Summary report: Evaluation of the Recycling Quality Officers pilot

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Contents

1. Introduction

Resource London[1] in partnership with the London Environment Directors Network (LEDNet) delivered a pilot Contamination Hit Squad (CHS) project with four local authorities in London; Brent, Greenwich, Haringey and Lewisham.

Keep Britain Tidy (KBT) was commissioned to deliver the pilot, with the intervention involving a dedicated team of Recycling Quality Officers (RQOs) working ahead of collection crews on nominated kerbside collection rounds in each borough to:

- Identify and tag contaminated recycling containers[2] (i.e. those containing non-recyclable or incorrect items); and
- Record the corresponding address so feedback could be provided to individual households.

Previous LWARB research established that the most effective way to tackle contamination at the kerbside is through structured and targeted feedback to individual households that contaminate in order to change their behaviour. This approach, however, relies on collection crews to identify contamination in the recycling container, tag the contaminated recycling container and leave it behind for the resident to remove items that cannot be accepted. They then need to record the offending address. It was observed that, in many cases, crews were not delivering this contamination policy effectively, due to the perceived extra time taken to operate.

The purpose of the CHS pilot was to determine whether a separate team of RQOs, working ahead of collection crews, is effective in increasing the identification of contamination at the kerbside, and whether this approach is cost effective when delivered as part of a contamination policy providing feedback to residents.

Winning Moves was commissioned to evaluate the CHS pilot, the aims of which were to assess:

- whether the CHS intervention works in increasing the identification of contamination, and by how much;
- the costs of the intervention, so boroughs can make decisions about adoption of a CHS approach (based on estimates of total contamination costs produced by each participating borough in the Cost of Contamination Toolkit (COCT); [3]
- public views on the CHS intervention – in particular, the acceptability of RQOs checking for contamination.

[1] Which was, at the time of conducting this project, the jointly funded partnership programme between LWARB (London Waste Recycling Board) and WRAP (Waste and Resources Action Programme). https://resourcelondon.org/

[2] RQOs had a list of red flag items, that were automatic reasons for contamination, and other items that could be reason to tag a bin, depending on the borough and the amount of offending material.

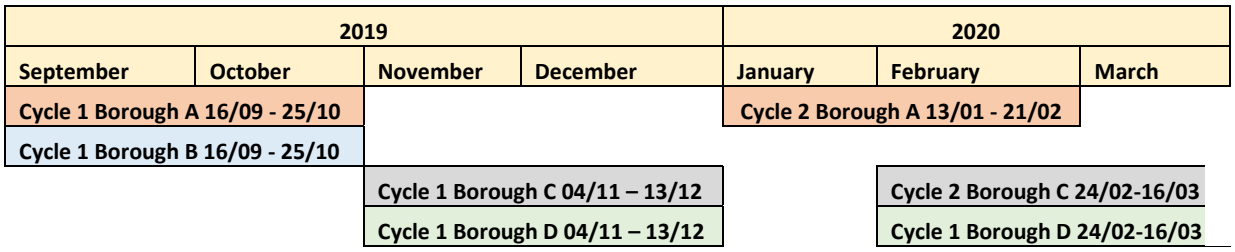
[3] https://resourcelondon.org/resources/toolkits/cost-contamination-toolkit/

The project ran in four London boroughs – Brent, Lewisham, Haringey and the Royal Borough of Greenwich. The boroughs are anonymised throughout the rest of this report. This report summarises the results of the evaluation. The full evaluation is explained in detail in a separate technical report.

2. Overview of the pilot

During two six-week cycles per borough, a team of Recycling Quality Officers (RQOs), recruited by KBT, worked ahead of recycling collection crews on nominated collection rounds to identify contaminated recycling containers. Boroughs each selected five rounds, one for each day of the week, where the intervention would take place. The two six-week cycles were phased as indicated in Figure 1 below. The second cycles in Borough C and Borough D were cut short due to the COVID-19 pandemic, and Borough B was not included in cycle 2 due to round changes and data issues.

Figure 1: Timeline of CHS pilot, delivered during 2019/20



Every weekday of cycles 1 and 2, two RQOs would check the recycling containers on the specified rounds for contamination, alert the crew and householder to the contamination with a tag placed on the recycling container, and record the corresponding address on a hand-held device. This information was used later in the day by RQOs or borough staff, who imported the monitoring data into Excel and identified which households needed to be sent letters having continued to contaminate after receiving the initial tag.

