Upgrading
Shared bin
Experience Project
About REPAK

Repak is an environmental not-for-profit organisation, with a social mission. Repak’s purpose, on behalf of its Members, is to lead the recycling and sustainability of Ireland’s packaging waste; advocate for a new circular economy; and educate businesses and consumers on reducing and recycling packaging waste. Repak was set up in 1997 to help Member businesses meet their legal obligation to recycle the packaging they place on the Irish market. Repak has over 3,400 Members, whose fees fund household recycling bins, bottle banks, civic amenities and business back-door waste nationwide.

Repak is passionate about protecting the environment and reducing the environmental impact of packaging waste, while helping to deliver Ireland’s recycling targets for the five main materials. Repak runs initiatives and campaigns to help its Members improve the sustainability of their packaging and to encourage consumers to reduce, reuse and recycle better.

Under Repak’s new 10 Year strategy, it has defined its primary goals to help us deliver on its purpose:

- To make Ireland a Primary Leader in Europe of packaging recycling by 2025 in a circular economy
- To recycle 50% of all plastic packaging placed on the market by 2025
- To achieve 80% recycling target for all packaging by 2030 (10% ahead of the EU target)

About VOICE

VOICE is a member-based Irish environmental charity that empowers individuals and local communities to take positive action to conserve our natural resources. VOICE advocates for the government and the corporate sector to adopt environmentally responsible behaviours, and for the development of strong national policies on waste and water issues.

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USE Project Report Introduction

Project Description – Improving recycling in shared bins.

Through 2019 and 2020 the USE project run by VOICE, funded and supported by REPAK, ran an initial pilot programme examining effective interventions to improve the recycling rates and reduce contamination of recycling in multi-unit developments (MUDs). The pilot project aimed to identify the specific barriers to greater recycling behaviour and to trial prompts and supports that would help to improve effective recycling rates. The problem of contamination of shared bins has been widely recognised and has resulted in a number of pilot studies internationally\(^a\),\(^b\),\(^c\) and in Ireland\(^d\). USE is the first national project looking to address the issue across multiple sites in Ireland.

The project was comprised of research and intervention components. The research component was comprised of surveys of residents, focus groups with residents as well as interviews with management agency staff. The interventions trialled a number of approaches to remove barriers to effective recycling behaviours and create a new and sustained social norm within the complex.

The pilot ran across 7 sites (3 in Dublin, 2 in Cork, 1 in Galway and 1 in Limerick), working with 6 management agents and 3 waste service providers. While the project had to be paused and significantly altered through the COVID lockdown, the project managed to trial a number of interventions, highlight areas for future development and achieve behaviour change as measured by management agents on the ground (with waste audits to follow).

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\(^a\) “Making recycling work for people in flats: A research project on recycling in London’s purpose-built flats” (2020) - Resource London Partnership.

\(^b\) “Improving waste separation in high-rise buildings” (2020) - VANG Household Waste

\(^c\) Improving resource recovery in multi-unit developments (MUDs) toolkit. Victoria Metropolitan Waste and Resource Recovery Group. 2017

The USE project has produced a prototype toolkit which can be run with apartment block residents through management agencies. We propose to further examine the regulation and management of waste in communal waste areas and to measure the long term effectiveness of this toolkit (with a population that is largely temporary or transient) through the continuation of the project in USE2.
Learnings and suggestions

Learning outcomes
There is an information gap and significant confusion on appropriate use of bins in MUDS. Most residents wish to better utilise the bins, but feel the infrastructure is not sufficient in the home and at the Waste Management Areas (WMA).

At present the vast majority of waste generated is going into general waste (76%) while recyclable material is split evenly across the bins (51% of recyclable material is in the Mixed Dry Recycling (MDR) bins vs, 49% in the Mixed Residual Waste (MRW) bins).

While residents are typically able to correctly identify which materials are recyclable, there is greater confusion around whether items such as textiles and WEEE waste should go into the recycling bin. Residents in apartments are much more likely to place soft plastics and films into the recycling bin (74% and 64% relative to the general population 57% and 40% respectively). This is borne out in the waste characterisations, where plastic film accounts for 3% by weight of the MDR bins analysed, but only 1% of the MRW. This may reflect acceptable materials for recycling programmes in other jurisdictions.

When unsure, residents typically put items into the waste bin (63%). When attempting to find information residents are unsure where to get answers, with 55% looking to information leaflets and the waste management companies second at 33%.

When asked “What do you feel would be required to encourage improvement?” residents feel an awareness campaign (68%) would be most effective, followed by signage in the bin area (33%). The focus groups highlighted a need for some level of ‘community buy in’ whether through feedback or incentives, with financial penalties being the approach most often cited.

Bins at most sites do not appear to be meeting residents’ requirements with 77% feeling some other form of bin is required. 25% felt another MDR bin would be required at their site, while 35% felt a textiles bin would be useful. It is worth noting that MUD residents are less likely to own or drive a car\(^*\) and may have limited ability to move bulky WEEE or furniture items.

There is a high degree of variability between MUD waste management approaches which adds to confusion and may be actively hindering some users from recycling in apartments. As other studies have shown, inconsistency across messaging can increase confusion for residents.

Recycling bags were well received, and utilised and address the issue of waste segregation at source.

Waste as collected from the site is often times pre-sorted by the management agent, though this is not a ubiquitous practice. Where it is, waste characterisation studies reflect ‘pre-sorted’ material rather than the true bin usage by residents. Five sites in this study actively manage in this way, while four of those reported that involvement in the scheme decreased time spent on the waste management areas.

\(^*\) Inferred from travel statistics in densely populated areas. CSO National Travel Survey 2016
**Future directions**

As an issue affecting multiple stakeholders across a large value chain, any future approaches should continue to engage residents, owners, agencies and waste service providers to ensure continuity of messaging engagement through the value chain. Further examination of how waste is classified, collected and the management of the waste management area would be likely to increase our knowledge base for tackling this problem on a national scale.

Changeover of staff and communication between management agents and staff on site were identified as issues through the project. Future iterations of the project will require buy-in from the management agencies at a deeper level.

Some form of resident feedback is likely to be highly effective. USE has developed a bin scoring system with City Bin company, which required the waste collectors to rate the quality of material found in the MDR bins. We planned to share this rating with residents and report improvements over time. Due to issues related to coordinating teams during COVID, we were unable to implement a bin scoring trial during the project.

Information signs, illustrating what cannot go into the bin are likely to be effective but need to be consistent across the whole site from apartment to bin being collected.

With respect to food waste bins, residents appear to be broadly in favour though are very apprehensive around issues of smell and infestation. Waste segregation in apartments is specifically targeted in the governments National waste policy 2020-2025, highlighting the importance of segregation of waste at apartments as a key ‘Measures to achieve optimal results’. The policy targets food waste segregation in apartments as a specific measure highlighting the intention to support “regulatory changes in planning and tenancy laws required to ensure apartment dwellers are provided with infrastructure to support food waste segregation”.

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Context and Background to the project

Apartments in the housing stock in Ireland

Approximately 12%[^8] of households, or 7.3% of the population in Ireland live in an apartment, by far the lowest proportion in the EU (41.8% EU average) though similar to the UK experience of 14.3%[^8]. Apartments account for 37.2% of the rental stock of the country, the highest proportion of any dwelling type listed by the CSO. Property industry Ireland predict that the apartment living will grow to 20% of household in Ireland by 2050.[^1] Construction of apartments has seen a sudden increase in Ireland over the past 18 years, increasing 85% since 2002. The trends in apartment construction were expected to continue immediately before the pandemic with the number of apartment units granted planning permission in Q4 of 2019 up 125%, the highest numbers since 2007. 80% of these are planned to be built in the urban centres across 3 counties; Dublin, Cork and Galway. This is in line with the National Planning Framework which emphasises compact growth, renewing and developing existing settlements and aims for 40% of new housing to be delivered within the existing built up areas of cities and towns in Ireland.

The CSO notes that family living in apartments is the fastest growing household group in Ireland[^6], though is subject to large amount of regional variation as reflected in the census findings; in Dublin City, apartments account for 35.2% of households. Increasingly apartments sales and development are being driven by the private rental sector.

Relative to the overall housing market in Ireland, apartments residents are more likely to be renting rather than owning. Apartment owner occupiers cover roughly 18% of apartments relative to 68% when compared across all housing types as illustrated in figure 1. Below the age of 35, more householders are in rental accommodation rather than ownership (in 2016), and this age is increasing (the age of change over to home ownership was 32 in 2011 and 28 in 2006). This highlights the turn-over of residents in apartments in Ireland, bringing to the fore the challenge of changing culture within a highly transient community.

