFRASTRUCTURES



- Handles multiple separate waste streams in one inlet, identifying each user and their waste volumes.
- Increased recycling rates, conversion of food waste to biogas and up to 90% reduction in transport for heavy waste collection. Collected food waste will be processed separately to serve as biogas for public transportation.
- Feedback on individual habits and their environmental impact can be given to system's users, with the possibility of rewarding 'good' behaviours.

#### Stockholm

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## What is the solution?

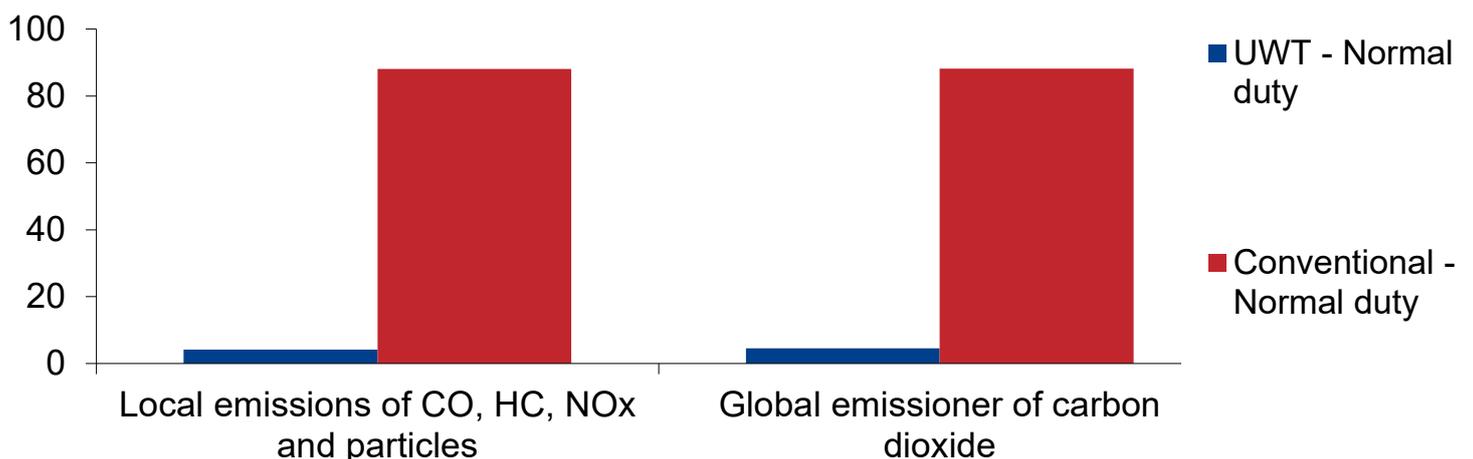
The smart waste collection system combines Envac's underground waste transportation and optical sorting technologies, integrating smart metering, identification sensors and software. This solution will enable a cost efficient and smarter combined solution, with the possibility of providing feedback to end-users on their waste segregation habits.

## How does it work?

Residents separate their waste into separate colour-coded bags. When the resident puts his/her waste into the Envac waste inlet, the user is identified alongside the type (by colour of bag) and weight of waste being deposited. The different waste streams are then transported using suction through an underground pipe network to a collection station located outside the central city area.

The system will be able to identify the amount and type of waste thrown away by individual users. This information could be used to provide feedback to the user, for instance, on individual recycling patterns.

Any food waste collected will be processed as biogas, which in turn will be used to fuel public transportation.



*The graph above shows the difference in emissions of CO, HC (hydrocarbons), NOx, particles and SO<sub>2</sub> in another residential area in Stockholm (Stora Ursvik). UWT stands for underground waste transportation and Conventional stands for bin collection with rear loading lorry.*

## Expected impact

### Improved quality of life:

The solution will provide easy access to the waste disposal system, which will replace heavy waste collection lorries in the residential area. The system will also limit the use of inner and/or outer surfaces for waste bins and containers

### Reduced environmental impact:

Waste collection traffic will be reduced by 90% with an accompanying reduction in CO<sub>2</sub> emissions, noise and pollution. Additionally, the working environment for the waste collectors will be greatly improved due to the elimination of heavy lifting. Processing collected food waste as biogas will greatly reduce GHG emissions from the waste.

### Promoting sustainable economic development:

The solution will showcase smart infrastructure and will entail a strong interaction with users by providing data in order to improve environmental behavior.

## Potential for Replication

Many European cities need to increase recycling in multi-family residential housing estates. Typically recycling levels in such areas are around 15% or lower, whereas average national recycling levels often reach 50% and higher. Space and accessibility restrictions for introducing recycling as well as means of providing continuous information and instantaneous feedback on correct behaviours are factors impeding reaching higher recycling levels.

The system can be installed outside the buildings without needing to make any infrastructural changes. This gives it a good replication potential in many housing estates built in the 60s–80s that currently lack possibilities for waste recycling and have difficulty providing individual feedback and rewarding “good” behaviour.