The table below shows the number of households covered in the CHS rounds, and the number and percentage identified by RQOs to have put incorrect or non-recyclable items in their recycling containers at least once during the pilot

Table 1: Number of households covered in the CHS pilot and the number and percentage of which that contaminated at least once during the pilot

	Borough A	Borough C	Borough D	Borough B
Estimated number of households in the rounds covered in the CHS pilot	18,000	8,500	4,000	6,457
Number of households that contaminated at least once during the CHS pilot	2,744	3,080	2,241	1,916
Percentage of households in target rounds that contaminated at least once during the CHS pilot	15%	36%	60%	30%

There were four stages of feedback:

1. **Tag;** an 'oops' tag was placed on the recycling container and it was not emptied until the contamination was removed.
2. **Letter**; in addition to the tag, residents received a letter explaining what they should and should not put in their recycling container. The letter included up to three incorrect or unrecyclable items found in their recycling container that had prompted the tag and stage 2 letter.
3. **Strongly worded letter and visit**; as well as the tag, residents received a letter explaining the importance of compliance and stating that if a fourth incidence of contamination occurred the recycling container would be removed. A visit was also made by the RQO, where possible, to support residents in understanding what can or cannot be accepted for recycling.
4. **Recycling container removal;** in all boroughs except Borough D the recycling container was removed, and a letter was sent to confirm recycling service has been withdrawn. Stage 4 in Borough D involved a visit to the resident.

Residents were 'escalated' through each stage of feedback as appropriate following each occurrence of contamination.

As the extent and nature of feedback to residents varied between participating boroughs,[4] it was agreed that the Contamination Hit Squad would support the implementation of feedback to residents. This was necessary to ensure a consistent approach where feedback to residents was not part of a borough's existing contamination policy. As a result, RQOs had

[4] In Borough B contaminated recycling containers are tagged to notify refuse collection crews they should be collected with the general waste, with no feedback to residents (as the refuse crews remove the tags). In Borough C, they tag contaminated recycling containers, but with no more follow up communications. In Borough A, recycling containers with incorrect or non-recyclable items are also tagged, but there is also feedback to the resident, with three letters being sent before recycling containers are removed if contamination continues. In Borough D, residents putting contaminated recycling out for collection are also given a tag and sent letters. They may also then receive a visit, with an ad-hoc process being adopted for persistent contaminators, but recycling containers are not removed.

slightly different roles in each borough. Readers interested to understand more about the CHS approach should refer to the separate report by KBT for further details about the delivery process, challenges encountered, how these challenges were managed, and lessons learnt.

It is difficult to separate the impact of the CHS from that of local contamination policies (i.e. the way in which instances of contamination are dealt with once identified); however, the provision of feedback to residents in each borough, using a broadly consistent approach, has enabled the evaluation to quantify overall impact of increases in identification, in contexts where residents receive feedback.

For consistency throughout, reference to the intervention is to the action of the RQOs checking the recycling containers, as compared with how recycling container crews do this. Reference to 'contamination policy' relates to the feedback mechanisms to the residents, some of which was delivered by the RQOs during the pilot, rather than by borough staff.

The impacts reported result from the combined effects of RQOs checking the recycling containers and feedback being provided to residents. The impact of the RQOs in the absence of feedback to residents was not assessed as part of the pilot.

3. Methodology

The evaluation used a mixed method approach, consisting of quantitative analysis to assess the impact and cost effectiveness of the CHS pilot and contamination policy feedback; and qualitative evidence-gathering to understand residents' attitudes and experiences.

The quantitative analysis focused on quantifying the trial's impact, drawing on monitoring data provided by KBT and pre-trial data on kerbside contamination identification provided by participating boroughs. It consisted of:

1. A difference-in-differences[5] analysis to quantify any change in the number of contaminating households identified, and extent to which this could be attributed to the CHS intervention
2. A cost effectiveness analysis, considering the costs and benefits of the CHS, and potential financial savings per £ of additional cost incurred.

Qualitative research was used to understand residents' impressions of the intervention, feedback process and recycling quality officers, and to explore the ways in which the trial motivated residents to change the way they use their recycling containers.

40 semi-structured interviews were conducted across three boroughs.[6] As an incentive, upon completion of interviews, participants received an online shopping voucher of £60.

Interviews in the early stages of the evaluation were face-to-face, but later interviews were conducted via telephone as social distancing and other measures relating to the COVID-19 pandemic prevented us from undertaking face-to-face interviews as planned.