[^8]: Eurostat 2018
[^1]: Estimating Ireland’s long-run housing demand. Property industry Ireland, April 2019
Management models for apartments in Ireland

Management of apartments in Ireland is covered by the Multi-Unit Developments (MUD) Act 2011, the management of common areas (including waste facilities) moves to the owner management company (OMC) once the development is sold. The OMC is made up of a voluntary board of owners from the complex and makes decisions on how the common areas and services are managed. The OMC runs on a not for profit basis and gains funds through charging residents a service fee which is used to cover waste management, alongside maintenance, insurance and repair of common areas and all other common services. OMCs may choose to engage a management agent to manage the day to day running of the common areas. Property management agents are regulated by the Property Services Regulatory Authority. Typically, residents will have more interaction with the management agent than with the OMC for the MUD.

Engagement with property management agents varies greatly; recent research suggests a generally positive experience with 73% of renters agreeing or agree strongly with the statement “I am happy with
the work that the property management agent does”. The report outlines broad satisfaction across owners and renters with OMCs and that 57% of owners feel the service charge is good value for money, but 66% expressing concern that the fees may increase in the coming years.

It is important to note here that while the majority of residents in apartments are renters, the OMC is made up of owners. It is ostensibly the owners who pay the management fee, however where the apartment is let this is typically a cost passed on to the renter. This discrepancy leads to one of the difficulties in communicating with the residents, whereby the formal structure for management, communication and decision making does not include the actual residents.

**Waste Management in MUDs**

Among the services administered by the Management agent on behalf of the OMC are the waste management services. Waste management is typically collected through large bins in waste management areas. At present most sites offer communal MDR and MRW waste collection in a waste management area. In some cases, bins are also available for glass and or compostable waste as well.

The location and make up of WMAs varies from site to site, with some housed in specially built units while others are an area of a carpark or other shared space. The WMAs may be covered or exposed, may have separate entrance or be accessible to the public, they may include lighting fixtures and they vary in size and number of bins present.

The Waste Action Plan highlights the importance of segregation of waste at apartments as a key ‘Measure to achieve optimal results. The policy targets food waste segregation in apartments as a specific measure highlighting the intention to support “regulatory changes in planning and tenancy laws required to ensure apartment dwellers are provided with infrastructure to support food waste segregation”’. Nationally the EPA estimate 60% of household organic waste is placed in the MRW bin. At present the number of MUDs with Food segregation bins is low, with contamination commonly cited as the main concern from the management point of view. Addressing food waste is likely to be an important step for the sector as food waste is among the top contaminant in both MDR and MRW bins from MUDs.

**Research on recycling and behavioural changes in MUDS**

There is significant literature on encouraging pro-environmental behaviour, typically attempting to establish what the barriers are for an individual in carrying out this positive behaviour. The Theory of Planned Behaviour is among the most popular models in the field of environmental behaviour, which posits that a behaviour carried out is an interaction of perceived behavioural control, attitude and perceived subjective

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3 EPA National Household Waste Statistics, reference year 2018 [https://www.epa.ie/nationalwastestatistics/household/]
norms and intention. In order to effect behaviour change for pro environmental choices, it is important to examine each of these behaviour drivers.

**Figure 5 Simplified TPB Diagram from Aizen 1991**

Community based social marketing\(^2\) \(^3\) is one tool for instigating change through this model, highlighting the importance of the social element (subjective norm) as well as the information provision (perceived control and attitude) that are typically relied upon in such interventions. Any attempt to change behaviour must necessarily attempt to address all the drivers of behaviour change, such as information deficits, societal buy in and infrastructural barriers. Some of the themes from the research in this area are outlined below.

**Infrastructural elements**

Overlaps and gaps in perceived responsibility through the value chain have been identified in the literature as a key issue in the failure or success of similar programmes\(^4\). In the example outlined by Xu et al. the provision of fora for stakeholders at each residential complex was highlighted as a key distinguishing difference between this and previous unsuccessful recycling initiatives. This dialogue allowed for clarification of roles which ensured the behaviours continued forward after the initial interventions had been completed. In this instance the authors note the importance of the NGO as “the glue that binds the project together”\(^4\). An important distinction should be made between entirely new behaviours (food waste separation as illustrated here) and changing existing behaviours as would be the case with recycling interventions.

Consistent signage throughout and the use of prompts relying primarily on graphics rather than words (verbal) have been shown to be effective in encouraging recycling behaviour \(^5\). Distance to the collection points has also shown to be a factor on the contamination levels in MDR bins, with contamination increasing with distance required to travel \(^6\) \(^7\). With respect to apartments specifically, the provision of recycling bags or bins that fit under the sink or counter has also been shown to be effective in trials in the UK\(^8\) and Toronto\(^9\).
Bin design

Design of the bin and bin area also impact on waste separation behaviours. WRAP UK has trialled a number of restricted openings for recycling bins to reduce contamination levels with mixed success. It is important that any restriction does not create an excessive barrier to the user – when it does, pre-sorted recycling is likely to be placed into the MRW out of frustration.

Bin colours have been shown to have an effect though they are regionally dependant (On the national scale) and so any colour scheming out to be trialled and tested in advance.

Information

Information signage consisting of images rather than words is most likely to be recalled by residents. It is ideal if the same imagery can be used consistently through all material produced for the campaign. Consistent spatial arrangement of Images within the poster also aids in recall and recognition. This is also true of bin positioning, with consistent placement typically resulting in faster recognition and reduced contamination. While there is some debate on the use of yes/no imagery, there exists limited evidence to suggest that where yes/no posters are used, the sides should correlate with the placement of bins (so for instance if yes is on the right, MDR should be on the right, and MRW on the left). The use of images rather than words or text also holds an advantage in avoiding language barriers.

While it is important to ensure that residents are generally aware of the rules regarding waste segregation, it is important to note that this is but one element in changing the behaviour and that knowledge of the rules is likely a poor predictor of waste separation behaviour. In the context of Irish MUDS, residents are not typically long term and may come from other jurisdictions with differing waste management regimes and so information clarification is likely an important concern. As discussed in the next section, ensuring there is consistent messaging through the campaign and ideally through the administrative area is an important factor.

Messaging and value appeals

Messaging towards residents needs to reflect the needs and attitudes of the residents. Appeals to pro environmental behaviours are unlikely to influence residents who do not share this attitude. It is key to identify the core issue from the users’ perspective. In the case of recycling, numerous studies have shown the importance of user convenience in shaping behaviour modifications, so communicating alterations which increase the convenience of recycling are likely to gain high levels of buy in.

Feedback approaches have been shown to be highly effective and cost effective in reducing contamination levels in bins, and they are likely to improve current users accuracy though unlikely to recruit new users. Feedback approaches may be based on previous performance or comparative performance while stickers

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* this is also a good paper for policy gaps on the issue come back to it
* Sorters typically respond well to waste management information while non sorters typically responded to convenience levels
and visual prompts in the home have been shown to be effective but context dependant \textsuperscript{18} – they must be placed where the behaviour is engaged, e.g. on the lid of the compost bin.

Social norms

Social modelling or the use of local volunteers and ambassadors is an effective method to create behaviour change, as it communicates to residents that others are recycling and that this is the social norm of the area\textsuperscript{19, 4}. In the trial examined by Xu et al., the authors note the importance of volunteers at the bin management area for 2 hours every evening for 2 months to create a lasting impact in the recycling rates. These sorts of approaches however require research in advance to ensure the message is delivered to the audience at the optimum place and time, and the intervention is required to run for a sufficient period of time to ensure that the message is received by the target audience\textsuperscript{17}.

Social norms can also be embodied in the building itself, with waste separation behaviours higher and waste generation lower by residents in ‘sustainably designed’ buildings\textsuperscript{10q}.

Conclusion

A meta-analysis of 36 published papers examining 70 intervention strategies conducted in 2017 found that the greatest effects on changing behaviours were social norming based interventions followed by environmental alterations\textsuperscript{17}, this follows the outline put forward by Doug McKenzie Mohr in the ‘community based social marketing’ approach to environmental behaviour change.

