

LIFE BIOBEST

GUIDING THE MAINSTREAMING OF BEST BIO-WASTE RECYCLING
PRACTICES IN EUROPE

D3.4: Country Factsheets on the analysis of communication and engagement practices

WP3: Set of Guidelines

T3.4: Analysis of communication and engagement practices

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Public Report



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N° 10: Factsheet on Exemplary Communication and Engagement Strategies for bio-waste collection | Sweden: Lessons from behavioural economics in Hökarängen, Stockholm

From January 1, 2015, to December 31, 2016, a group of three behavioural science researchers studied the effect of an information leaflet on the behaviour of residents regarding sorting their kitchen waste in the Hökarängen district of Stockholm. The leaflet, based on behavioural knowledge and distributed to households in a specific focus group, led to a reduction in the residual waste and an increase in the sorting of food waste compared with a control group.

This case study is noteworthy for demonstrating the effectiveness of personalised communication strategies in encouraging environmentally friendly behaviour. Key lessons include the importance of understanding target-groups' needs and barriers, harnessing behavioural knowledge and testing strategies on a small scale before implementing them.

HÖKARÄNGEN	
Population	Type
10,304 (2021)	Urban neighbourhood
Background elements	
<p>Hökarängen is a city district in southern Stockholm, Sweden. Most households in Hökarängen lacked the means to separate their kitchen-waste until Stockholmshem, the largest housing company in Stockholm, initiated a project in 2014.</p> <p>This project aimed to provide residents with stationary sorting stations outside apartment complexes to facilitate kitchen waste sorting, aligning with Swedish environmental policy goals. However, despite informational efforts by Stockholmshem, only a few households were sorting their food waste each year after the pilot began.</p> <p>In response to these unsatisfactory results, Stockholmshem collaborated with researchers specialising in behavioural science - Noah Linder, Therese Lindahl, and Sara Borgström. Together, they developed an information leaflet rooted in insights from nudging and community-based social marketing to promote kitchen waste sorting.</p> <p>The effect of this leaflet on citizens' participation in the system was then evaluated over two years using a difference-in-difference analysis, a statistical technique used to</p>	



estimate the causal effect of a treatment or intervention by comparing the changes in outcomes over time between a group that received the treatment and a control group that did not, with a treatment and control group.

Best Practices description

When crafting the information leaflet, the researchers focused on theories from environmental psychology and behavioural economics. They identified and followed **four key phases crucial for effectively promoting pro-environmental behaviours**, defined as any human behaviour that benefits the environment or minimises harm:

- 1. Identification of the behaviour to be changed:** The researchers, in collaboration with Stockholmshem, decided to focus on promoting the behaviour of kitchen waste sorting.
- 2. Examination of the main factors underlying this behaviour:** A pilot study was conducted to learn about the area and uncover internal and external barriers for the residents to sort their kitchen waste and to estimate roughly who was already doing so. The pilot study was carried out in two phases:
 - **The first part of this task** involved visiting and learning about the research area through **surveys** distributed to 92 households in the research area (20%). The targeted households were provided with information about bio-waste and asked to answer a few questions about their habits. The following barriers were identified:
 - Lack of information;
 - Difficulty distinguishing between kitchen waste and mixed waste bins;
 - Lack of trust in the efficiency of the system;
 - Inconvenience of sorting kitchen-waste at home;
 - Need for compostable bags;
 - Laziness;
 - Language barrier to understand the information sent out;
 - Unpleasant odours from kitchen waste sorting stations during summer;
 - Difficulty in opening the sorting station (requiring a key).
 - The second part of this phase involved an analysis of kitchen and household mixed waste data to decide how to divide the area into a control- and a treatment group.



Once the barriers had been identified, a literature review was done to identify suitable tools for addressing them.