[5] Difference-in-differences analysis is a quasi-experimental method of impact evaluation which seeks to understand and quantify the additionality of observed impacts, i.e. whether they would have existed in the trial's absence. As it is impossible to observe what would have happened in the trial's absence, this method used data from the pre-trial period as well as from non-CHS round to estimate the trial's impact.
[6] It was agreed that no residents would be interviewed in Borough B following the decision to cease the pilot in the borough following the completion of cycle 1. Readers should refer to section 3 for further details.

4. Key findings

4.1. Impact of the CHS on identification

The CHS was highly effective in increasing the identification of contamination at the kerbside, compared to identification by recycling collection crews. For the two boroughs for which difference-in-differences analysis could be undertaken,[7] Borough A and Borough C, the results showed that 96% and 83%, respectively, of households identified by RQOs to be contaminating their recycling would not have been identified otherwise during the period of the CHS pilot. Across the two cycles of the CHS pilot, this equates to an additional 2,647 households in Borough A and 2,553 additional households in Borough C to which feedback could then be provided.

	Borough A	Borough C
Number of households that contaminated at least once during the CHS pilot	2,744	3,080
Number of households likely to have been identified in the absence of the CHS, based on difference-in-differences analysis integrating pre-trial identification data	97	527
Uplift in identification during the period of the pilot due to the CHS – number of households	2,647	2,553
Uplift in identification during the period of the pilot due to the CHS – as a percentage of households identified by RQOs to have contaminated their recycling at least once during the period of the pilot	96%	83%

4.2. Correction of behaviour

Consistent with previous research, the evaluation confirmed that a majority of residents will correct their behaviour when provided with feedback. For both Borough A and Borough C, approximately 80% of contaminating households corrected their behaviour following either stage 1, 2 or 3 of the feedback process, with less than ten percent of contaminating households having their recycling containers removed as part of the trial.

Furthermore, a majority of identified contaminators in Cycle 1 did not contaminate their containers again in Cycle 2 following tagging and feedback. In Borough A, 83% of Cycle 1

[7] Those for which pre-trial data on identification were available for use in the evaluation.

contaminators were not recorded as contaminators in Cycle 2, compared to 64% in Borough C.

Combining these 'correction rates' with the estimated uplift in identification attributable to the CHS,[8] the results indicate that, across both cycles of RQO activity, a total of 2,194 households in Borough A (out of a total of 18,000 households in CHS rounds) and 1,643 households in Borough C (out of a total 8,500 households in CHS rounds) corrected their behaviour as a result of the CHS pilot that would not have done so in its absence.

4.3. Cost effectiveness of the intervention[9]

The CHS approach was found to be cost effective in Borough A, and as having had the *potential* to be cost effective in Borough B if households had been asked to remove the contamination for collection on their next collection date (avoiding the need for additional collections to deal with the contamination).

In Borough A, for every £1 spent on the CHS intervention, there is an estimated saving of £2.55 over five years. In Borough C, there is an estimated saving of 82p over five years, per £1 spent, though a saving of £1.36 per £1 spent could have been achieved if contaminated recycling containers were collected on the next collection date or as part of the general refuse collection, or left for the resident to deal with.

Both of these cases assume, conservatively, that MRF bulking and treatment costs remain the same as would have been the case in the absence of the CHS pilot. In Borough A, where contractual thresholds for contamination rates mean they rarely incur higher rate charges for contamination, this is likely to be appropriate. In Borough B, however, it is expected the pilot may lead to a reduction in bulking and treatment costs if resident behaviour change persists.

Table 2 summarises the results of the cost effectiveness analysis, providing figures for Year 1 and lifetime (over 5 years).

[8] i.e. our results from the difference-in-differences analysis, as reported in section 1, on the uplift in identification of households putting the incorrect or unrecyclable items in their recycling containers.

[9] The cost effectiveness analysis examined if the permanent reduction in contaminating households caused by the CHS pilot could lead to a tangible financial benefit for boroughs. Potential cost savings arising from reducing the number of contaminated recycling containers in the CHS rounds were compared to the overall cost incurred by the boroughs and LWARB to deliver the intervention (including the costs of delivering the RQO inspection activities and resident feedback). The relationship between reducing the number of contaminated containers and reducing the overall contamination rate, as measured at the MRF, is complex, so the analysis explored two scenarios, one with and one without cost savings being achieved at the MRF treatment stage. The analysis also considered the benefit to cost ratios assuming the impact observed persists, albeit diminishing, across a period of five years. Further details about the analysis can be found in the full technical evaluation report.