A suite of measures is likely to be required to implement long lasting waste sorting behaviour changes in MUDS, which include:

- management practices at the bin store through bin placement, cleanliness and standardisation
- ensuring waste separation is convenient in residents’ kitchens – use of caddies or bags, but avoiding clutter
- a messaging programme that addresses the concerns of residents
- engagement with residents on an ongoing basis
- Information signs which display imagery about the correct items to place in the bin, and separate posters / informational leaflets to address other materials.
- A feedback system is likely to improve recycling effectiveness
- Establishment of an apartment building champion network to reinforce good recycling/waste sorting behaviour

In the Irish Context the EPA estimates that 56% of waste in household MRW bins is material that could be collected through organic or MDR collections. This problem is likely exacerbated greatly in the context of MUDS, where there is significant contamination of the MDR bin in the waste collection area. Tackling the issue of waste segregation at MUD sites presents a distinct challenge, but also perhaps a great opportunity for increased waste segregation. Under Household Food Waste and Bio-waste Regulations 2015\textsuperscript{7} there is a duty on waste service providers to provide separate collection of household food waste, applying to agglomerations of >500 people as of July 1\textsuperscript{st} 2016. At present provision of food waste collection is scarce

\textsuperscript{9} Though in this case the level of contamination of the recycling bins increased also, implying that while people felt there was a social norm to recycle they did not accurately engage in the behaviour.

in MUD waste management areas. With issues of contamination articulated by waste service providers while residents typically raise issues of smell or nuisance – as discussed further in the survey responses. Implementation of effective food waste collection will not only bring MUD sites into compliance with the above regulations, but is likely to have a positive effect on the MDR and MRW collection streams through significantly reduced contamination levels. As outlined above however, it is vital that such schemes are introduced appropriately).

**Going Forward**

Each of these elements plays a part in fostering a new behavioural norm. It is through the integration of each of these elements that an effective programme can be developed which delivers long term change in behaviour patterns. The book ‘Fostering Sustainable Behaviour’\(^3\) outlines the following steps to implementing a behavioural change programme

1. Selecting behaviours (i.e. Greater separation of waste in the home, less diversion of waste from MRW to MDR at the waste management area).
2. Identify Barriers and benefits: what prevents people from engaging in the behaviour and what would motivate them to act
3. Develop strategies: devise an intervention which addresses the barriers and/or motivations above
4. Piloting: trialling on a small scale to refine the tools.
5. Broad scale implementation and evaluation: preferably using direct measures over self-reported feedback/

At a national level there is scope for an examination of the legislative and regulatory framework as it pertains to waste management and waste management areas. The above research emphasises the importance of a coherent approach both within a given MUD and across administrative districts. Ensuring consistency in the approach to waste management and recycling will likely go a long way to reducing contamination levels as well as ensuring that there is strong waste collection data underpinning any future developments.

\(^3\) See also the case study 3 in Appendix 1: VANG food waste trials for detail on the implementation of different strategies around food waste separation specifically.
Methodology of Pilot

Site Identification

Sites were identified to take part in the project through a number of recruitment strategies. These included mailouts from VOICE social media, engaging with local environmental officers and the Regional waste offices. Management agencies were also contacted directly, and this proved the most fruitful approach.

In all cases the sites were given an introduction letter to the programme outlining the aims and objectives of the programme. Each site was asked to fill in an application form which outlined the site’s characteristics and included contact persons for the site. All sites were given a site inspection before being approved.

Once sites were selected, permission for the waste audits was obtained and a waste contractor was engaged to conduct waste audits at each site. Each site received a copy of the waste audit including recommendations based on the waste profile at that site.

VOICE also took part in the Apartment Owners Network meeting in March 2020 to present the project and communicate the aims and objectives.

Waste characterisation studies

Waste characterisation studies were carried out at each of the 7 sites involved in the programme before any interventions were administered. These ran from August 2019 to October 2019. The results of the waste characterisation studies are compiled in appendix 3. Copies of the site-specific studies with recommendations were sent to each site as well as being used to inform the workshops at each site to help address particular problem materials.

On site interventions and engagement

Once the waste audit was conducted, surveys were carried out at each site. Due to the variety of interactions spaces with residents, surveys were carried out either door to door, through workshops or through a digital online version of the survey.
Each site received:

- a workshop & information stand.
- recycling bags for residents
- Bin area signage
- common area signage.

In August, as the lockdown eased the project was adjusted to accommodate for the inability to conduct face to face interventions. Once the project restarted a short recycling video was developed along with a new communications plan for the communal area posters.

In October 2020, each site received:

- Physical and digital copies of the common area signage
- Copies of the waste audit results for the site
- 6 weeks communications plan for the site
- A digital link to the recycling video: https://vimeo.com/485393276
- Zoom workshops were offered to residents at each site through November

**Behaviour and attitudes**

Residents at each site were given a recycling attitudes and barriers survey. These were gathered through direct interaction at workshops, door to door canvassing, mailing with dedicated drop off post box on site and online surveys. Surveys were distributed in November 2019 and initially had been planned to be redistributed at the end of the project. The low response to the online survey combined with the complications of face to face distribution during COVID have resulted in this aspect as yet unfulfilled.

Surveys were analysed in 2020, with reference to the results from the Recycling Ambassador Programme ‘Recycling Attitudes and Behaviours’ survey undertaken at workshops in 2017 and 2018. The RAP results provided a baseline of 793 surveys to compare the attitudes of apartment residents to.

Amarach research was engaged by VOICE to facilitate 2 focus groups, one consisting of 8 participants self-identifying as recycling often (‘Recyclers’) and a second group of 6 participants people who do not recycle or recycle less often (‘Non Recyclers’). The focus groups were conducted in October and November 2020. VOICE aided in the development of the discussion document for the focus groups and sat in on each of the groups to help to inform and guide the discussion.

In December 2020 debrief interviews were conducted with each site manager to gauge their interest in the scheme and understand how the project had affected the management of the sites.
Workshops, Signage and Engagement

Over the course of USE the programme, we ran 10 workshops with each site receiving at least 1 workshop or information stand. The success of each varied on the context, while information stands in common area hallways proved successful in Gleann na Ri in Galway. Areas without common areas such as Popes Quay in Cork and Bloomfield in Limerick had less interaction. Information stands were planned for bin day, though as residents are not directly responsible for the bins, there was some discussion that bin day did not focus bin behaviour on the same way it would for household residents.

Workshops worked best where they were part of larger social gatherings, for instance at Lee Vista where the workshop fed into an all residents information evening, or with Bellevue Court where an information stand formed part of a gardening initiative at the site. This follows the experience of the Recycling Ambassador Programme, where workshops are best timed in conjunction with existing events or can be used as a focal point for a gathering.

Because of COVID, workshops were then offered online. These were taken up by residents at the Homestead and Abbots court apartments. This proved a broadly effective way to engage with residents, though the uptake from other management agents was lower.

During the project, one site did not keep on with the project post COVID (Popes Quay apartments, Cork) and this was due to a change in management agent at the site.

Management Agents were each interviewed in December 2020 about the programme, and all agents identified improving recycling bins at the primary reason for getting involved with the project. They each felt the signage and communication was useful, though one site noted that communal area signage for their site needed to be weatherproofed. This must be considered in future iterations of the project (typically sites were provided with weatherproof bin area signage but paper versions of the common area signage).

Four of five sites with a grounds manager noted that they spent less time managing bins as a result of the programme. Gleann na Ri, in Galway has multiple bin enclosures, however the USE project ran across 3 buildings feeding into 1 such enclosure. Groundsmen noted a 50% reduction in time spent managing this bin enclosure.
Focus Group Results

The focus groups run in 2020 interviewed residents from across the country on their bin management in their apartment, their attitudes to recycling, how they get information about recycling and what improvements they would like to see.

In common with similar studies across Europe, space and internal kitchen design is a key issue when it comes to source separating recycling from general waste. All participants describe having limited space for multiple bins, and that the default bin is the general waste. Access to glass and textiles disposal was cited specifically as an issue. The majority of those in the NR group, claimed to have been recyclers previously but that the facilities in apartments mean it is too much effort, too inconvenient or too costly to recycle properly. Again, space management for segregation is cited as an issue here, as well as the feeling that if other residents do not recycle why should I?

The Recyclers group felt that personal responsibility plays a part in managing shared resources and that this is encouraged in part since there is no penalty for residents who do not follow the rules in terms of recycling.

All participants across all groups were confused about what can and cannot go into the recycling bin, and that signage in the apartment complexes generally, and in bin areas particularly, would be welcome. Non recyclers reacted particularly enthusiastically to this. A strong theme across both groups was that residents are looking for guidance on this. When asked, respondents felt that information needed should include not only what could be recycled but also what could not.

Bin area maintenance varied greatly but excess rubbish being left alongside bins is the most often cited, with members of the group mentioning large household items, and electrical goods specifically in reference to this. Recycling bins were reported to be regularly over full, and it was felt that this is due to packaging items and boxes not being compacted or general waste bags being put into recycling bins. Some residents noted that they either do not have recycling bins or do not know where they are.

