

Dublin 2020

The Dublin Apartments Brown Bin Project

Introducing a food waste collection
to an apartment complex in Dublin,
Ireland



Rialtas na hÉireann
Government of Ireland



Comhairle Contae
Fhine Gall
Fingal County
Council



1. Introduction

1.1 The Project

The Northwood Brown Bin Project was an initiative of the Eastern-Midlands Regional Waste Management Office and was funded by the Department of Communications, Climate Action and the Environment. The project was carried out by the Eastern-Midlands Regional Waste Management Office, on behalf of the three Regional Waste Management Offices, with assistance from Fingal County Council. The pilot was also a component of the replication work carried out in Dublin as part of the TRiFOCALEU Life project (Transforming City Food Habits for Life).¹

The project ran from August 2018 to September 2019, with the piloting of the food waste collection taking place from the end of February 2019 to the end of September 2019. The impetus for the project arose from particular obligations set out in the Eastern-Midlands Regional Waste Plan 2015-2021 in relation to awareness raising among householders and also segregation of food waste in apartments.

1.2 The Project Aims and Objectives

The project aimed to design a behavioural change intervention process to initiate and embed food waste segregation within apartment complexes and to devise a toolkit based on the intervention for use in other apartment complexes.

A secondary objective of the project was to improve waste recycling in general within the complex.

The objectives of the project were as follows:

1. To provide information on recycling and general waste management within the apartment complex, as a precursor to the food waste segregation
2. To introduce a segregated food collection system to the apartment complex and to encourage maximum participation levels from the residents
3. To evaluate the impact of the pilot on residents' waste management behaviours
4. To identify the key barriers and enabling elements when introducing a food waste segregation specifically for apartments and to learn how to leverage this information
5. To build a food waste segregation toolkit specifically for apartment complexes for use by resident groups, management companies, managing agents and local authorities

1.3 Background to the Study

The segregation and management of organic waste is of critical importance to climate change mitigation, the reduction of polluting leachates from landfills and the recovery and recirculation of important nutrients back into soil. Consequently, separating out household food waste and treating it properly is a priority in both national and EU waste legislation and practice.

¹ See <http://trifocal.eu.com/>

Households are legally obliged to segregate food waste and collectors are legally obliged to offer a collection to conglomerations of residents that number 500 or more . Nevertheless, the adoption of brown bin (or food waste bin) usage is not happening as rapidly as it could be across the household sector. Of particular concern is that while many more apartments are being built nationally and therefore the number of apartment-dwelling households is growing, only a tiny number of these are being provided with a brown-bin waste collection resulting in a significant proportion of households who do not have the option to segregate their food waste.

Apartment complexes have very particular needs and challenges when it comes to household waste management. At the same time, initiating and embedding behavioural change can be notoriously difficult. Consequently, enacting a change, such as the introduction of an additional segregated waste stream, requires careful handling. The introduction of food waste segregation in the Temple Garden and Temple Lawn apartment complex in Northwood in Dublin provided a unique opportunity to conduct action research to inform similar undertakings in other apartment complexes across Ireland. Using a combination of interventions to facilitate behavioural change along with market research to examine the impact of the interventions, the project attempts to develop and pilot a methodology and guidance for introducing segregated food waste collections into apartment developments.

2. Context to the Study

2.1 The Legislative and Policy Context

This section sets out a summary of Irish legislative and policy instruments that are of most relevance to household food waste and while there are also regulations and legislation dealing with commercial food waste generated in the production, retail and hospitality sectors, these are not described here as the focus of this report is concerned with household food waste.

The EU Waste Framework Directive 2008 and the EU Landfill Directive 1999 underpin Ireland's legislation governing the management of food waste that arises in households. The former sets out waste management priorities so that waste prevention and composting are preferred over disposal and the latter restricts the amount of organic waste going to landfill.

In 2008, the Department of Environment, Heritage and Local Government issued a circular² to local authorities stipulating the introduction of a separate collection for food waste and the promotion of home composting. In 2011, a revised EU Directive on Waste obliged the government to encourage the separate collection of bio-waste (including food waste). The 2012 government waste policy document, *A Resource Opportunity: Waste Management Policy in Ireland*, suggested that a sizable amount of food waste was available from households and could be diverted from landfill and converted into compost and energy. Following this, the 2013 Household Food Waste Regulations were introduced, requiring local authorities to adopt the three-bin system for household waste as well as placing a duty on the householder to segregate their waste and a duty on the waste collection service provider to collect it. The option of home composting was also open to householders as long as odours and nuisance are kept to a minimum. The adoption of the segregated food waste collection was to be incremental with larger urban areas adopting the system first, after which it would be extended to smaller towns, villages and eventually small rural residential clusters. A government circular issued in 2014, instructed local authorities to prohibit waste companies (through their waste permits) from mixing segregated food waste with other biowastes.

Simply put then, the law regarding household food waste in Ireland is as follows: Householders are legally required to segregate their food waste and to either home compost it, use their food waste bin or do a mixture of both. Waste collectors are legally required to offer and provide a food waste collection service to householders and to keep this waste segregated throughout the municipal waste collection process. Waste operators are legally required to process food waste (whether household or commercial) separately from other bio-wastes. Local authorities are responsible for ensuring the implementation and enforcement of the legislation and policy pertaining to food waste.

The Eastern-Midlands Regional Waste Plan directly addresses the issue of segregation within apartment blocks under the following policy and policy action:

² A **circular** is a written statement providing information and guidelines on laws.

F1 Policy Enhance the enforcement of regulations related to household waste to ensure householders, including apartment residents and owners, are managing waste in accordance with legislation and waste collectors are in compliance with regulatory requirements and collection permit conditions.

F.1.2 Policy action	Allocate resources to the systematic monitoring of apartment complexes to improve compliance with the segregation of waste prioritising the reduction of contamination.
Targets	To engage with all relevant stakeholders including management companies, collectors and the residents and target 5% of the number of apartments/flats in purpose built complexes in city/highly populated areas and 10% in all other areas per local authority per year
Expected Timeline	Ongoing
Indicator	Number of apartment blocks targeted
Responsibility	Local Authorities , Lead Authority for waste enforcement

This is an enforcement policy action, sitting under the enforcement Strategic Objective (Strategic Objective F). However, given that the vast majority of apartments in Ireland do not yet have an organic (food) waste collection service, designing a framework to offer guidance to apartment management companies³ on introducing food waste segregation and negotiating a food waste collection service was deemed an appropriate response to this policy action.

2.2 Household food waste in Ireland

The Department of Communication, Climate Action and the Environment (DCCAE)⁴ states that approximately 1 million tonnes of food waste is generated in Ireland each year and that around one third of that occurs in households. The DCCAE estimates the yearly cost of wasted food to each household is between €400 and €1000, averaging at €700.⁵

Examining the data from household municipal collections provides an indication of food waste segregation among the general population and allows tracking over time. Waste data from 2018, shows that nationally, approximately 110kg of food waste was collected per household per annum.⁶ In 2018, according to the National Waste Collection Permit Office (NWCPO),⁷ just over 22k tonnes of food waste were collected in kerbside collections in the Dublin City area. This represents 130kg collected per household for the year, which is slightly higher than the national average. The amount of food waste collected nationally from households in 2018 was 137k tonnes. Further data from the

³ A management company in this context is generally a voluntary board made up of owner-residents in an apartment complex or a housing estate.

⁴ <https://www.dccae.gov.ie/en-ie/environment/topics/sustainable-development/waste-prevention-programme/Pages/Stop-Food-Waste0531-7331.aspx>

⁵ <https://www.dccae.gov.ie/en-ie/environment/topics/sustainable-development/waste-prevention-programme/Pages/Stop-Food-Waste0531-7331.aspx>

⁶ Data obtained from the NWCPO Local Authority Portal

⁷ Data obtained from the NWCPO Local Authority Portal

NWCPO shows that in 2018, 59% of households in Ireland availing of a waste service had a separate bin for segregated food waste. In Dublin City this figure was somewhat higher at 62%.

Whereas these percentages are expected to rise in the next couple of years as the three-bin system⁸ is extended, Ireland is still on track to meet its 2020 targets for diverting organic waste from landfill according to the Environmental Protection Agency (EPA).⁹ EPA data states that 79% of organic waste (ie. household and commercial food waste, gardening green waste etc.) is composted with the remaining treated by anaerobic digestion. The products of composting and anaerobic digestion are used in horticulture and agriculture.

The successes achieved in recent years in Ireland in terms of diverting food waste from the general waste stream and away from landfill represent a behavioural change due to a combination of regulation enforcement and public education. Between 2015 and 2016 for instance, the amount of organic waste accepted for treatment increased by 22% (EPA). The quality of material collected can be variable however. A waste characterisation study published by the EPA in 2018 found that household food and organic waste bins contain on average 16% contamination, or items that should not have been there.¹⁰ The contamination includes materials such as plastic, glass, textiles, metals and non-compostable containers. Clearly then, behavioural change interventions aimed at encouraging food waste segregation must also address the issue of contamination.