3. Begin the implementation of actions to change behaviour:

Based on the barriers and behavioural insight tools identified in step 2, a **three-page long information leaflet** was created to address them, including:

- The front page (see figure below), tailored to target the initial barriers of the lack of information and difficulty in distinguishing between the bins, was carefully designed. The subtitle of the information leaflet uses a descriptive social norm to encourage kitchen-waste sorting.
- **Straightforward and relatable messages** such as (translated) "If all households in Hökarängen would sort their food waste it would be enough biofuel to support 15 garbage trucks for a year" were incorporated, so to be easily understood and more likely to be remembered.
- The information shared in the leaflet was framed to align with **community injunctive norms**, emphasising statements like "People in Hökarängen believe recycling food waste is the right thing to do." These were coupled with **descriptive norms** like "Join your neighbours (...) recycle your food waste". This approach underscored both the community's moral stance and the collective action of neighbours, reinforcing the persuasive effect of the message.
- To overcome the challenges of laziness and the inconvenience associated with sorting kitchen waste at home, as well as fulfilling households expressed need for compostable bags, **two paper compostable bags were included in the envelope along with the leaflet**. Additionally, a picture of a kitchen caddy installed in a kitchen was added to the leaflet, demonstrating its compact size, along with information on where to obtain such containers and paper bags for free.



Image 1. Picture of the front page of the information leaflet (translated from Swedish) taken by one of the authors of the study.

Source: Picture taken from Linder, N., Lindahl, T., & Borgström, S. (2018). Using Behavioural Insights to Promote Food Waste Recycling in Urban Households—Evidence from a Longitudinal Field Experiment. *Frontiers in Psychology*, 9, Article 352. <https://doi.org/10.3389/fpsyg.2018.00352>

4. Evaluation of the effects of implementation

The implementation of the communication strategy was experimented on a small scale at first, before rolling out to the rest of the district. Such a strategy was adopted to avoid expensive failures in case of unexpected results.

A treatment and control group were therefore established (see figure below), each corresponding to a specific zone within the district. All houses located within the treatment group area (264 households) received the information leaflet, while the remaining 210 households in the control group received no information. It's noteworthy to mention that the experiment was conducted without the residents being informed, aiming to minimise any potential influence on the results. A difference-in-difference analyses was used to evaluate the effects of the intervention and its effectiveness in promoting kitchen waste sorting among the residents from the treatment group. Data from the 9 sorting stations in the research area, within both groups, were collected before and after implementation, over a 2-year period, and compared accordingly.



Image 2. Satellite picture of the research area. The blue area represents the treatment group. The red area represents the control group. The red and blue stars show where the sorting stations are located.

Source: Google, Kartdata. Picture taken from Linder, N., Lindahl, T., & Borgström, S. (2018). Using Behavioural Insights to Promote Food Waste Recycling in Urban Households—Evidence From a Longitudinal Field Experiment. *Frontiers in Psychology*, 9, Article 352. <https://doi.org/10.3389/fpsyg.2018.00352>

Methodology:

- Data collected from January 1st, 2015, to December 31st, 2016 (two years) - from 9 sorting stations in the whole research area (5 in control group, 4 in treatment group).
- Waste weighed and reported by waste collection vehicles during each collection.
- Kitchen waste was measured every second week on average - for 373 kitchen waste collection rounds analysed.
- Household waste collected more frequently - total of 756 collections

Key results

Residual waste collected (in the treatment group compared to the control group)

The average amount of residual waste collected was 53.42 kg more in the treatment group compared to the control group before the leaflet was distributed.

After the leaflet was sent out - an average of 185.01 kg less household waste was



	collected in the treatment group compared to the control group.
Food waste collected (in the treatment group compared to the control group)	Before the intervention, the treatment group produced 19.64 kg more food waste on average per station, compared to the control group, and after the intervention, this difference increased to 31.96 kg.

This suggests that the intervention has had the desired effect on both increasing the amount of food waste collected and reducing residual waste in the treatment group compared to the control group.

Lessons-learned

- **Identifying the target audience’s needs, preferences, and barriers** is a crucial step in developing any effective communication strategy. The messages and activities designed can therefore be better adapted to meet the needs of the audience and their specific concerns.
- **Drawing from insights from behavioural science**, such as social norms and descriptive norms, can enhance the effectiveness of communication activities.
- **Starting with small-scale implementation** allows for testing and refining communication strategies before full-scale rollout. This iterative approach can help identify what works best for engaging the target audience.



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