Some of the key recommendations from the focus groups are:

- All apartments must have access to recycling facilities, as it seems some blocks still do not (or at least they are not obvious enough to residents)
- Consider support for residents in the convenient transfer of recycling from the apartment to the shared bins
- Share information on / encourage provision of ergonomically efficient / space saving in apartment bins
- Take action / highlight the consequences e.g., where waste separation is ignored / where rubbish is placed in bins incorrectly
- Ensure security measures in shared bin areas to reduce ‘dumping’, including from residents themselves
- Message residents to generate group buy in —‘in this together’ type comms. Once group think improves and guidelines are adhered to by more residents, success should be more evident people will follow the majority
Surveys

Surveys were sent out to residents at all sites. The digital format of the surveys returned a single response, in part due to the lack of direct communication between the management agents and residents. Survey drop-off locations similarly had a low return rate. Door-to-door surveys or surveys at workshops returned the highest number of completed surveys. 2 survey types were distributed, the Behaviours and barriers survey as used during the RAP programme (n=30) and an update version of the survey which included questions on compost bins (n=41). The surveys were analysed and compared against the Recycling Ambassador Programme surveys.

Glass waste was a particular issue across a number of sites, while most residents will seek out the appropriate bin, 13% are likely to use the recycling bin while only 5% will go to a bottle bank.

![Graph showing where to put glass waste](image)

Most residents will get their information from information leaflets primarily,

![Graph showing where to get recycling information](image)

This is backed up again when asked what you feel would be required to encourage improvement in the bin areas, the majority of residents identified awareness campaign (using contents analysis on free form...
responses to the question). Example statements include “An open door day in a recycling company where we see how it works and where we can ask our questions would be nice”, “make sure all tenants know about recycling and they do it properly”

Residents responses were compared to the RAP programme responses. Interestingly, in the main, the responses echoed those of the RAP responses. Soft plastics presented a notable departure, with 74% of apartment residents considering soft plastics easy to recycle relative to the RAP population of 57% while 64% of apartment residents find soft films and clingfilm easy to recycle relative to just 40% of the RAP survey population.

Residents were also asked to consider what are the issues with food waste bins in MUDs, contents analysis on the free from responses reveal that infestation and smell are by far the largest concerns among the respondents.
what are the issues with food waste bins

infestation: flies or rats
smell
negative effects on usage of other bins
positive towards it or no issue
don't know

- Infestation or flies or rats: 20%
- Smell: 30%
- Negative effects on usage of other bins: 15%
- Positive towards it or no issue: 35%
- Don't know: 0%
Findings and recommendations

From 2020 forward Ireland faces recycling rate targets increasing 5% every 5 years. The Waste Action Plan highlights the importance of a circular economy in reducing waste, to meet these ambitions will require effective waste segregation, particularly in this growing sector.

The above has outlined one pilot programme run by VOICE through 7 sites across Ireland. As an issue effecting multiple stakeholders across a large value chain, any future approaches should continue to engage residents, owners, agencies and waste service providers to ensure continuity of messaging engagement through the value chain. Through this project we examined the issue of recycling behaviour from the resident’s perspective. However, there is significant scope for further examination of the roles played by waste management companies and management agencies. Specifically, with regard to the provision of bins, maintenance of bin areas, and classification of apartment waste.

The pilot has highlighted a number of issues in waste separation behaviour in Ireland. In line with international experience, responsibility for management of the bins and waste area appear to fall between gaps in the process chain. This is perhaps best reflected in the many colours of bins, as well as the variance in upkeep and positioning for waste management areas.

The sites where the agency had an active management for the bins were most likely to stay involved and take an active part in the programme. These sites also tended to have greater resident buy in and turn out for workshops or information stands. Changeover of staff and communication between management agents and staff on site were identified as issues through the project.

Two of the Management agents themselves noted that the programme gained knowledge not just for their residents but for the managers themselves and grounds staff, which they can bring to other sites. Future iterations of the project will require buy in from the management agencies at a deeper level.
The recycling bags appeared to have been well received and appear to be working both in terms of offering convenience to users as well as acting as a social cue and marker for the community. Some form of resident feedback is likely to be highly effective. USE developed a bin scoring system with City Bin company, unfortunately due to COVID restrictions this was never implemented, it is presented here as an example of a possible quick and easy feedback approach for residents. The score is based a quick visual assessment of the level of contamination of the bin and rates the bin on scale of 0-5, but due to issues related to coordinating teams during COVID we were unable to implement a bin scoring trial during the project.

<table>
<thead>
<tr>
<th>Score</th>
<th>Category</th>
<th>Description</th>
<th>Score this if...</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Perfect Recycling</td>
<td>All material is clean, dry and loose.</td>
<td>All items in the bin are recyclable, with no contaminants.</td>
</tr>
<tr>
<td>4</td>
<td>Near Perfect Recycling</td>
<td>Material appears clean and loose, some inappropriate material may be present but easily identifiable or isolated.</td>
<td>5% or less contamination, all materials are recyclable and is clean and loose.</td>
</tr>
<tr>
<td>3</td>
<td>Good Recycling</td>
<td>The majority of items appear to be using the bin appropriately, there are some bin bags, recyclable items, which may have food residue.</td>
<td>Most material in the bin is recyclable. 1-2 bin bags may be misplaced.</td>
</tr>
<tr>
<td>2</td>
<td>Average Recycling</td>
<td>The bin is a mix of easily identifiable recycling and some items which may be MSW, there is evidence of food, lines or other contaminants.</td>
<td>More recycling than waste material, some bin bags present.</td>
</tr>
<tr>
<td>1</td>
<td>Significant Contamination</td>
<td>Most of the materials in the bin bags, which are not clear or are obviously regular waste. Evidence of some recycling occurring, but the bin is being used inappropriately by many users.</td>
<td>Hard to tell if the material in the bin is recyclable or not, there are obvious signs of food waste or general waste dumped in.</td>
</tr>
<tr>
<td>0</td>
<td>Indistinguishable from MSW</td>
<td>The bin is being used interchangeably with MSW or MSW has evidence of textiles or WMS waste.</td>
<td>No or little difference from general waste bin.</td>
</tr>
</tbody>
</table>

**Figure 11** Bin score system developed with City Bin company

With respect to food waste bins, residents appear to be broadly in favour though are very apprehensive around issues of smell and infestation.

1. Future projects could further explore the recycling ambassador or waste champion per unit. This would aid in social normativity of the project.
2. Feedback systems were developed for this trial but were not implemented in 2020, pushing these out further would be a useful exercise to provide feedback to residents.
3. Engagement on a national level could examine the lacuna in management of the waste management areas and clarify roles and responsibilities as well as working towards a form of consolidated bin system and messaging.
Bibliography from case studies and research


APPENDIX 1 – Case Studies

Below are three case studies where recycling projects in MUDS have been undertaken. However it is also worth considering the findings in Doris Knickmeyer’s “Social factors influencing household waste separation: A literature review on good practices to improve the recycling performance of urban areas” and the findings in Bond et al. “Assessment of options for the provision of waste infrastructure and procurement services; Recycling in High Density Residential Buildings” 2012, both of which are referenced in the preceding discussion.

Case Study 1: WRAP UK
WRAP, an NGO in the UK, has run apartment recycling trials at a number of sites around London. The WRAP approach is to work with local authorities to improve bin facilities as well as improve access for residents. Onsite, WRAP has encouraged the LA or waste management service to change the bin lids on recycling bins, in order to disincentivise MDR contamination. There are a number of key learnings from this:

- The hatch size shape and orientation must match the waste service provider’s needs (ensuring the bins are replaced facing the ‘right way out’).
- The openings must also be compatible with the assets provided to residents whether plastic bags, caddies or reusable bags. Local authorities were also encouraged to clean up sites and include new signage on what could and could not go into the bins. This was aimed to ensure the sites were not intimidating and provide key information at one point of the decision-making process.

Reusable bags have been used at numerous sites since 2016, and while these have been generally well received, the sites have shown that the bags need to be of a high quality (resulting in typically longer lead in times for delivery) and that the bags reflect the imagery used in local area signage. The project has also experimented with single use brightly coloured (orange) recycling bin bags to ensure a visual distinction from regular waste. In order for rolls of plastic bags to be effective, they must be robust enough to carry the weights, and in the case of this trial, fit into the bin aperture – failure on either front meant residents placed the bags into MRW. This approach also required consistent delivery of the standardised recycling bags to residents.

Case study 2: Victoria State Government Metropolitan Waste and Resource Recovery Group (MWRR)
The MWRR group produced a waste management toolkit for use by local authorities in Victoria state. While the toolkit focuses on the preparation of waste management plans for MUDS, the toolkit also includes a number of targeted communications strategies including specific information for residents moving in. It identifies whether the community is a ‘recycling community’, what to do when moving out, highlighting how to manage common items not catered for in regular kerbside collection, and standardised
bin colours. The use of consistent imagery is again worth noting – in this instance to be used at all MUDS in Victoria state. In their 2018 report, the group also highlighted the use of separate collection bins for soft plastic bags used to carry recycling to the MDR bin as well as service rooms recycling collection – smaller recycling bins spaced throughout the building which are managed by the management agents (p116).