Finally, planning guidelines introduced in 2015 by the Department of the Environment, Communications and Local Government addresses some of the issues involved in waste management in apartments. The guidelines advise that communal bin areas should be well designed, allow for segregated waste, be well kept and clean and that external ground floor bin areas work best. Adequate provision for waste segregation within apartments is also mentioned:

“4.8 Provision shall be made for the storage and collection of waste materials in a apartment schemes. Refuse facilities shall be accessible to each apartment stair/ lift core and designed with regard to the projected level of waste generation and types and quantities of receptacles required. Within apartments, there should be adequate provision for the temporary storage of segregated materials prior to deposition in communal waste storage and in-sink macerators are discouraged as they place a burden on drainage systems.”¹¹

2.3 Apartments and Food Waste Segregation

According to Census 2016, there are 200,000 occupied apartments in Ireland. In the five years between 2011 and 2016, the number of households living in apartments grew at a faster rate than any other household type. This is more pronounced in the larger urban areas and in Dublin City just over 35% of households occupy apartments.¹² As there is a high degree of interdependence between apartment dwelling households due to issues such as shared services, common areas and public liability insurance, there is a requirement for an overarching legal arrangement in managing apartment complexes. In privately managed developments, the most usual form of management is a

⁸ Three-bin system refers to the use of a general waste bin, a dry recyclables bin and a organics ('brown') bin

⁹ <https://www.epa.ie/nationalwastestatistics/nationalindicators/>

¹⁰ http://www.epa.ie/pubs/reports/waste/wastecharacterisation/Waste_Characterisation%20Top%20Sheet_logo_v2.pdf

¹¹ DECLG (2015) *Sustainable Urban Housing: Design Standards for New Housing. Guidelines for Planning Authorities*.

Planning Guidelines 26. Government of Ireland, Dublin.

¹² <https://cso.ie/en/releasesandpublications/ep/p-cp1hii/cp1hii/od/>

company limited by guarantee and regulated by the national Companies Office. A management company in this context is non-profit and is made up of apartment owners. It will generally have two tiers – members and directors. The directors form the board and make the day-to-day decisions and acts for the members between AGMs.¹³ Commonly, the management company will engage a professional property management agent to look after services and the day-to-day running of the complex. In terms of carrying out projects, such as this one, in an apartment complex, both the management company directors and the property management agent are important stakeholders.

Apartment living involves particular issues for waste management and while this has been acknowledged for some time in Ireland, for example in 2008 the Environmental Protection Agency published a desk-study on food and organic waste in apartments¹⁴, there has been little progress in tackling the barriers to effective waste management for apartment dwellers. In recent years, a number of studies and pilots have been carried in Ireland to help and encourage householders, including apartment dwellers, to segregate both recycling and food waste. These studies offer important lessons and in some instances these trials did result in behavioural change.^{15,16}

An in-depth pilot study of the introduction of segregation of food waste in Sligo in 2016, offers valuable insights, recommendations and methods for brown bin introduction and education. While this study includes different types of residences, it is perfectly applicable to apartments, once the issues affecting apartment dwellers are taken into consideration.

Apartment waste management issues do not constitute a uniquely Irish phenomenon. Pilots and research done elsewhere suggest that apartments outside Ireland have similar challenges with waste management. For example, recent informative pilots have been carried out in Manchester on student apartments¹⁷ and in Adelaide for low density apartment and townhouses developments^{18,19}. A 2016 pilot in student residence apartment blocks at the University Massachusetts, Amherst to introduce composting to the student accommodation at the university was designed a precursor to introducing the system across the campus.²⁰

Issues common to apartments in relation to waste management and in particular in relation to food waste segregation include a lack of a segregated food waste collections being offered to residents, management companies and/or property agents who do not respond positively to residents' requests for segregated collections, housekeeping issues at communal bin areas including odour, hygiene and untidiness.²¹ Other barriers include small kitchens with little space for additional bins or caddies, a sizable transient resident population, negative perceptions of food waste segregation ('the yukiness' factor, possible odour, pests and so on), residents believing they do not waste enough food to

¹³ Dublin City Council (2006) Successful apartment living. DCC, Dublin.

https://www.dublincity.ie/sites/default/files/content/Documents/Application_Forms/Housing/Successful_apartment_living_part_1.pdf

¹⁴ Carey, C., Phelan, W. and Boland, C. (2005) *Organic Waste Management in Apartments*, EPA, Wexford.

¹⁵ See Dunleavy, M. et al (2016) *Best Practice Guide for Brown Bin Education in Ireland*, Cré, Enfield.

¹⁶ See Campbell, M. (2015) *Improving Recycling in Inner City Apartments*, Belfast City Council, Belfast.

¹⁷ Manchester City Council (2015) *Apartment and Student Housing Recycling* (Report to Waste and Recycling Task and Finish Group), Manchester City Council, Manchester.

<file:///C:/Users/42620/Downloads/7ReportAndRecommendationsOfTheWasteandRecyclingTaskandFinishGroup.pdf>

¹⁸ Adelaide City Council (2013) *Garden East Apartments and Townhouses; Enhanced Service Model Validation Report*, Adelaide City Council, Adelaide.

¹⁹ Adelaide City Council (2013) *Design Guide for Residential Recycling*, Adelaide City Council, Adelaide.

²⁰ Hollerbach K., & Chan, J. (2016) "North D Compost Pilot Semester Report", *Student Showcase 11*, Mass.

²¹ Carey, C., Phelan, W. & Boland, C. (2005) *Organic Waste Management in Apartments*, EPA, Wexford.

segregate and a lack of willingness to make the effort.²² A 2016 study conducted in Sligo, Ireland examining food waste segregation in general also mentioned as barriers, issues such as a lack of financial incentive to segregate food waste, a belief among some residents that waste was being co-mingled by waste collectors, variations between collectors in terms of the items accepted (food waste vs. food and garden waste). In addition, confusion regarding what goes in the brown bin and high levels of contamination in the food waste bin featured in the Sligo study.²³

Behavioural change around environmental behaviour is a complex area with a wide range of values, motivations and circumstances impacting an individual's decisions in this regard.²⁴ Most work in the area of household waste related behaviours suggest that using a collection of interventions including informational materials and practical tools work better than singular interventions.²⁵ Recent work on household food waste segregation in Sligo, Ireland demonstrated that a well-thought out mixture of interventions and effective communications can result in deep embedding of good behaviours in this waste area (high levels of food waste segregation and low levels, 3%, of contamination were evident a year after the project ended).

Earlier studies and interventions have made some valuable suggestions and recommendations to encourage participation in household food waste collections. In terms of this study, the most useful of these for communications include the following:

- clear and simple consumer-friendly language
- the integration of segregation advice with information on preventing food waste,
- the use of multilingual communications²⁶
- prioritising consultation with a range of stakeholders including residents²⁷
- frequent, consistent communication
- provision for feedback
- a system for dealing with enquiries in the early stages of an intervention programme.²⁸

Useful recommendations on practical matters gleaned from earlier work includes the provision of kitchen caddies and compostable liners to all households, clear signage, weekly food waste collections²⁹ and attention to good housekeeping in the communal bin areas.³⁰

²² Brook Lyndhurst (2009) *Enhancing Participation in Kitchen Waste Collections*, Defra Waste & Resources Evidence Programme, Brook Lyndhurst, London.

²³ Dunleavy, M., McGovern, D., Finan, R., Byrne, M., Gillen, S., Murtagh, P., Foster P., and Breton, T. (2016) *Best Practice Guide for Door To Door Brown Bin Education in Ireland*. Sligo County Council, Cré, Novamont

²⁴ For example see Tucker, P. & Douglas, P. (2007) *Understanding Household Waste Prevention Behaviour*. University of Paisley, Paisley.

²⁵ Sharp, V., Giorgi, S., & Wilson, D.C. (2010) Delivery and impact of household waste prevention intervention campaigns (at the local level). *Waste Management and Research*, 28 (256-268).

²⁶ Brook Lyndhurst (2009) *Enhancing Participation in Kitchen Waste Collections*, Defra Waste & Resources Evidence Programme, Brook Lyndhurst, London.

²⁷ Manchester City Council (2015) *Apartment and Student Housing Recycling* (Report to Waste and Recycling Task and Finish Group), Manchester City Council, Manchester.

²⁸ Brook Lyndhurst (2009) *Enhancing Participation in Kitchen Waste Collections*, Defra Waste & Resources Evidence Programme, Brook Lyndhurst, London.

²⁹ For example see Brook Lyndhurst (2009) *Enhancing Participation in Kitchen Waste Collections*, Defra Waste & Resources Evidence Programme, Brook Lyndhurst, London.

³⁰ Carey, C., Phelan, W. and Boland, C. (2005) *Organic Waste Management in Apartments*, EPA, Wexford.

The following table summarises the barriers, enablers and issues with food waste segregation and collection in apartment complexes, according to earlier studies in Ireland and elsewhere. These aspects part-informed the approach, communications, survey questions and practical interventions used during the Northwood trials.

Summary of findings from earlier studies and pilots	
Barriers	
• Lack of education and awareness • Unclear signage/direction • Restricted space for segregation bins (small kitchen areas) • Inadequate supervision/no cameras at common bin areas • As management fees include waste collection, there is little scope for fiscal incentives • With food waste bins, worries about odour & mess • Issues with transferring waste from upper floor apartments • Language barriers • Management company lacking interest • Inconsistent colour-coding of bins • Bins blocking exits or entrances • Badly designed outside bin areas	
Enablers	
• Collaboration and buy-in from all stakeholders • Clear signage and communication (generic literature works well for replication) • Multi-lingual communications • For brown bin: Bags and caddies supplied • Recycling bins given greater prominence than general waste (eg. Number of bins) • On-site manager/caretaker • One organisation driving the initiative (Management Co.?)	
Other General Issues	
• Bulky Cardboard is an issue in common bin areas • Contamination in common bin areas (continued) • Confusion about plastics • Brown bins not being generally offered to apartment residents • Waste collection arrangements for apartment complexes classed as commercial contracts rather than residential contracts by waste companies.	