Table 2 Benefit-to-cost ratios (BCR) for different scenarios

Scenario	Time	Borough A	Borough C
Reduction in overall cost of contamination	Year 1	1.29	0.87
	Across 5 years	2.71	1.96
Reduction in contamination costs, excluding cost savings from bulking and treatment	Year 1	1.22	0.36
	Across 5 years	2.55	0.82

The findings of the pilot suggest that the CHS approach can be cost effective in circumstances where the existing performance in identifying contamination is low, and the cost of contamination is high. Winning Moves has produced a spreadsheet tool to support boroughs in designing a cost effective CHS approach for use in their area.

4.4. Public opinion on the CHS

Overall, residents found the CHS trial acceptable as an intervention, with no residents interviewed being concerned that the monitoring activity was happening. Many saw the RQOs at work looking in recycling containers and did not think anything of this; rather than questioning what was happening, respondents saw the monitoring as part of the councils' role. Indeed, some respondents had not realised prior to interview that the intervention was an additional or extra check, assuming it was just part of the role of the council and not a cause for concern.

In general, respondents remembered receiving some form of feedback from stage 1 through to 4, though some had missed one or more stages of feedback (e.g. not noticing the initial tag, or stage 2 letter).

Very few had been informed prior to the trial that they had been recycling incorrectly, so their reactions to receiving feedback were also explored in the evaluation.[10] Regardless of the level of feedback received, the initial reaction and feeling of respondents was one of annoyance and frustration at receiving the feedback that they were recycling incorrectly. These feelings generally subsided, however, with many saying they found the feedback and

[10] This was considered important to capture, given the CHS increases the chance that households doing the right thing most of the time may be identified as contaminators and asked to change their behaviour.

subsequent stages such as visits very helpful. Those that did not find the feedback helpful were either of the opinion that someone else had contaminated their bin or it was a one-off mistake; i.e. they were clear about recycling and contamination and confident they had not made a mistake, or were unconfident, but remained very unclear as to what the contaminant had been.

Throughout, residents identified the need for clear communication in both the general recycling policy and the feedback mechanisms, to aide recycling. Many respondents changed the behaviour following the intervention and feedback, as was the intended outcome, despite any initial annoyance at receiving the feedback. Those that did not change behaviour did not recall earlier stages of feedback, believed they were not the contaminator, felt it remained unclear how to solve the contamination issue, or had no intention to make an effort to understand the issue and change their behaviour.

Other themes arising in the interview included:

- **the role of others in the household;** with some respondents highlighting that whilst they were the recipient of monitoring feedback, the cause of contamination was another household member such as a housekeeper, or carer.
- **the role of others external to the household;** many respondents believed that the contamination was not due to anything they had put in the recycling container, but instead due to someone external to the household (such as someone who shared the recycling container in the case of flats, or passers-by on the street); some cited this as a possible cause of contamination in instances where they were confident they had recycled correctly.
- **a need for increased education;** some respondents indicated that more education on both how to recycle correctly and the consequences of contaminating would be helpful in addressing contamination issues.
- **a lack of clarity following the intervention and feedback;** some respondents, including those who experienced all stages of feedback, considered that they were still unclear as to what they were doing wrong.
- **a need for clear communication and consistency;** many respondents suggested communication overall could be clearer and more consistent, from what the stickers on recycling containers say, to the leaflets and website material that state what can and cannot go in recycling containers, and the monitoring feedback. Residents expressed being unclear on the current policies for recycling and would prefer more communication generally about what can or cannot go in recycling, as well as faster communication of updates to this.
- **comments on the timeframe of feedback following identification of contamination;** some residents felt that escalation from the tag to a letter was too fast; whilst others thought that it was too slow to have a tag and then two letters. Some respondents felt

that people should not receive a tag on the first occurrence because this could be a one-off incidence (unaware that part of the purpose of the tag was to alert recycling collection crews to the presence of contamination).

- **a need for HMOs and flats to be treated differently;** respondents based in flats or HMOs were concerned about the similarity or uniformity of treatment between flats and regular households. Respondents noted flats and HMOs have multiple occupants who may not have the same views on recycling, and that different timeframes of escalation or considerations should be made for those in flats or HMOS.
- **the role of supermarkets and shops;** some respondents felt that supermarkets or shops had more of a responsibility to help with some aspects of contamination by making packaging easier to understand and more consistent across the sector for similar items.
- **a preference for persuasion not punishment and the need for more information post point of recycling;** a small number of residents determined that rather than punishing people by threatening recycling container removal, a more effective method of reducing contamination could be persuasion to change behaviour, with a number of respondents indicating that it would be encouraging to know what happens to the recycling once it has gone to the depots and onwards.

5.