**Moving out? Spring cleaning? Large unwanted items?**

![Image](image.png)

**FIGURE 14 SIGNAGE FROM THE MWRRG CAMPAIGN HIGHLIGHTING HOW TO HANDLE MATERIALS NOT CURRENTLY COLLECTED**

**Case study 3: VANG Foodwaste separation trials – Netherlands**

The trial aimed to increase food waste separation activity across high rise apartment buildings in 6 administrative areas in the Netherlands through a series of pilot test strategies to improve source separation of waste. The project was designed *a priori* to allow analysis of the effects for each intervention type on the behaviour. A summary of the results is presented below. While the project was examining the establishment of a new behaviour (food waste separation) the authors suggestion that future research could examine the applicability to other waste sorting behaviours.

The authors through the report highlight the importance of tailoring interventions to the local conditions since the interventions “that are best suited to a specific area depends on local circumstances, such as the attitude of residents.”

n22
<table>
<thead>
<tr>
<th>Technique</th>
<th>Effectiveness</th>
<th>Budget</th>
<th>Practical feasibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facilitating stores at home</td>
<td>★★★</td>
<td>★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Changing the distance to the waste collection point</td>
<td>★★★</td>
<td>★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Setting personal goals &amp; motivating</td>
<td>★★★</td>
<td>★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Influencing attitudes (the use of waste separation)</td>
<td>★★★</td>
<td>★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Strengthening social standards &amp; motivating</td>
<td>?</td>
<td>★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Social modelling</td>
<td>★★★</td>
<td>★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Setting group goals &amp; feedback</td>
<td>★★★</td>
<td>★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Promising reward</td>
<td>★★★</td>
<td>★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Acknowledging &amp; reducing resistance</td>
<td>★★★</td>
<td>★★★</td>
<td>★★★</td>
</tr>
<tr>
<td>Pre-emptive gift</td>
<td>★★★</td>
<td>★★★</td>
<td>★★★</td>
</tr>
</tbody>
</table>

* low effectiveness  *** high effectiveness  * costly  *** inexpensive  * limited feasibility  *** high feasibility

**Figure 15** VANG Analysis of Interventions Charting, Effectiveness, Cost and Feasibility for Large Scale Roll Out.
APPENDIX 3 – Common area signage and comms plan

Messages to be sent out weekly to residents committee/residents WhatsApp group on the day/evening before bin collection. Images attached here but also in the assets folder.

Week 1

We are getting our bins sorted, with VOICE and REPAK. Keep an eye out for recycling information and remember to keep your recycling clean dry and loose. For information on what you can recycle see https://www.mywaste.ie/

Week 2

Putting you recycling out? Don’t forget recycling should be clean dry and loose. If you have not received your Recycling bag yet contact us to organise.

Week 3

We’re working to make our recycling bins better, if you have questions about what can go in there is a handy guide on the recycling bags, you can check mywaste.ie or voiceireland.org
Week 4

– if there is a brown bin present

Recycling bins shouldn’t smell! Make sure your material is clean and dry. Greasy cardboard etc can go into the compost bin.

- if there is no compost bin present

Recycling bins shouldn’t smell! Make sure your recycling is clean and dry: no milk or grease contaminating the bin for everyone.

Week 5

Don’t forget that many materials are collected in other bins as well, glass and electricals don’t go into the recycling bin. [We have a Glass collection available in the bin store area]

Week 6

How are we doing with our recycling? Have you noticed the bins changing over the last few weeks? Let us know how we are getting on by emailing bins@voiceireland.org
## APPENDIX 4 – Survey Responses

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you sort your waste for the recycling bin?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Yes</td>
<td>39</td>
<td>98%</td>
<td></td>
</tr>
<tr>
<td>- No</td>
<td>2</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>2. Which materials do you put in the recycling bin?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Card</td>
<td>39</td>
<td>98%</td>
<td></td>
</tr>
<tr>
<td>- Paper</td>
<td>38</td>
<td>95%</td>
<td></td>
</tr>
<tr>
<td>- Steel cans</td>
<td>22</td>
<td>55%</td>
<td></td>
</tr>
<tr>
<td>- Aluminium</td>
<td>28</td>
<td>70%</td>
<td></td>
</tr>
<tr>
<td>- Tetrapak</td>
<td>31</td>
<td>78%</td>
<td></td>
</tr>
<tr>
<td>- Plastic bottles</td>
<td>37</td>
<td>93%</td>
<td></td>
</tr>
<tr>
<td>- Glass Jars</td>
<td>11</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td>- Plastic pots</td>
<td>23</td>
<td>58%</td>
<td></td>
</tr>
<tr>
<td>- Textiles</td>
<td>3</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>- Broken plastics</td>
<td>3</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>- Light bulbs weee</td>
<td>3</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>- Any others</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. If you suspect something should not go in the recycling bin, do you...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Try find right bin</td>
<td>17</td>
<td>43%</td>
<td></td>
</tr>
<tr>
<td>- Chance it and put in with recycl</td>
<td>2</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>- Put in general waste</td>
<td>25</td>
<td>63%</td>
<td></td>
</tr>
<tr>
<td>- Bring to CA</td>
<td>2</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>4. When you put recyclables in the recycling bin, do you...</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Wash out food residues</td>
<td>31</td>
<td>78%</td>
<td></td>
</tr>
<tr>
<td>- Make sure they’re empty</td>
<td>33</td>
<td>83%</td>
<td></td>
</tr>
<tr>
<td>- Make sure they’re drip dry</td>
<td>15</td>
<td>38%</td>
<td></td>
</tr>
<tr>
<td>- Separate out material types</td>
<td>12</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>- Put them in the bin loose</td>
<td>9</td>
<td>23%</td>
<td></td>
</tr>
<tr>
<td>5. Where do you put glass waste?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Recycling bin</td>
<td>5</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>- Glass bin</td>
<td>31</td>
<td>78%</td>
<td></td>
</tr>
<tr>
<td>- General waste</td>
<td>3</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>- Bottle bank</td>
<td>2</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>6. Are additional bins needed in your area?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- No</td>
<td>9</td>
<td>23%</td>
<td></td>
</tr>
<tr>
<td>- MDR</td>
<td>10</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>- Glass</td>
<td>9</td>
<td>23%</td>
<td></td>
</tr>
<tr>
<td>- Textile</td>
<td>14</td>
<td>35%</td>
<td></td>
</tr>
<tr>
<td>- Weee</td>
<td>10</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>7. Do you use food waste bins?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Do not have</td>
<td>15</td>
<td>38%</td>
<td></td>
</tr>
<tr>
<td>- We have</td>
<td>13</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>8. What are the issues with food waste bin?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Info leaflets</td>
<td>22</td>
<td>55%</td>
<td></td>
</tr>
<tr>
<td>- Waste management companies</td>
<td>12</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>- Radio &amp; TV</td>
<td>12</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>- Children’s education programmes</td>
<td>5</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>- Adult ed</td>
<td>5</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>- Other sources</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>9. Where do you get info?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- We don’t</td>
<td>0</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>- Anything that might be</td>
<td>7</td>
<td>18%</td>
<td></td>
</tr>
<tr>
<td>- We try to get it right but it takes time</td>
<td>13</td>
<td>33%</td>
<td></td>
</tr>
<tr>
<td>- We do it correctly</td>
<td>20</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>10. What do you want to know more about what happens to your waste and recycling?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Yes all aspects</td>
<td>17</td>
<td>43%</td>
<td></td>
</tr>
<tr>
<td>- Just general principles</td>
<td>12</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>- We'll sort the recycling and leave it</td>
<td>6</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>- Not an issue for me these days</td>
<td>3</td>
<td>8%</td>
<td></td>
</tr>
</tbody>
</table>
Contents analyses for “what are the issues with food waste bins”

what are the issues with food waste bins

- Infestation: flies or rats: 30%
- Smell: 35%
- Negative effects on usage of other bins: 25%
- Positive towards it or no issue: 15%
- Don't know: 0%

Contents analyses for “What do you feel would be required to encourage improvement”

What do you feel would be required to encourage improvement

- Awareness campaign: 70%
- Bin area signage: 40%
- More bins: 10%
- Bin area improvements: 10%
- Punishment: 0%
## Comparing responses to the RAP questionnaire responses

### Apartments vs. Workshops

<table>
<thead>
<tr>
<th>Response</th>
<th>Apartments</th>
<th>Workshops</th>
</tr>
</thead>
<tbody>
<tr>
<td>Satisfied</td>
<td>20 (71%)</td>
<td>430 (62%)</td>
</tr>
<tr>
<td>Unsatisfied</td>
<td>8 (29%)</td>
<td>264 (38%)</td>
</tr>
</tbody>
</table>