Table 1: Summary of learnings from earlier studies on encouraging food segregation in households

3. The Study Description

3.1 The Study Area and the Apartments

The study was carried out in an apartment complex in the Northwood area of Santry, Dublin 9. The complex was built in 2000 and is situated about 9km north of Dublin City Centre and 4km from Dublin Airport. The Northwood area lies between Ballymun and Santry village.

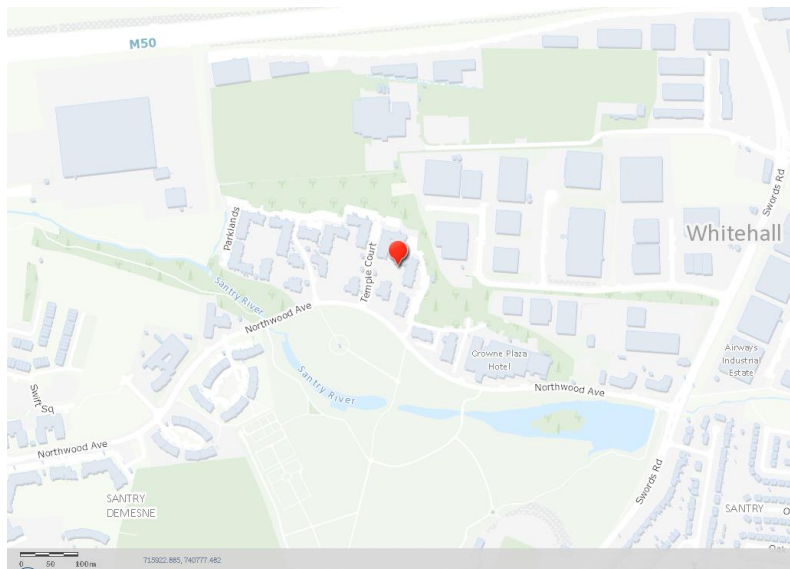


Figure 1: Area Map (c) OSI 2017



The apartment complex, Temple Lawns and Temple Gardens, consists of 260 apartments distributed over 11 blocks (Temple Gardens 176, Temple Lawns 84). Each block has one street level entrance as well as access from the underground carpark. The apartments are a mixture of one, two and three bedroom apartments including some larger ‘penthouse’ apartments on the top floor of each block.

Figure 2: Temple Lawns & Temple Gardens apartment complex

The residents are a mixture of owner-occupiers and rental tenants and the households include both families and individuals sharing. Pre-wave and post-wave surveys conducted for the purposes of this pilot (see section **3.2.3 The social marketing research; Survey and focus group** below for details), offers some useful demographic information on the residents in the apartment complex. Most apartments are occupied by 2-3 adults and households with children are in the minority. Most residents are aged 25 to 44 and the vast majority (around 80%) are renting. The survey also indicated English was the first language of 30% of the residents and was a second language for the remaining 70%. The survey revealed a broad range of languages spoken in the apartment complex, highlighting the need for multi-lingual communication to form part of the strategy for the pilot.

There are a total of six bin bays available to the Temple Gardens and Temple Lawns residents (see figure Fig. 3 below). A wall and a locked gate enclose the bin bays and all residents have a key. With the exception of Bin Bay 6, the bin bays are uncovered and are open to the elements. Theoretically, the bin bays are designated to particular blocks, for example Bin Bay 3 is designated to 1 – 21 Temple Gardens. Prior to the introduction of the food waste segregation, each bin bay contained 1100 litre bins for general waste, recycling waste and glass waste. It is unusual to have a kerbside glass collection in Ireland. The Temple Gardens and Temple Lawns complex has one through the efforts of some particularly motivated owner-occupiers who, through their management company and to their credit, negotiated this with the waste collection provider.

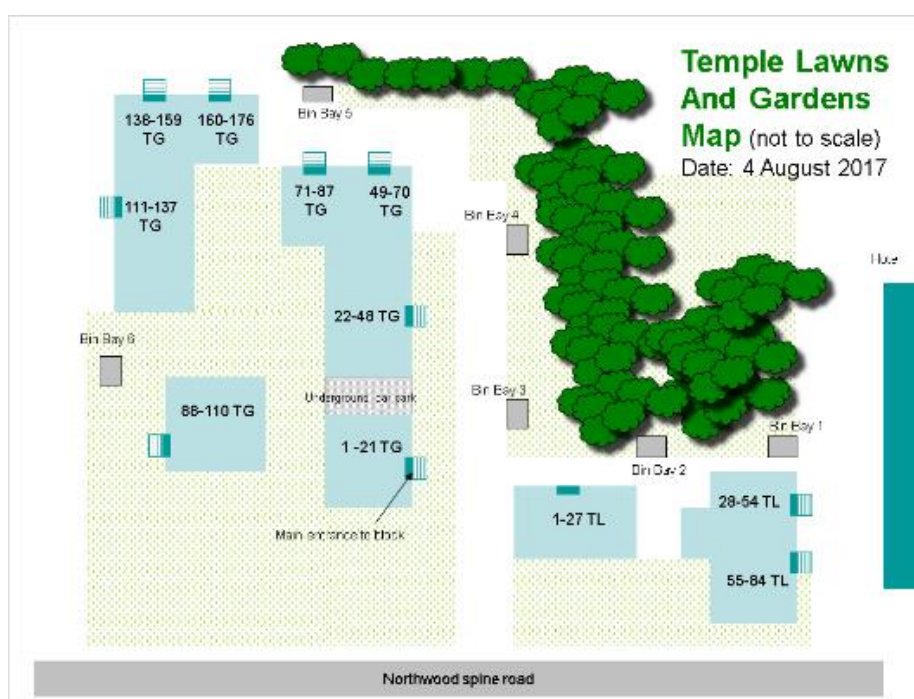


Fig. 3: Map of the Temple Garden/ Temple Lawns apartment complex with bin bay locations

The map in Fig. 3 shows the locations of the bin bays in relation to the apartment blocks. The bin bays were dominated by 1100 litre general waste bins along with 2-3 1100 litre recycling bins and each bin bay had one 1100 litre glass bin. Table 2 below shows the number of apartments assigned to each bin bay. However, residents had keys that allowed access to all bin bays and normally used whatever one

was most convenient whether or not it was their designated bin bay, for example they might drop off waste to a bin bay they passed on their way out of the complex in the morning.

Bin Bay	Address	no. apartments
1	Temple Lawns	57
2	Temple Lawns	27
3	Temple Gardens	21
4	Temple Gardens	28
5	Temple Gardens	73
6	Temple Gardens	50

Table 2: Bin bay profiles prior to the pilot

3.2 Methodology and structure of the study

As mentioned earlier, the overarching aim of the project was to identify practices and communications that could effectively introduce a food waste segregation into an apartment complex where such a system had not existed previously. Further, the work needed to encourage the maximum number of residents to use the system and crucially, facilitate the transitioning of the new system into the existing system. In essence, it is a behaviour change project.

The study was conducted using a research action methodology, that is, it combined transformative intervention along with original research.³¹ In other words, the research aims to work with participants to solve real-life problems allowing for feedback loops and so allows the participants to learn and to help shape the research.³² This goes further than simply investigating attitudes and behaviour and has been used to good effect in earlier studies of household waste management in Ireland.³³ The study combined quantitative and qualitative data, sometimes referred to as ‘mixed methods’ research. The advantage of using such a strategy is that quantitative statistical data can be combined with richer qualitative data to give a more nuanced and more complete picture of a particular occurrence.³⁴ In this case, the survey was used to ascertain residents’ attitudes and actions around their household waste management while the focus groups explored residents’ understanding of correct segregation, barriers and motivations around waste management behaviour and their feedback on the efficacy of the messaging and communication materials.

³¹ McDonald, C. (2012) Understanding Participatory Action Research: A Qualitative Research Methodology Option. *Canadian Journal of Action Research* 13(2) 34-50

³² Hoggart, K., Lees, L. & Davies, A. (2002) *Researching Human Geography*. Arnold. London.

³³ Fahy, F. & Davies, A. (2007) Home improvements: Household waste minimisation and action research. *Resources, Conservation and Recycling* 52. 13-27

³⁴ Mason, J. (1994) Linking qualitative and quantitative data, In: Bryman, A. and Burgess, R.G. (eds) *Analyzing qualitative data*. London, New York: Routledge, 89-110

3.2.1 Project team and timeline

The project team for this initiative consisted of the EMWRO and the Environmental Awareness Officer employed by Fingal County Council. The waste collection service provider, Panda, was also an important participant in the project responsible for functions such as the provision of the outdoor brown bins, the waste collection, recording the weights and photographing the contents of the segregated food waste.

The project began with stakeholder engagement in April 2018 and the new system was successfully embedded by Oct 2019. An overview of the timelines for the project proceeds as follows:

- April 2018 - Stakeholder engagement
- June 2018 - Recycling signage for MDR and Glass installed in the bin bays
- July 2018 - Letter delivered to each household to introduce the project and announce the survey
- July 2018 - Pre-wave survey takes place
- August 2018 - Recycling Ambassadors Programme workshops for residents take place
- Feb 2019 - Notice on apartment notice boards to introduce the beginning of the food waste segregation project
- Feb 2019 - Food waste segregation signs installed in the bin bays
- Feb 2019 - 240 litre wheelie-style brown bins delivered to the apartment complex
- Feb 2019 - Phase 1 Apartment households given their food waste segregation starter pack
- April 2019 - Phase 2 Apartment households given their food waste segregation starter pack
- May 2019 - Phase 3 Apartment households given their food waste segregation starter pack
- June 2019 - Phase 4 Apartment households given their food waste segregation starter pack
- August 2019 - Post-wave survey takes place
- Sept 2019 - Focus Groups
- Sept/Oct 2019 - Pilot study officially ends and Temple Gardens and Temple Lawns Management Company, via their Property Agents, negotiate a permanent brown bin (segregated food waste) collection as part of the waste collection contract for the apartment complex

In describing the detail of the project, it is useful to separate the work into three strands: the stakeholder engagement; the social marketing research; the interventions and communications.