6. Conclusions and recommendations

Conclusions

The overall conclusions of the evaluation are as follows:

- **The CHS approach works:** it is clear from the results that a team of dedicated officers, whose sole task is to check the recycling containers and spot contamination, is better placed than recycling crews to identify contaminating households, and can lead to a large increase in the number of instances of contamination spotted at the kerbside.
- **Providing feedback to residents works:** consistent with findings from previous research, it is clear that a majority of people recycling incorrectly will change their behaviour following feedback, with evidence from the pilot suggesting that many households identified contaminators may change their behaviour permanently. Whilst findings from the qualitative interviews suggest the overall results for correction should be viewed with at least some caution – as some instances of contamination identified by the CHS may have been isolated instances in the presence or absence of the CHS intervention – it is clear that the CHS and subsequent feedback raised awareness and made people more alert to the issue of contamination.
- **The CHS approach can be cost effective, but cost effectiveness depends on a range of factors:** The results of the cost effectiveness analysis are mixed, but findings from the pilot indicate the approach can be cost effective when implemented in the right way in the right circumstances. Factors that influence cost effectiveness include the current costs of contamination, the extent of under-identification prior to intervention, an ability to identify and target problematic areas and how the approach is implemented.
- **Residents in general are unlikely to be concerned about RQOs checking their recycling containers:** findings from the qualitative interviews suggest many may not even notice or be aware that the checks are additional or different to normal practice, and it is clear from KBT reporting that, whilst a small number of residents objected to their bins being inspected, in the vast majority of cases there were no issues.
- **Residents will be frustrated when told they are not recycling correctly – but most will change their behaviour if it is clear what they are doing incorrectly** Residents at all feedback stages tended to express feelings of anger or frustration on initial receipt of monitoring feedback and the accusation they were recycling incorrectly. Generally speaking, these initial feelings subsided and there were residents who at every stage thought the feedback was perfectly reasonable and would be helpful; many changed or tried to change their behaviour having been made aware of items that could not be recycled.
- **Improved clarity and granularity of communication was a consistent theme which would both increase the impact of intervention and contamination policy feedback and reduce resident frustration** Some respondents remained unclear regarding what

they had put in their recycling that they should not have. This was a source of frustration as many wanted to do the right thing, as well as increasing the risk that people would contaminate again in future.

Recommendations

Our recommendations, based on the findings of the evaluation, are as follows:

For those interested to consider or adopt a CHS approach in their area

1. **View the CHS approach as a last resort:** although the pilot has demonstrated the CHS-approach *can* be cost effective, it is recommended that boroughs do everything they can to reduce contamination rates through less resource intensive means before implementing a CHS-style system, i.e. by: ensuring clear communication about what is allowed in recycling containers; verifying that recycling collection crews are inspecting and logging contamination as they should be; and establishing a clear and consistent policy for dealing with persistent offenders and instances of contamination, including direct feedback to the resident. CHS approaches will be less cost effective in contexts where identification at the kerbside is good and feedback is provided to residents.

2. **Consider ways in which monitoring and recording systems could be improved:** for example, whilst requiring more investment, a photo-based recording system is likely to be a more effective means of providing feedback to residents. If RQOs were to take a picture of the offending item in the recycling container after the first incident, and circle the contaminant clearly, this could be inserted in the letters to residents, so they were clear about the issue that needed to be addressed. This would also help to resolve situations in which any residents may not be at fault – for example, if the recycling container in question actually belonged to another household or had been contaminated by someone other than the householder (if applicable).

3. **Seek to improve communication on what can be recycled as part of general recycling communications:** Findings from the qualitative interviews echo those from previous research that most householders want to recycle correctly and will do the right thing when they are clear about what can and cannot be accepted for recycling. Improving general communications about contamination, as well as explaining or reiterating the costs that the borough incurs in dealing with contamination, is likely to lead to improvements in recycling behaviour. Where service changes are made (for example, such that an item can no longer be accepted for collection), this needs to be followed through in all communications (including any stickers or labels on existing recycling containers that may suggest the item is still acceptable).

For future trials and evaluations

1. Ensure any pre-trial data necessary for evaluation purposes is obtained **prior** to the trial being undertaken, ideally as a condition of participation. For two boroughs participating in the CHS pilot pre-trial data were found during the evaluation to be unavailable.

2. Agree strict rules regarding the delivery of the intervention, considering potential penalties in the case that changes are made that prevent the trial objectives being met. For example, in the context of the pilot, making it unacceptable for target rounds to be changed during the pilot.

3. Allow as much time as possible for boroughs to respond to queries and clarifications regarding any data supplied, and to provide the cost information necessary for any analysis of cost effectiveness.

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