### How do you find it to recycle?

<table>
<thead>
<tr>
<th>Category</th>
<th>Easy</th>
<th>Hard</th>
<th>Not Possible</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardboard</td>
<td>95%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Glass</td>
<td>93%</td>
<td>7%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic</td>
<td>97%</td>
<td>2%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Tyres</td>
<td>97%</td>
<td>2%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Other Plastic Bottles</td>
<td>94%</td>
<td>6%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Bottles</td>
<td>95%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic</td>
<td>95%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic</td>
<td>93%</td>
<td>6%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Other Plastics</td>
<td>94%</td>
<td>6%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic Bottles</td>
<td>94%</td>
<td>6%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic</td>
<td>95%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic</td>
<td>93%</td>
<td>6%</td>
<td>1%</td>
<td>0%</td>
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<tr>
<td>Plastic</td>
<td>95%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
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<tr>
<td>Plastic</td>
<td>93%</td>
<td>6%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic</td>
<td>95%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic</td>
<td>93%</td>
<td>6%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic</td>
<td>95%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic</td>
<td>93%</td>
<td>6%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic</td>
<td>95%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic</td>
<td>93%</td>
<td>6%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic</td>
<td>95%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic</td>
<td>93%</td>
<td>6%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic</td>
<td>95%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic</td>
<td>93%</td>
<td>6%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic</td>
<td>95%</td>
<td>5%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic</td>
<td>93%</td>
<td>6%</td>
<td>1%</td>
<td>0%</td>
</tr>
<tr>
<td>Plastic</td>
<td>95%</td>
<td>5%</td>
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### APPENDIX 5 – Waste characterisation studies

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<th>Grem na R</th>
<th>Homestead Court</th>
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*Table notes:
- Popes Quay, Abbot Court, Bellevue Court, Bloomfield, Grem na R, Homestead Court, Lee Side are different locations.
- The table presents the volume of waste generated in each category across these locations.
- The total volume is calculated by summing the volumes across all locations for each waste category.*
APPENDIX 6 – Focus group report
Apartment Living – Barriers to Recycling

An Amárach Report prepared for:

December 2020/AF/S20-132
CONTENTS

- Background
- Participants

MAIN FINDINGS:
- Household Rubbish Management
- Approach to Recycling
- Information Sources
- Improving the Situation
To date little or no research has been done on recycling behaviours at shared bins in Ireland. VOICE Ireland is currently preparing a report which will include a series of recommendations for improving recycling rates in apartment blocks and a suite of best practice measures.

Survey data and post intervention waste audits are being undertaken. In further support of this work, in Autumn 2020 VOICE Ireland commissioned Amárach Research to undertake qualitative research with residents of apartments where shared bins are in place.

The aim of the focus group research is to obtain an understanding of the barriers to effective recycling for residents and use these to adapt the interventions where necessary in future iterations of the project.

As part of the programme VOICE Ireland has provided:
- Large format aluminium signage for the bin store areas
- Poster series for the communal areas
- A communications plan to management agencies to engage directly with residents where a WhatsApp group or similar exists
- Recycling bags for Residents (with recycling list printed on it)

Initially workshops were planned, but these have been adapted to online workshops and a 3 minute video for residents.

At two sites a bin scoring system has been initiated, which will give weekly scores to residents.

VOICE Ireland plan to run this programme out during December / January, when another series of waste audits and another recycling behaviours and barriers (post intervention) survey will be undertaken.

This report provides context, in the form of an indication of attitudes of apartment residents and an overview of the potential barriers to effective recycling.
Participants: ‘Recyclers’

Two focus groups were undertaken, one group of 8 people who try to actively recycle (held 20th October) and one group of 6 people who admit to being less committed (held 11th November). Participants lived in apartment blocks of varying sizes across Ireland – Dublin, Kildare, Cork, Galway.

‘Recyclers’ Group – always try to sort household rubbish into recycling and non-recycling

Female, lives in a block of 4 x 2 bed apartments in Kildare, lives with another person.

Female, 32 apartments in the block, Galway, lives in a 1-bedroom apartment on her own.

Male, 20 apartments, gated community, lives with wife, in Galway City.

Male, in a multi complex site – his own complex has 80-90 apartments, lives with one other person in Dublin 16.

Female, 15 apartments in the complex and it’s a small, gated complex, lives with one other person, Kildare.

Male, large 2 bed apartment, south Cork City, lives with wife and two kids. 24 apartments in block - part of a larger development, mostly owner occupiers.

Female, mixed development of apartments and houses – just moved in so unsure how larger. Lives with husband in Dublin 16 in Ballinteer.

Male, over 55’s accommodation, 30 apartments/flats, its semi-private - gates to get in, but they are not locked. Dublin 2.
Participants: ‘Non-Recyclers’

‘Non-Recyclers’ were defined through the recruitment screening to be people who either never, or rarely/only sometimes sort the household rubbish into recycling and non recycling. All lived in apartments with shared bin facilities.

‘Non-Recyclers’ Group

- Male, Kilmarnham – Lives alone – 76 apartment block which is approx. 30 years old. Gated complex.
- Male, apartment in very large complex, Heuston south quarter Kilmarnham – living with 4 – himself, fiancé and two other roommates.
- Female, 54 apartment block in Sandymount, lives with partner.
- Male, 154 units duplex/townhouses, 13/14 years old in Tallaght.
- Female, 50-60 apartment block in Blackpool, Cork - near city. Lives with husband and 2 year old.
- Female, lives in a building between 2 shops – 6 apartments in building – old building. In the Liberties.

Comments from ‘Non-Recyclers’ Group
Managing household rubbish in an apartment is a challenge

- People living in apartment blocks are often managing a household and its rubbish in a relatively confined space.

- Our research participants described their homes, and in particular their kitchens, as having limited scope for multiple bins. Even most of those who regularly recycle don’t have two separate bins.
  - All had a main bin, referred to as the ‘rubbish bin’, and those who recycle/try to recycle tended to supplement this with a bag or container for their recycling.
  - The main rubbish bin was the ‘priority’ bin – the recycling bin was generally described as a supplementary bin. Two exceptions were noted, where these residents used a ‘two-tier bin’ which would accommodate general refuse in one section and recycling in the other.

- Only two of the participants had access to a composting bin facility, but they did not use this facility, explaining managing food waste in a small apartment is not feasible.

- A minority of apartments had glass/bottle collection points, which were seen to be useful. There was a level of awareness in respect of glass not being disposed of in standard bins or the recycling bins. Even those who do not recycle other waste did seem to make an effort to separate glass – with a few exceptions.
People were taking their household rubbish to the apartment’s shared collection facilities on a regular basis – some daily, others took their rubbish out 2-3 times a week. The majority described this frequency as a necessity as a result of the limited space they were living in, particularly where the apartment was very small or they were working with a ‘kitchenette’ style set-up, or where children were present (‘family-size’ levels of rubbish to deal with, nappies), and during ‘lockdown’, or working from home, when people were at home more.

Central collections by the external refuse collection company were made weekly or twice weekly in most cases.

Those in the group of people who were more inclined to recycle explained their facilities as fairly well managed:
- In bin sheds with coded entry
- Bins with locks for which they had a key
- Monitored by CCTV
- Accessible only by the gated community of the apartment complex
- A large complex with multiple bin areas, so each group of apartments had their designated bins to use

Those not recycling spoke less about security measures.
- A couple said the facilities in their apartment blocks had zero recycling facilities, making it very difficult to recycle since they had to take any waste for recycling to a different location.
- Others described having general refuse, recycling and glass facilities.
- Two said their facilities also included composting bins.

“People visit the shared bin areas very regularly

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“The space you have especially now you are at home more, taking out rubbish a lot - you have to do it quite a lot, 4-5 times a week”
Appreciating the challenges - in the words of the ‘recyclers’ (i)

“In the apartment itself we have a main rubbish bin, there wasn’t a bin for recycling, so we just use a paper bag, a Penny’s bag, or something to put our recycling in. We don’t have a compost bin so we don’t recycle waste like veg peelings and stuff like that, but I would like to get one of those small bins in our house ourselves. In our complex as a whole there are two separate sides to the building so one is for recycling only and the other one is for your waste bin only, in two different locations, its just a walk away but they are at opposite ends, and then there are CCTV cameras so they are very strict about it and we do get warnings if the bins are mixed up or anything like that.”

“I have a small bag where I collect the regular rubbish and a paper bag where I collect the recyclables and I try and do it every day. We have a big place downstairs and I bring it down. We don’t have compost and because its an apartment block I am hesitant in recommending one because unless its managed very effectively it might not be so healthy.”