3.2.2 Stakeholder engagement

A robust and consistent stakeholder engagement strategy was essential to the project as buy-in and assistance from the various stakeholders was required throughout the project. The principle stakeholders were as follows:

- The residents (including the Champion Resident)
- The Temple Gardens & Temple Lawns Management Company
- The Waste Collection Service Provider, Panda Waste
- The Property Management Agents, particularly the apartment complex caretaker
- The Irish Apartment Owners Network

The residents of the apartment complex, of course, made up the stakeholder group most fundamental to the project. Initiating and embedding behavioural change is often a tricky business and it was important to have clear, consistent and continuous communications aimed at this crucial group. Unfortunately, there was no existing communication channel – such as a contact list, text message group or social media page – and this meant that the communications options for the initiative was limited to notices, letters or public meetings. One particular resident championed the initiative and became involved in providing a good deal of assistance to the project including providing local knowledge as well as helping with assets design and delivering project materials and notices to the other residents. She also helped to drive the initiative from within the complex. All these activities were extremely helpful in embedding the behaviour change necessary to make this initiative work. In this report, this particular resident is referred to as the ‘project champion resident’.

The Temple Gardens and Temple Lawns Management Company stakeholder group was represented by the Directors of the Board. They understood their obligations in respect of proper waste segregation and wanted to have the facility in the apartments to segregate food waste. The board also control the management fee spending and hold the contract with the waste collection service provider. In addition, the board had authority in terms of the behaviour and actions of the residents and it was important to have its seal of approval to make the project work. The Directors were also very helpful in doing practical tasks in relation to the project, such as helping to distribute communications with the residents. At the close of the project, this body was responsible for negotiating with the waste collector to integrate the segregated food collection into the regular waste collection service. Meetings were held very early on with both the Management Company directors and the Champion Resident and consistent updates provided by email and phone.

The Property Management Agent was an important stakeholder, particularly the caretaker employed by the Agent as his help was invaluable in terms of organising the bin bays to accommodate the food waste bins, ensuring the tidiness of the bin bays, being on hand to facilitate entrance to the apartment lobbies and for on-the-ground intelligence.

3.2.3. The social marketing research; Survey and Focus Group

The project included social marketing research to evaluate the impact of the project on the waste management and practices of the apartment dwellers. This research included a ‘pre-wave’ survey, that is, a survey conducted prior to the intervention work and a ‘post-wave’ survey and focus groups conducted following the intervention work.

The specific objectives of the survey and focus group work were as follows:

- Provide benchmark data regarding recycling and waste management behaviour and practices.
- Explore general attitudes towards waste management and recycling.
- Understand the barriers to effective waste management in apartments.
- Measure changes in attitudes and practices following the full implementation of the pilot project.
- Understand from residents which elements of the project were most impactful and identify changes that should be made as part of any wider rollout in the future.

- Provide a template set of questions that could potentially be used by other organisations to conduct similar research in other areas.

Prior to the pre-wave survey being carried out, a letter was delivered to each resident to introduce the project and to advise them that a door-to-door survey would be conducted. The letter briefly explained the apartment waste segregation initiative and what it intended to achieve. It emphasised that the survey would take just a few minutes and provided details about the partners involved in conducting the project and a contact email for queries. Please see Appendix 1 for this letter.

Both the pre-wave and the post-wave surveys were conducted face-to-face with residents. Each survey interviewed 125 residents covering topics such as attitudes to and understanding of waste segregation, waste segregation behaviours as well as barriers and drivers for good waste segregation. Respondents to the post-wave survey were also asked if they would be willing to take part in a focus group on the issue.

Two focus groups were conducted by the social marketing research company. Members of the Temple Gardens and Temple Lawns Management Company Board made up one focus group while other (regular) residents were part of the second group. The groups were composed in this way as the questions were tailored to address their experience of the waste management interventions and the Board had helped with aspects of the work and also it was felt that if these two groups were mixed it might affect the discussions and that more useful data would be elicited by keeping them separate. The focus group discussions delved more deeply into the waste management behaviour, attitudes and motivations of the participants. The groups were also asked to evaluate the communication materials used throughout the project to aid with the production of a toolkit that could be used in other apartment complexes.

3.2.4 The interventions and communications

While the primary focus of this project was to introduce a food segregation collection to the apartment complex, issues with contamination levels in the existing segregated collections for Mixed Dry Recyclables (MDR) and glass prompted a decision to undertake work hoping to improve recycling within the apartment complex prior to introducing another segregated collection. The recycling improvement phase of the work involved installing signage for MDR (Recycling List) and Glass in the bin bays as well as providing practical, educational talks (Recycling Ambassadors' Programme)³⁵ for the residents about the correct recycling techniques (see Fig. 4 below). As the population of the apartment complex was very diverse and following advice from earlier studies, multi-lingual literature based on Ireland's National Recycling List (a guide to items accepted for recycling by all waste collectors in Ireland) was distributed to residents.

Following the work on general recycling, the intervention to introduce the segregated food waste collection began. In preparation for this stage of the project, signage for food waste segregation was designed and installed in the six bin bays and a notice placed on the notice board in each apartment block to let residents know that the food waste segregation initiative was beginning.

³⁵ <https://voiceireland.org/rap/>



Fig. 4: External Bin Bay signage designs for the Recycling List, Glass and Food Waste

The intervention was carried out in four phases allowing for feedback loops and adjustments with Phase 1 being initiated 6 weeks before Phase 2 began and then Phase 3 and Phase 4 began at 4 week intervals. Please see Table 3 and Fig. 5 below to see details of the apartments included in each phase.

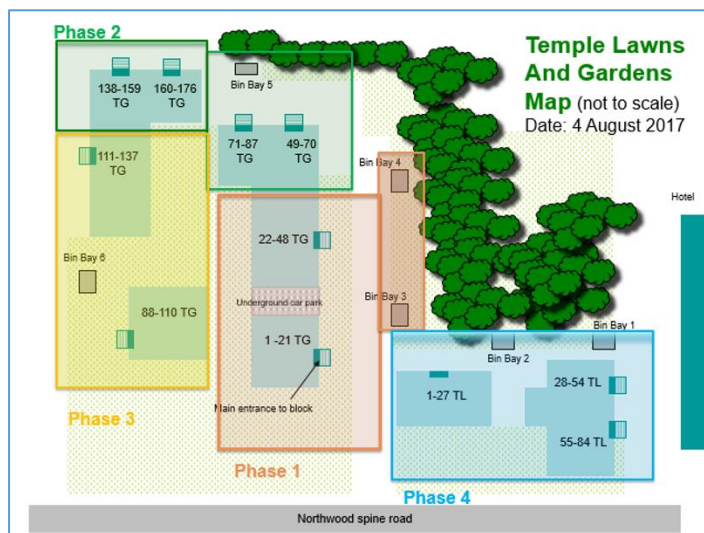


Fig. 5: The 4 phases of the food waste segregation initiative

Phase	Address	No. apartments	Bin Bays
1	Temple Gardens	49	3,4
2	Temple Gardens	73	5
3	Temple Gardens	50	6
4	Temple Lawns	84	1,2

Table 3: Breakdown of the project phases

Each household within the apartment complex was provided with their own food segregation 'kit', consisting of a kitchen caddy and enough compostable liners to last 12 weeks. In addition, an introduction letter, caddy sticker (identical to the bin bay signage) and information on segregating food waste and preventing food waste (including the EPA Stop Food Waste booklet) were distributed with each caddy. The information leaflet carried contact information for the EMWRO so that issues could be reported and queries could be answered (see Figs 6 & 7 below). Please see Appendix 3 for a selection of communication materials used throughout the project.



Fig 6: Information provided to each household



Fig 7: Food segregation 'kits' awaiting distribution

The distribution of the materials for the first two phases included chatting to residents in the apartment complex lobbies to explain the project and to ask them to take part. At the same time, residents were asked if they were willing to add their mobile phone numbers on to a contact list so that feedback could be collected on how the project was working for them. This was an important part of the feedback loop, particularly in light of the fact that there was no existing contact list or social media group for residents. During Phase 1, the feedback loop revealed an issue with faulty liners and these were replaced very quickly thus avoiding a major disruption to the project.

For the latter phases the distribution was conducted by simply leaving the caddy at the door of each apartment. This was less time consuming and enough phone numbers had been collected to obtain a good picture of the residents' experiences so far.

Communications did not only originate with the EMWRO and the project team, however. The champion resident also helped by posting helpful announcements on the notice boards in the lobby of each apartment block. In addition, members of the board of the management company and the apartment complex caretaker, were all really helpful in assisting with the distribution of letters and food waste segregation kits to the residents. Having these stakeholders assume some ownership of the project in this way was a significant asset to the work and helped drive its impact.