We just bring down the rubbish whenever its needed and there is a wheelie bin in the actual car park, well beside the car park, underneath …….so we bring it down on a daily basis and that is collected every week. There is no compost bin just recycling and other stuff to be honest with you.”

“In our apartment itself we have a black bag that we use for normal rubbish and we actually use a washing basket for any recyclables like milk cartons and empty plastic bottles. We don’t compost. Sometimes we are guilty of just throwing it into the black bin but whenever possible we do try to recycle and just use the washing basket so when that gets full, we bring it down.”
“I live in a small place so it’s very hard, so everyday you have to go down with the bin, we have three bins we have a brown one, a green one and a normal one but the problem is people around who live in the area fill the bins with everything even the recycling bin is full of daily rubbish.”

“We do recycling as a separate bag to the waste, we don’t have any compost. We bring it out about twice a week and the bins are all in the same location no cameras or anything and they would be left fairly blocked up at certain days of the week, it depends when the rubbish men come, but we do try to separate the general waste and recycling.”

“I have recently moved into this apartment and our kitchen is more like a kitchenette so I invested in a two tier bin so in the top you can put in your general black waste and in the bottom its for recyclables so that is how I try to work it on a day to day basis.”

“In the kitchen I have one of those two tier bins one for general and one for recycling but as there are four people in my house, I often have to have an additional Penny’s bag or plastic bag just for extra recycling stuff. In our external compound its recycling rubbish and bottles.”
“I used to be good at recycling until I moved in here. Lately I haven’t been, I live alone and I have one bin, I separate the glass but lately I have not really been separating everything else – terrible I know, but also on this street, because its all shops and grocery stores you are able to put just a black bin outside just a black rubbish bin, it’s allowed, all the residents are told to do that and the bin men come every night and they take it.”

“We have a communal bin area, no separating or recycling just dump your rubbish in so that is why I don’t do recycling because its too hard to bring it somewhere else but I do try my best with glass and bottles because we do have a bottle bank near us. I don’t have the room to get extra bins – as it is the big bin in the kitchen takes up so much room and I don’t have the room to get other bins to separate. Its just general rubbish (on the site) about six large wheely bins and they come 2-3 times a week. Its rare that its full.”

“I was really good at recycling, I had the dual bin thing going on and I think during Covid I just got lazy – its terrible, shoot me I know! I have been trying to, I did a bit of renovation in the summer and I have just been chucking everything out to be honest, On the communal side we have communal sheds outside and in those sheds there are big industrial wheel bins – one for paper, cardboard, and normal standard black bin but there is no glass - even though we pay a lot of money for the management fee here there isn’t any glass recycling so I can see how people get lazy. I have one bin – it does have access for the second recycling bin but it is empty right now – I feel terrible.”
“I used to be very good at recycling, but I moved into this apartment about six months ago and we have a shed outside with six industrial bins but it’s just a free for all. When I did move in we had the two bins but there is no point as the six bins are just a mixture. I still would take glass and recycle that and the Nespresso pods but there is no point out here when nobody else does. There are six big industrial black bins and it doesn’t say if its recycling or not so its just a mixture in the six of them.”

“I am not the biggest fan of recycling. I started doing it when I moved in here a bit more because they have made it a bit easier. We have two bins, my fiancé put out a bin for recycling so I try my best to use it but a lot of things are just thrown into the black bin. Its harder say to go down with two bins rather than one so we just started using the one. As well as that we started to separate the glass because when you go downstairs there are four or five black bins, four or five recycling bins and three small wheely bins for glass so I just started to separate the glass then because it was there and I said sure I’ll throw it in a SuperValu bag bring it down and put it in since it’s there and recently enough they got in food bins but I don’t do that because that just smells the place up. They are collected once a week I think Monday mornings they are collected.”

“My situation is pretty good here I have my two bins connected here so I do recycling and then I have got my food waste and the communal area is really good but we pay fairly hefty maintenance fees, we have three massive bins for food waste, compost bin, four massive recycling bins but also we have glass recycling as well but that came about because we were leaving bags of glasses out and we said we are paying enough this has to be sorted. There is the odd time that I don’t adhere - I put some plastic in by accident but usually I am pretty good but I need to start composting .. its really good here I have to say and they are collected maybe once a week.”
The state of shared bin areas varied. Both focus groups shared similar views and experiences.

The issue mentioned most widely involved excess rubbish being left in the bin areas, around the bins when they were full, and people not making best use of the space within the bins.
- Typically, the type of waste left around the bin area included household items, electrical goods, boxes and bottles, more than general waste.

The recycling bins were thought to regularly fill up more than the general refuse bins. People attributed this to:
- People not compacting recycling rubbish sufficiently well enough to make better use of bin capacity
- People putting non-recycling items into the recycling bins
- The increase of home deliveries, particularly during Covid-19 ‘lockdown’, and associated ‘excessive’ packaging

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“People go down when the bin is full and they just throw it on the floor beside the bin”

“There are a lot of boxes and nobody folded them so they take up a lot of space and people were still dumping their rubbish on top of that, so the rubbish was all on the ground so it’s not that nice”

“I would be a bit pedantic .... I always crush it up to make it as small as possible but some people if they have a big box they just throw the box in without even flattening it so from that point of view in no time at all it is full”
Excess rubbish is noted at certain peak times, reducing the availability of recycling capacity

- People talked about certain times when this issue was particularly noticeable – when home improvements were taking place, when people had moved in/out, at Christmas time, during the ‘Prime’ weekends for Amazon – one described it as the ‘cardboard phenomenon’.

- Several aired frustrations about the role producers/delivery companies/retailers ought to play in reducing packaging.

- Some residents had taken matters into their own hands when excess rubbish was a frequent occurrence:
  - Lobbied management/facilities services for more regular collections or for vermin issues to be dealt with
  - Invested in equipment personally to pick up the refuse / tidy the areas themselves from time to time

“Generally I think it can be quite good but ..... if anybody is doing any kind of home improvements or if people are moving in or out it can all go ... oh my goodness, I mean you can go into a bin shed and find a bed broken up!”

“I have noticed that more since lockdown there is an awful lot more cardboard, an awful lot more of that polystyrene stuff and wrapping”

“I think there should be an onus on the producers and deliverers – pizzas in my opinion should be outlawed and wipes, things like that that are just a danger you know it just gets you blood boiling

“Sometimes I go down and the bins are in a terrible state so I bought this gripper and I just pick stuff up off the floor and put it in the right bin”
APPROACH TO RECYCLING
Non-recyclers are not ‘anti-recycling’; but they lack engagement

The majority of those who do not recycle currently indicated that they had been ‘recyclers’ previously, but since moving into an apartment they had reduced this, or that if they moved into a house they would recycle more.

**Those not inclined to recycle at the moment were of two types:**

- People who claimed their apartment complex did not have recycling facilities for residents – so they need to take their recycling elsewhere, which they were not inclined to do – too much effort, too inconvenient, too costly

- People who **do** have facilities on site, but reported the following:
  - Don’t believe they have space in the apartment to manage both general and recycling waste
  - Poorly managed sites where other residents do not separate waste – use of bins was described as ‘a free for all’ by several. People had the attitude – ‘**no one else separates so why should I?**’ Others mentioned they were short term residents so ‘**not staying long enough to care**’
  - Some openly admitted it was ‘laziness’, and an element of inconvenience – carrying two different bags to the bin areas for example

“There if I had any space I would. And if we had facilities in the area I would definitely do it (recycle). I would definitely do it if I was in a house, it’s just inconvenient right now and I just don’t have the room”
Those who do recycle were particularly vocal about the issues created when other people don’t respect the rules/requirements. Those who do not recycle also admitted they were less inclined to make a stand when ‘everyone else’ doesn’t do as they should.

There were frustrations that people don’t care enough when they are using shared facilities, that the personal responsibility does differ, and if the bins were private, as it an individual property such as a house, they would act differently. Individuals admitted this openly, including talking about themselves in this way, in the non-recyclers group.

It was thought to be partly the result of there being no financial penalty when residents do not follow the rules, unlike the consequences experienced by those living in houses, where the bins are not shared, and it was believed that incorrect handling of rubbish can lead to fines and/or rubbish not being taken away.

Without a majority approach the system can easily fail

“I am only living here four months and only planning on being here six months altogether so for that reason I don’t really care, if I was here for longer, I would like to recycle because I think it’s important”

“The recycle bin …… I went down about three weeks ago to put in a lot of cardboard and there was a microwave and a heater in the recycle bin, people don’t care, a lot of people don’t care if they are not paying for it they will put anything in”

“When you are in an apartment block it’s a flat fee - you are paying that for your rubbish so it’s a case of its taken care of so people just chuck in any bin because they pay for it but if it was a case that there was an incentive of going green a bit more living in an apartment block that might encourage people a bit more”
Many of those who try to recycle regularly describe their approach as ‘average’; they all believed there was scope to improve and more to learn.

Some added that they had consciously improved their efforts recently.

Participants also commented that Covid had affected their approach to consuming. They believed they were:
- shopping less, considering what they already had in the wardrobe - more conscious of the impact of ‘fast fashion’
- exchanging items with friends
- using charity shops
- taking a variety of items to municipal recycling centres – electricals, bottles, glass, paint, batteries
- generally living a ‘simpler life’

“I think that is one of the things that came up with Covid you are learning to live a simpler life and not going out buying ridiculous stuff, everything seems to have calmed down particularly shopping”

“Also control has been imposed upon us now we don’t have much choice and I started to realise how much I don’t need and how much stuff I had in my wardrobe that I didn’t use, I didn’t think I had enough space but actually I had too much stuff so I sent an awful lot to charity. I have much less now, and I know now that I can manage with less”
All participants admitted they were confused about what could or shouldn’t be placed in recycling bins. This included those who had attended education sessions and those who were consciously trying to recycle more.

Some believed their children and grandchildren were better informed and more conscientious, often educating or even shaming the older generations into better waste management.

Others referred to corporate initiatives, where their employer had arranged for events and information sessions to encourage staff to engage in recycling more.

Signage would be welcomed by all – those who do recycle and those who do not. Clear guidance on what can and cannot be placed in the recycling bins was a spontaneously provided suggestion coming from participants in both groups.

People are looking for guidance.

“I find sometimes its really difficult to know if something is recyclable or not like coffee cups some of them are recyclable and some are not”

“I get it from my grandchildren. My grandchildren say Grandad you have to recycle that, I find children are better informed than, I am in my 60’s”

“Signage – what you can and can’t put in. Granted you might be able find it on Repak or where you might go but if you want to make it easier for people its hard to know which bin to put what in and that’s just from my own experience, but I do know glass is a no no so that is put into the boot and I have to trek off for kilometres to try and find a bin. But signage so I suppose it’s an education thing”
INFORMATION SOURCES
Non-recyclers were asked where they would find information about recycling, and which sources would be most trusted.

The majority of the group were aware of and mentioned Repak, four of the six mentioning Repak spontaneously. Two also referred to ‘Team Green’. They did not raise any other similar initiatives.

People said they might look up an item individually, when trying to decide whether to recycle or not, and references were also made to looking at information printed on packaging / coffee cups.

Trusted sources for information on recycling were very much coverage via national media and information from public authorities:
- Government
- Local Councils
- RTE
- Newstalk
- Irish Times

Social media posts were not spontaneously given as examples of potential information sources. People would trust feeds on recycling from the refuse collection companies themselves.

“Repak did some team green stuff a few months ago I suppose to get more of us thinking green during Covid. I don’t think there is enough of it in the media, if I had to look up something I would look up something individually like can I recycle this”

“If you think of the ones that are out there Panda and Thornton’s you probably would see that they work in the sector and hopefully they would have more knowledge than just seeing an ad from an ad-hoc company. I never see anything on social media about recycling actually”
IMPROVING THE SITUATION
The use of signage would be welcomed by all, regardless of current approach to recycling. Those in the non-recycling group seemed particularly engaged with the visuals shown during the discussion.

“There would work!”

“That would be really good!”

There was agreement that signage around bin areas would be influential. One of the greatest ‘excuses’ is not knowing what to recycle and so people would welcome the guidance, and the reminders. This messaging does however need to tie in with wider campaigns and emphasis.

“That would start a conversation, I think. Its very visual if you see the signs every time you are putting down the bins but I think it needs to be part of an overall campaign so needs to be pushed across media and social media, its definitely a start to have that but it needs to be married as part of a larger campaign to be pushed a lot more.”

“That would work!”

“That would be really good!”
Signage around the apartment complex and proactive provision of information would be welcomed

- Both recyclers and non-recyclers provided additional suggestions, giving examples of how and where guidance could be shared, aside from in the shared bin areas.

- They suggested using signage and these types of communication tools into other settings:
  - Notice boards on entering a building
  - In the lifts
  - In quarterly newsletters
  - Sheets / slips through letter boxes
  - In management services welcome packs, when moving in
  - As fridge magnets
  - Some said they would welcome key facts / statistics, e.g. associated with recycling success, or implications of not recycling / not recycling correctly

- Information must not only be a reminder to recycle, but must be specific about what can and can’t be recycled.

- There was a further call for greater emphasis and pressure to be put on commercial organisations.

“I think the message is out there. I think people know they have to recycle; I think sometimes its lack of convenience and sometimes there aren’t the incentives out there for people.”

“That would start a conversation, I think. Its very visual if you see the signs every time you are putting down the bins but I think it needs to be part of an overall campaign so needs to be pushed across media and social media, its definitely a start to have that but it needs to be married as part of a larger campaign to be pushed a lot more.”

“The tone must be set from the top. The biggest companies the biggest organisations, I won’t have to recycle if Amazon didn’t have 7 boxes just for one set of earbuds!”
“I think it’s a very complex issue and you have to make it easy for people. I think education is really important and I would be very optimistic about our younger generation coming up because they are going through school with the green flag programmes and things like that but I think when it doesn’t hit people in their back pocket, and you see that in an apartment block, I used to live in a house and I knew that if my recycling wasn’t right I was going to be financially penalised. In this apartment block if I was to go down and put whatever I wanted in the bin shed there is no impact there are not consequence to my behaviour so it’s about consequences. But I think it’s about trying to encourage people to educate them and make it as easy as possible because I think most people want to do it right but we have to realise that our actions have impacts and our actions have an impact on the environment that we are living in so I think that is the key.”

“Need signs over the green bin to tell you exactly what goes into your green bin, but you would want a big one because if its big enough they will see it.”

“All rubbish should be collected for free and you should be tagged or something and fined and if you do it properly no charge. They would make more money that way!”

“If you want to influence people you have to hit them in the pocket, like the plastic bags everyone who went to the supermarket used to use the plastic bags and as soon as they started to charge it just made people think about it.”

“More signs on the walls telling you exactly what goes in each bin ….. Lock the bins as well so people have to stop and think for a second.”
“I think if our management company brought in recycling for a start! It’s strange because I thought it was mandatory, but we have been here six years and it’s never changed its always been the same and we are city centre. Again, its laziness and I am guilty of it too.”

“I think its knowing what goes into it. There needs to be more labelling.”

I think a lot of people are being more green as they say these days. There are a lot of places you could put signs up as well, there is a lot of space, you could even put it in the lift I guess on the little billboards and change it weekly/monthly. When you see statistics like that that make sense people would think about it more.”

“We get a newsletter every quarter or when things get bad - when it comes to things that shouldn’t be put in the bins.”

“We have the ‘my blockman’ site so we have our notices there …. and all apartments would just get a slip in their letterbox too if there was anything that every apartment needed to know.”

“Literally when we moved in the estate agent told us where the bin sheds were. So the only communication we got was a couple of weeks ago we got an A4 page into each of our post boxes about not flattening cardboard boxes from deliveries that’s it.”

“Something to put on the fridge might be handy …”
Apartment residents were very open to receiving more information and encouragement to recycle, regardless of whether or not they were actively separating out their recycling currently.

Core questions still to be considered in order to address barriers, particularly for facilities management teams include:

- **How and where to educate?**
  - Signage in the bin area / on the bins – either detailed as per the materials shown in the groups, and/or simplified, such as colour coding and labelling seen on public bins e.g. in Dublin Airport
  - Display simple reminders elsewhere – around the complex and for use in the apartments
  - Share information on the success / achievements

- **How to make the process easier / more convenient?**
  - All apartments must have access to recycling facilities – it seems some blocks still do not (or at least they are not obvious enough to residents)
  - Consider support for residents in the convenient transfer of rubbish for recycling from the apartment to the shared bins
  - Share information on / encourage provision of ergonomically efficient / space saving in-apartment bins
  - Take action / highlight the consequences e.g. where waste separation is ignored / where rubbish is placed in bins incorrectly
  - Ensure security measures in shared bin areas to reduce ‘dumping’, including from residents themselves
  - Message residents to generate group buy-in – ‘in this together’ type comms. Once group-think improves and guidelines are adhered to by more residents, success should be more evident - people will follow the majority
The Upgrading Shared bin experience (USE) project run by VOICE, funded and supported by REPAK, was a pilot project examining effective interventions to improve the recycling rates and reduce contamination of recycling in multi-unit developments (MUDs). The pilot project aimed to identify the specific barriers to greater recycling behaviour and to trial prompts and supports that would help to improve effective recycling rates across 7 sites in Ireland. USE is the first national project looking to address the issue across multiple sites in Ireland.