As the residents began depositing their segregated food waste into the 240 litre brown bins in the bin bays, the apartment complex caretaker monitored the situation, ensuring the bin bay areas were kept tidy to discourage incorrect waste disposal and also placing additional 240 litre brown bins in the bin bays where necessary. The food waste was collected from the bin bays by the waste company once a week. The waste trucks were fitted with weighing mechanisms and cameras. Weights from the bins were reported back to the project team to give an indication of the level of food waste segregation in the apartments. Photographs taken from the contents of each brown bin as it was emptied into the truck were used to observe any contamination that might be happening in the food waste stream.

Once Food waste weights were received, notices showing comparisons of food waste weights from the different bin bays were placed on the notice boards in the lobby of each apartment block by the project champion resident to encourage some healthy competition among the residents.

4. Project Results

For clarity, the project data will be presented in the following categories

- General attitudes to waste management in the apartments
- Segregation of food waste in the apartments
 - Segregated food waste collected from the apartments
 - Attitudes and practices concerning food waste segregation
- Evaluation of the communication materials

4.1 The headline results

- In each phase, residents began to segregate their food waste and use the brown bins in the bin bays as soon as they received their food waste segregation kit
- The contamination levels were very low
- The pre-wave survey suggested that there was a strong interest in a food waste segregation (86%)
- In the post-wave survey, 98% *of those interviewed* said they were segregating their food waste, with 97% saying they are likely to continue using it.
- The weights data, when compared to household food waste averages, suggest that the percentage of residents segregating food waste is lower than the survey results show
- Materials most likely to motivate the use of the food waste segregation system are the caddy bin (91%) and the food instruction leaflet (34%)
- The main reasons for not using the food waste segregation system are odours or where residents say they do not create food waste
- There is a higher usage of the food waste segregation system among families and among Temple Gardens residents (as opposed to Temple Lawns residents). Crucially, there are higher levels of owner-occupiers in Temple Gardens (all the Management Company members live in Temple Gardens)
- Focus group data shows that the residents like their caddy bins, but that finding space in the kitchen for even this small item can be difficult. They also like using the liners, but find them a little pricey.
- Focus group data also shows that for some residents, segregating food waste has helped them to see the amount of food they are wasting and they have changed their food shopping and cooking practices to try to reduce food waste.

4.2 Attitudes, understandings and behaviours related to recycling

The pre- and post-wave survey results suggest that providing better signage and targeting information at the residents about recycling, based on the Recycling List, did help to increase the residents' confidence and understandings about the items that can be accepted in the recycling bin.

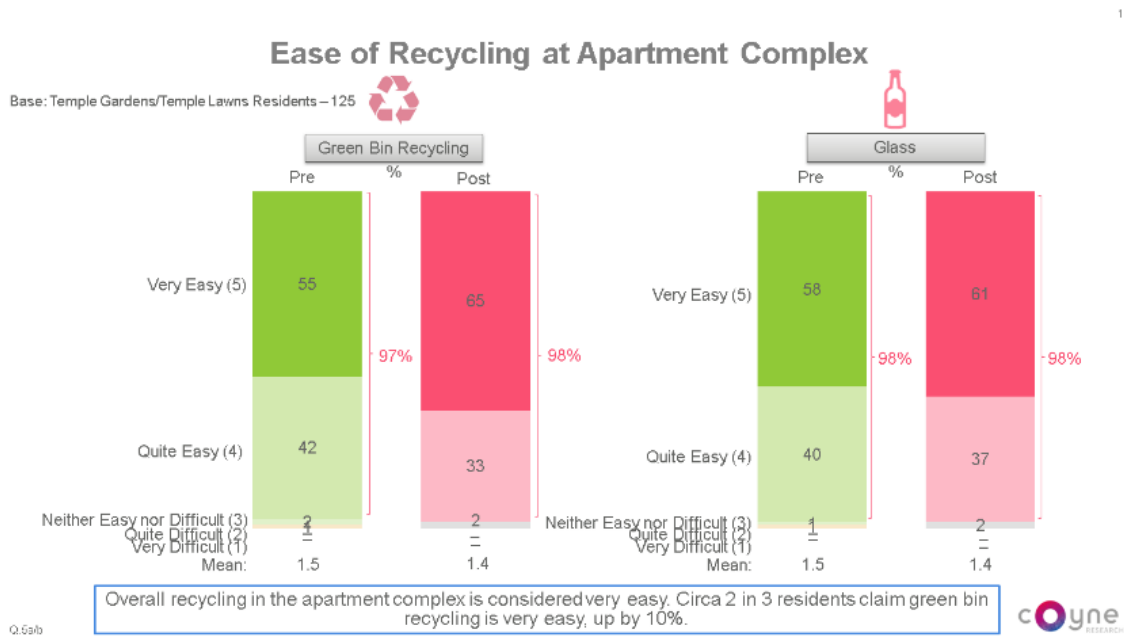


Fig. 8: Changes in understandings of recycling

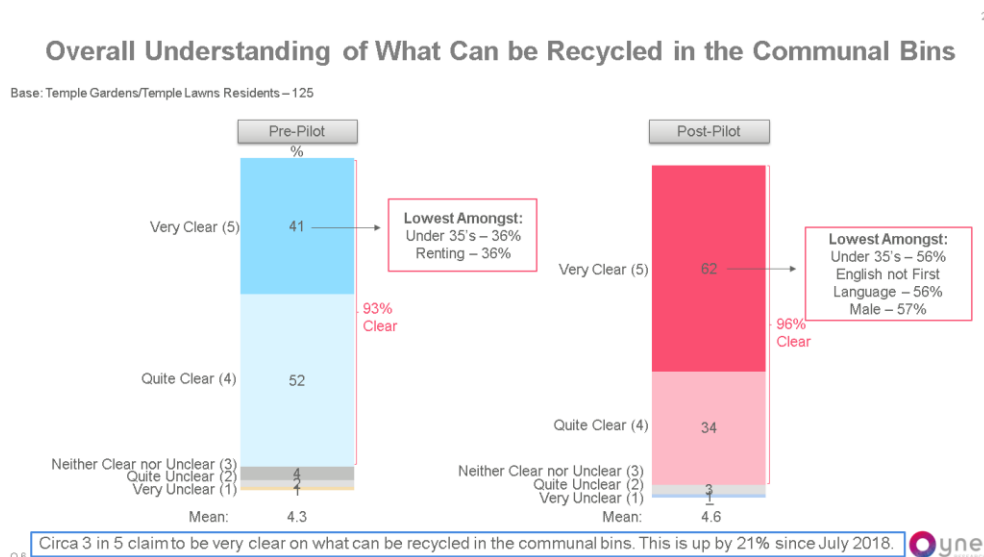


Fig. 9: Changes in perceptions of ease of recycling

While most residents professed to find recycling easy from the start, the proportion of those finding it 'very easy' also rose a little following the provision of information (see Figs. 8 & 9 above).

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Qualitative Evaluation of Recycling Myths V

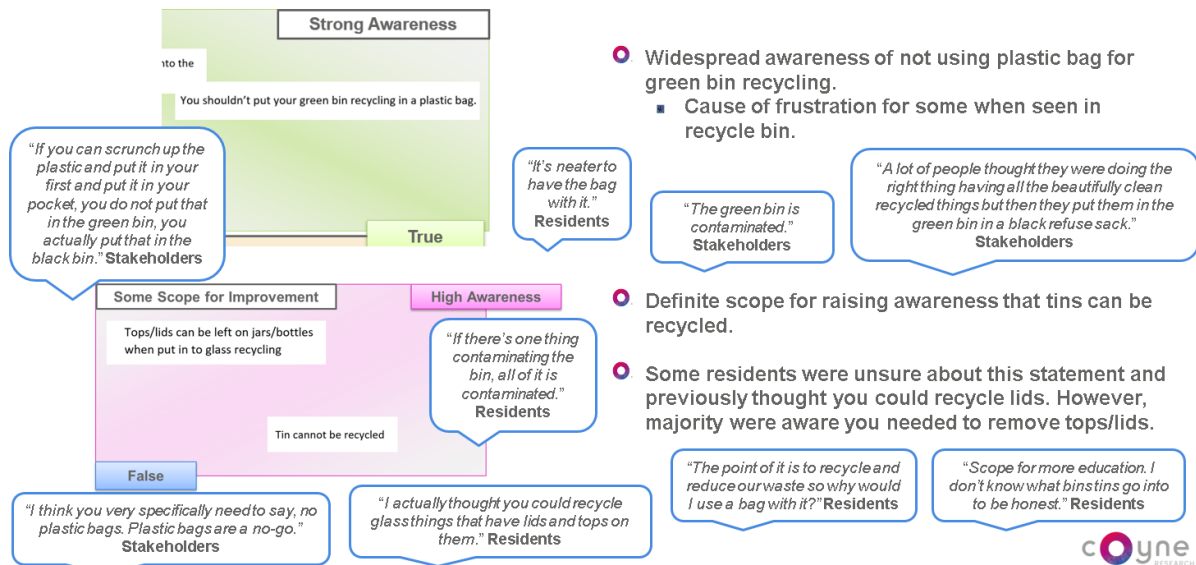


Fig. 10: Focus group findings on understandings of recycling among residents

The focus group results concurred with implication of the survey results that residents generally had a good overall understanding of what items can be placed in the recycling bin and how they should be presented. However, while the awareness was generally high, Fig. 10 above shows that there were still pockets of confusion. For example, some residents believed that aluminium cans could not be recycled. The results show that on-going efforts must be made in apartment complexes to inform new residents and remind longer term residents about good recycling practice. It would appear that there is always scope to improve awareness. The focus group discussions also showed that there was a solid understanding of what could cause contamination in the recyclables stream.

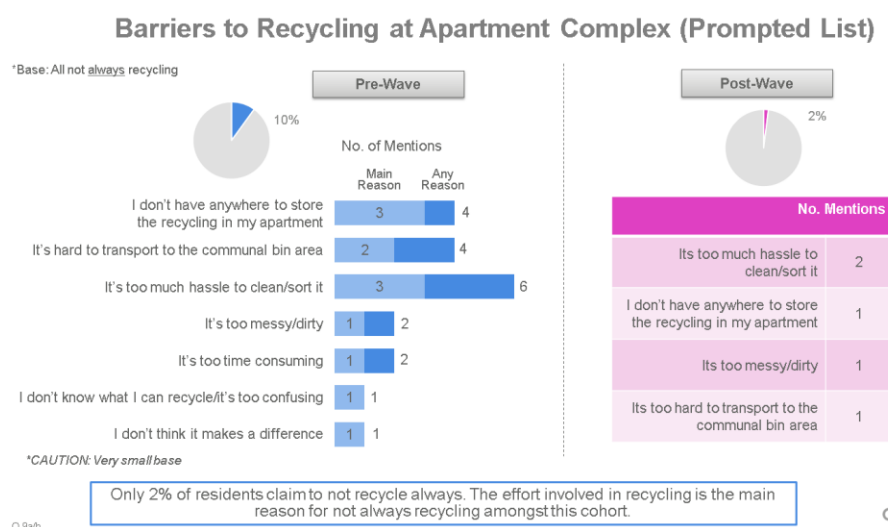


Fig. 11: Barriers to recycling – survey data

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Barriers to Recycling – I

- General perception that individuals who have not adopted waste segregation is due to lack of effort (laziness).
- Inconvenience (just easier to throw everything into black bin) – compounded by the fact there are not individual waste/bin collection charges or bills (not accountable).
- Cultural barriers – not familiar with practice of recycling or the benefits.
- Use of caddy bin perceived as dirty (unhygienic)/ attracting flies.
- Ignorance, for example not knowing that compostable items need to have a compostable bag – rather than a plastic bag (lack of compliance).
- Some people may feel that they are paying enough for their bins that they are entitled to throw what they want into whichever bin.

"I think it goes back to the time where the English owned our land and we had this attitude of why would I keep it clean?" Residents

"Renters are the problem." Stakeholders

"People have to think about it all the time." Residents

"You have nowhere to put paint cans for example so you might just put them in the bin. It doesn't mean I've done that, they are still stacked up in my apartment." Residents

"Now that the pilot is over, I think there will be a drop off in recycling now." Residents

"It's laziness." Stakeholders

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Fig. 12: Barriers to recycling – focus group data

It is interesting to note that many more pre-wave survey respondents than post-wave respondents perceived barriers to recycling, as shown in Fig. 11. One likely interpretation of this is that following the interventions, residents felt more empowered to overcome barriers and to shift their perception of others. At the same time, Fig. 12 shows that the focus group discussion was less positive in relation to how the participants perceived the recycling behaviour (including food) of others, i.e. their neighbours, as being less than adequate.

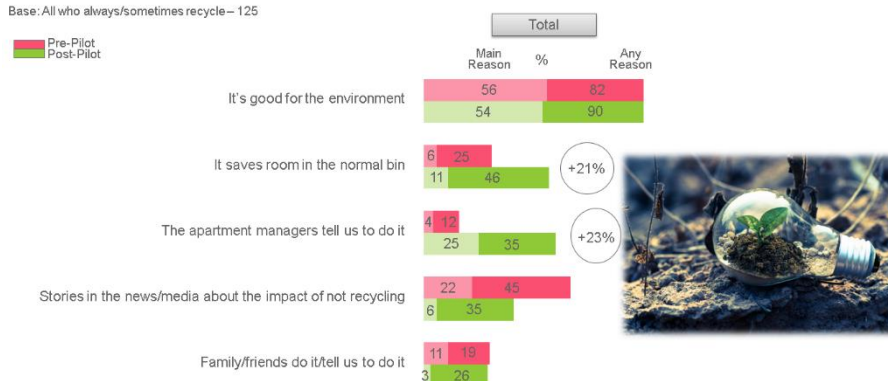
Turning to the drivers for recycling at the apartment complex (see Fig. 13 & 14 below), the most often mentioned driver was that recycling is good for the environment. Furthermore, when asked about the benefits of recycling, more than half of the respondents cited the environmental benefits as the main benefit. These opinions stayed stable before and after the interventions. The focus group discussion also reflected this opinion with participants again opining that the most important reason for good recycling practice was that it bestowed environmental benefits.

When it came to the other recycling drivers (including food recycling), the interventions did seem to cause some shift in emphasis for the residents. The provision of guidance and information from the management company was considered as a more important driver after the interventions, as did the assertion that recycling created more room in the general waste bin.

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Drivers to Recycling at Apartment Complex (Prompted List)

Base: All who always/sometimes recycle – 125



Amongst residents, the main driver for recycling continues to be impact it has for the environment. However, almost half of residents claim that they recycle for the pragmatic reason that it saves room in the normal bin. Circa 1 in 4 claim that the main reason they recycle is because the apartment managers tell them to.

Q.11a/b

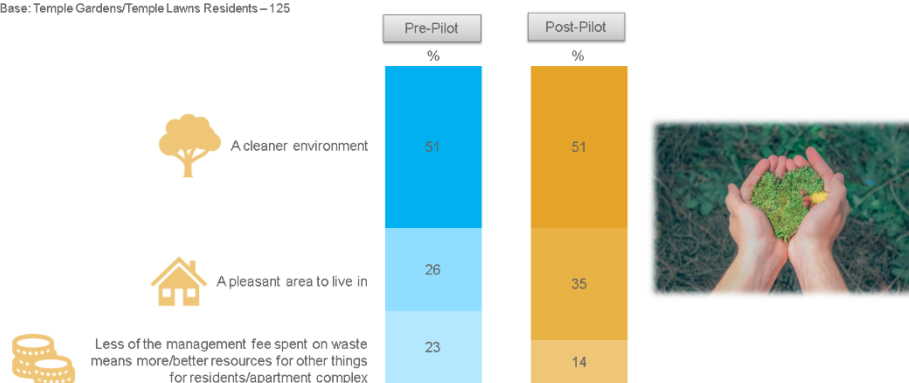
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Fig. 13: Drivers for recycling

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Main Benefit to Recycling Properly at Apartment Complex (Prompted List)

Base: Temple Gardens/Temple Lawns Residents – 125



A similar proportion of residents (51%) feel the main benefit of recycling in the complex is to have a cleaner environment. While circa a third now consider the main benefit to everyone is that the complex would be a more pleasant area to live in.

Q.14

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Fig. 14: Perceived benefits of recycling properly

Here again, the results help to underline the importance of information provision and suggest that the management company is a trusted source of information. This is helpful in terms of learning what helps to drive improvements in waste segregation in apartment complexes. Prior to the work in Temple Lawns and Temple Gardens, stories in the media and guidance from friends and families were drivers whereas after the interventions, messages from the management company (or in this case, the intervention communications which was seen as originating from the management company) held enough authority to have an impact.

4.3 Food waste segregation data

4.3.1 The food waste: Weights and quality

The weights of food waste collected by the waste collection provider from the 240 litre brown wheelie bins in the Temple Garden and Temple Lawn complex bin bays are shown in Fig. 15 below. The weights for each phase of the project are represented by different colours. We can see that a significant number of residents in all four phases began segregating.

A pattern also emerges of a low weights in the first couple of collections of each phase, except phase 4, followed by a pattern of variable weights.

On some occasions there were issues with the weighing process and this is why there are some gaps. However, the overall picture of collections over the 7 months of the trial is clear. The variability is interesting. As the pilot finished in September, these figures do not contain the Christmas food waste amounts – Christmas is of course a peak time for food waste.

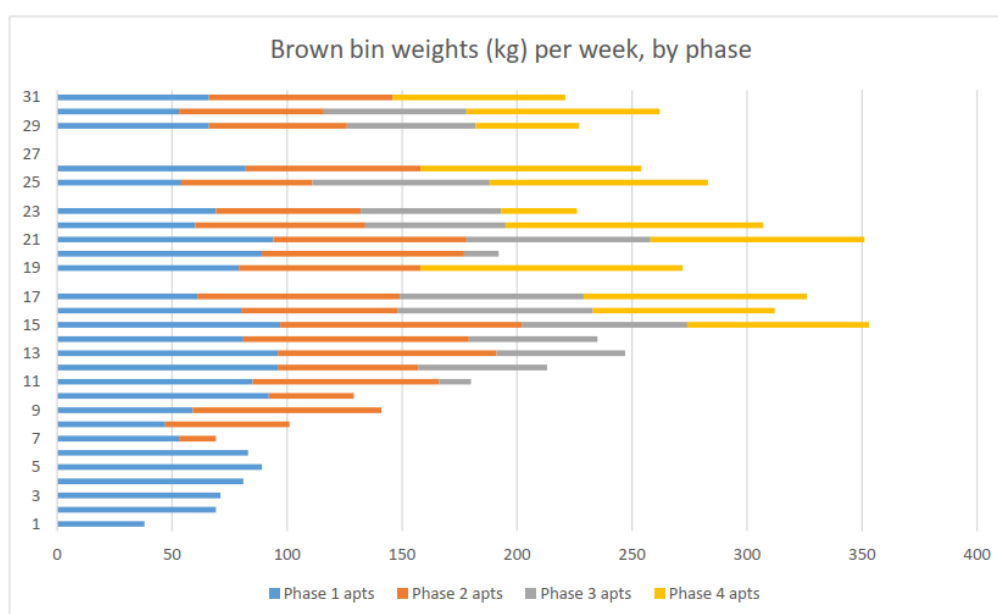


Fig 15: Weights (kg) of food waste collected per week for each phase

When the weights are broken down into individual phases and the number of apartments taken into account (see Fig. 16 below), it is clear that there was a high level of uptake in the phase 1 apartments, while phase 3 and 4 apartments have relatively less food being segregated compared to the earlier phases. It should be noted that phase 1 apartments have the highest number of owner-occupiers and this is likely to have had a significant contribution to this pattern.



Fig. 16: Weights (kg) for each phase of apartments

Since the weights were patchy at times, they can be considered as being indicative rather than accurate. Therefore, while it is difficult to calculate the probable number of households actually segregating their waste during the pilot, we can make an informed estimate. Working from the Dublin City average weight of food waste collected per household of 130kg per annum,³⁶ and using the weights of food waste being collected during the project, it is reasonable to estimate that between one third and one half of the households in Temple Gardens and Temple Lawns were taking part in the initiative.

The photos taken of the food waste collected from the communal brown bins each week by the camera served to monitor the contamination levels. These were very low. The small amounts of contamination that were apparent from time to time, generally comprised of the odd plastic bag or some packaging - but again it was occasional (see Fig. 17).

³⁶ Calculated from 2018 figures obtained from the National Waste Collection Permit Office (NWCP) portal

A very high percentage of those surveyed said they were using their caddies and segregating their food waste. While the weights show that the numbers segregating food waste in all apartment complexes are significant but not universal, the survey data (see Fig. 17 below) suggests that 94% of residents surveyed were using their caddy bin and segregating food waste (87% always; 7% sometimes).



Fig. 17: A sample photo showing the food waste collected from a communal bin – one small piece of contamination is evident – the lid of a tin can!

Clearly, from the weights, 94% of all residents are unlikely to be using the system, so we could conclude that most of those who agreed to take part in the survey were segregating their waste. Therefore, the results of the survey should be considered with this in mind.

4.3.2. Attitudes, understandings and behaviours relating to food waste

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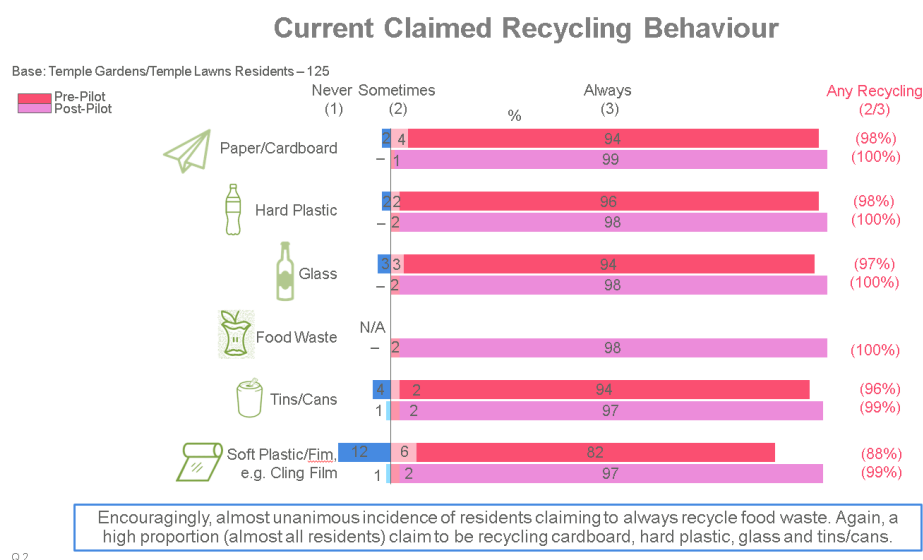


Fig. 18: Claimed recycling behaviour (including food recycling)

According to the survey results, 98% of respondents claimed to be segregating their food waste (see Fig. 18). This figure is remarkably high and is indeed far higher than the weights collected would suggest. It is likely that the residents who agreed to complete the door-to-door survey were those who were interested in and actually doing recycling and food waste segregation and that there is an element of self-selection here. Therefore, it is best to regard this as a survey of residents who are recycling well and segregating food waste.

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Materials Most Motivating in Encouraging Residents to Recycle Food Waste

Base: Temple Gardens/Temple Lawns Residents – 125

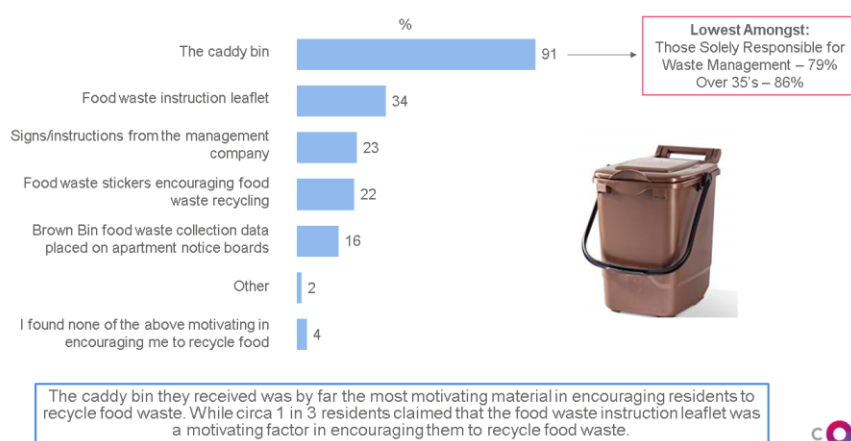


Fig. 19: Motivating materials encouraging food waste segregation

The single most motivating factor in encouraging the segregation of food waste among those doing so was the kitchen caddy, and overwhelmingly so (see Fig. 19) with 91% of the survey participants choosing it as one of the most motivating materials for them. This finding is a most significant one for entities hoping to introduce segregated food waste collections to apartment complexes. The focus group data provided some other useful information regarding factors that are likely to be successful in encouraging apartment dwelling households to adopt food waste segregation. Like earlier studies in Ireland and internationally the data here suggests that simply providing a kitchen caddy, clear instructions (35%) and good signage (23%) is an excellent starting point and underlines the importance of the management company taking a leadership role in behavioural change initiatives such as this.

The high level of survey respondents claiming that they will continue to segregate food waste (see Fig. 20) offers a good indication that the practice of segregating food waste has been embedded among those using the new food waste collection.

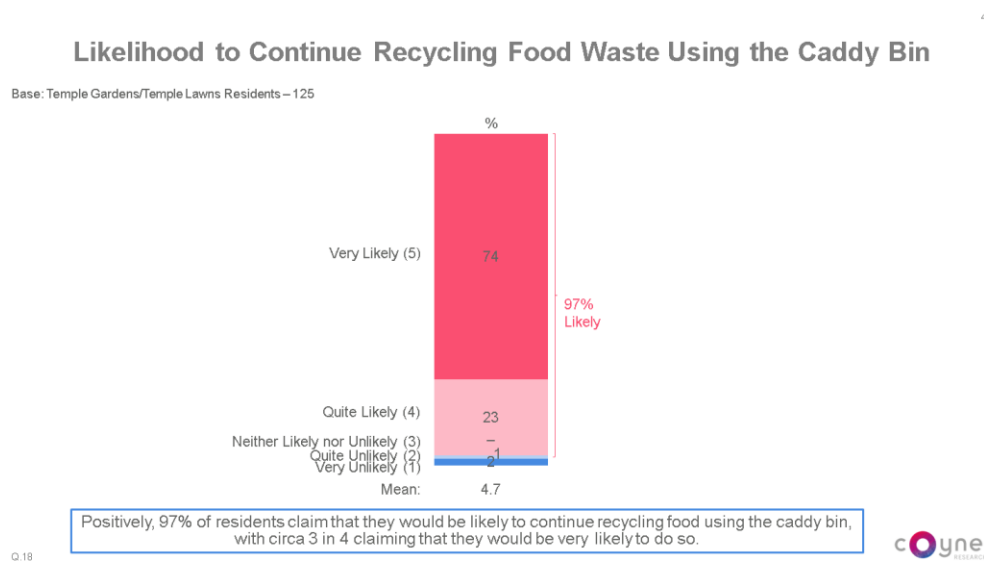


Fig. 20: Likelihood of residents continuing to segregate food waste

The richness of the qualitative data throws more light on the nuances for the residences of using the system (see Fig. 21). Some salient data arising from these discussions is that the response to the initiative was overwhelmingly positive.



Fig. 21: Focus group discussions on food waste segregation

As in the survey, the focusgroup discussions highlighted the caddies and liners for reflected the survey particular praise. The focus groups discussions saw residents presenting solutions for issues previously seen as barriers, such as a lack of kitchen space (for example, a suggestion for a 'hanging devise inside a cupboard') and odours and pests (use of liners and frequent emptying offered as solutions). This implies that giving residents the tools and information to make a change, can also become empower them to replace barriers with viable solutions. The self-professed propensity of residents to begin controlling and reducing food waste through meal planning and altered shopping practices is an interesting result (See Fig. 22). It would appear that segregating food waste builds an awareness and acts as a gateway to waste prevention. Therefore the inclusion of food waste prevention information within food waste segregation initiatives should be considered. Issues remaining for the residents included the price of bin liners and the belief that the project should have received more publicity.

Experience of the Waste Segregation Project Overall

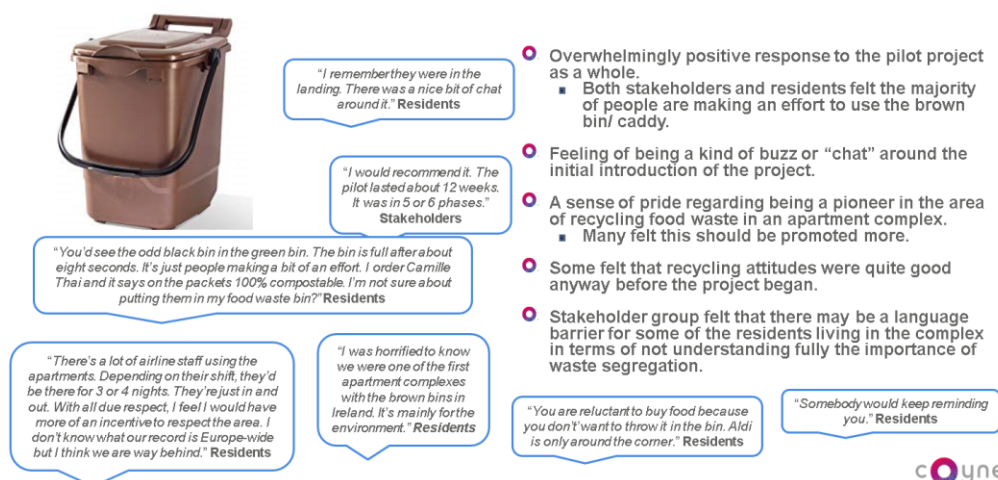


Fig. 22: The experience of using the food waste caddy

4.4. User evaluation of the communication material

The survey and focus group research offered an excellent opportunity to evaluate the project communication and to gather learnings to make future initiatives more effective. Initial data from the survey showed that awareness of information sources about recycling around the Temple Gardens and Temple Lawns apartment complexes increased following the project, with only 2% of respondents claiming they were not aware of any information. (see Fig. 23 below)

While the project did not change the sources of the information that residents used, the numbers of residents using or seeking information rose for each information source. One of the most popular sources of information mentioned were communications from the management company, again reflecting the power and importance that this group has within the apartment community and underlining how vital it is that the management company is committed to good waste management practices. Other important sources were shown to be peers (friends and family) and leaflet communications. A small number of the residents sought information online – website sources here included those from the local authority, waste companies, Google and environmental organisations.

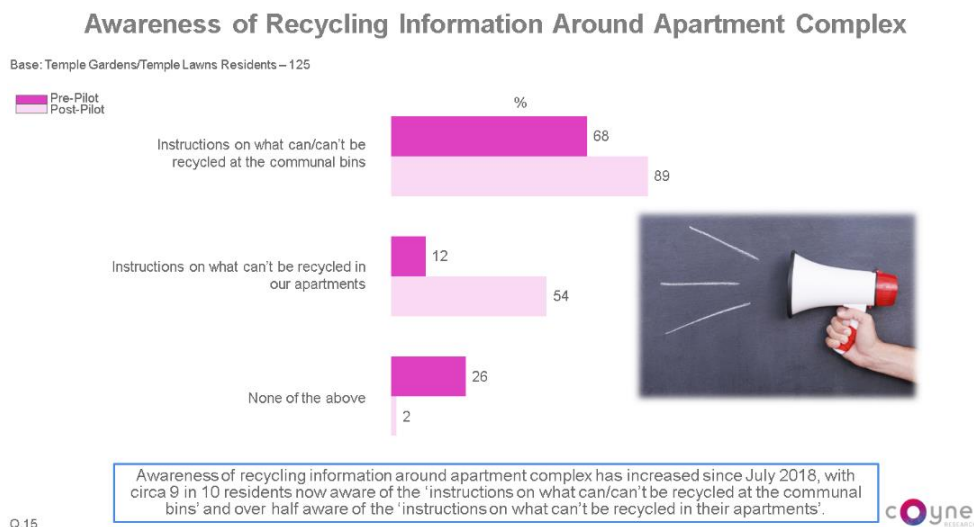


Fig. 23: Awareness of recycling information in the Temple Gardens/Temple Lawns

The focus group discussion showed that the materials, signage, letters and information leaflets, developed for the food waste segregation initiative were received positively by the residents and were considered to be both appealing and clear (see Fig. 24 below). Likewise the EPA Stop Food Waste booklet included in the kit given to each resident, received a positive response. Aspects of the information that met with approval from the residents included the visual nature of materials such as signage and leaflets. The relevance of this in light of possible language barriers in the complex was mentioned in particular. The clarity of the instructions on the leaflet was appreciated, although some focus group participants felt that there was too much text on the back of the leaflet while others were happy with the extra information. The use of paper and the waste this may cause was commented upon, however, in the absence of any sort of contact list or digital communication system (such as a WhatsApp group or a Facebook page for instance) there was little choice but to use paper and deliver it to each apartment.

For full details on the social marketing research results, please see the social marketing research accompanying this report.



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5. Discussion and Recommendations

5.1 Main findings

Overall, the Temple Lawns/Temple Garden food waste segregation pilot was that the pilot was received very positively, the residents began using the system and the management company included food waste segregation in the waste contract for the complex so that the new practice is now a permanent feature of life in Temple Gardens/Temple Lawns and is embedded.

The main findings in this study concurred with those found in earlier studies. The single most enabling factor in encouraging residents to use the new food waste segregation system was the provision of caddies with liners and clear information. This reflects the advice gleaned from earlier studies, such as the Sligo trials where it was concluded that the provision of these two factors alone would result in a great increase in food waste segregation.³⁷ To put it plainly, by offering the proper facilities and making people aware of them and how to use them, the goal of better household waste management can be achieved.

The motivating factor most mentioned by residents in Temple Gardens/Temple Lawns for both recycling and food waste segregation was that it was beneficial for the environment, while this finding is perhaps displays more altruism than might normally be attributed to 'the public', it is not unique and was a prominent finding of a 2013 study in Adelaide.³⁸ However, the results in the Temple Gardens/Temple Lawns study also shows that creating a pleasant living area, i.e. local environment, was also an important consideration and this in one that would be useful in communications with residents involved in future initiatives.

The deep and rich data obtained in the qualitative aspects of the Temple Gardens/Temple Lawns pilot, through the focus groups and the two-way communication with residents, offered useful nuances in terms of behavioural change. Once residents were enabled to segregate their food waste, they began to perceive some barriers as solvable issues rather than as inhibiting factors. For example, during the focus groups, residents suggested ideas such as hanging bins inside cupboard doors, to overcome a lack of space for waste segregation in apartment kitchens.

While the primary aim of the work in Temple Gardens/Temple Lawns was to introduce a segregated food waste collection, the work on improving recycling as a precursor to this was important. It helped to enhance some of the enablers and dismantle some of the barriers identified in the pre-survey. What is particularly informative is the way in which the residents' perception of some barriers seemed to change and they began to seek out solutions, such as emptying the bins more often to prevent odours, doubling up bags to make them stronger when necessary or ideas about hanging kitchen caddies inside cupboards to overcome space restrictions. The perception that segregating waste (whether recyclables or food) was inconvenient or 'too much hassle' was mentioned far less in the post-wave survey. In addition, the post-wave survey had a higher incidence of residents finding believing that

³⁷ Dunleavy, M., McGovern, D., Finan, R., Byrne, M., Gillen, S., Murtagh, P., Foster P., and Breton, T. (2016) *Best Practice Guide for Door To Door Brown Bin Education in Ireland*. Sligo County Council, Cré, Novamont

³⁸ Adelaide City Council (2013) *Garden East Apartments and Townhouses; Enhanced Service Model Validation Report*, Adelaide City Council, Adelaide.

recycling created more space in the general waste bin (pre-wave 31% to post-wave 57%). This suggests that local authorities, waste collection service providers or management companies tackling practical barriers through direct activities such as information and equipment provision may provide the momentum and confidence residents need to empower them to begin thinking about and dismantling other barriers or perceived barriers.

The lack of a financial incentive (as waste charges for the apartment complex are included in the management fee) was less of a barrier than anticipated. While some residents considered the liners to be 'a bit pricey', they nevertheless were buying them. This does present an opportunity to create a solution to the expense of the liners however. If the management company can negotiate a more favourable rate in their overall waste charges for promoting segregated food waste, then the any savings could possibly be used to provide liners to the residents to help ensure the segregation continues and to help prevent the price of the liners becoming a barrier.

Another noteworthy implication of the Temple Gardens/Temple Lawns study was that the focus group data provides some limited evidence that when residents began to segregate their food waste, this helps to trigger actions to prevent or reduce food waste. Residents taking part in the focus groups reported changing their food shopping habits (meal planning, smaller more frequent shopping trips to the supermarket) to reduce food waste.

5.2 Suggested further research

The findings from this work suggest some topics for further investigation. For existing apartments, storage space for waste segregation in kitchens is a barrier and options to overcome this through the usage of innovative bin design or other practical measures, such as the innovative use of existing space, could be investigated. Another important area that lends itself to further work is that of poling the common bin areas in apartment complexes. A range of technological, communication and practical strategies could be examined to ascertain the most efficient, cost effective and useful approaches to maintaining good segregation and low contamination levels. Further research focus on behavioural change could measure the extent of food waste prevention undertaken by households over time following the segregation of food waste. Apportioning a monetary value to this waste prevention would help to demonstrate a fiscal incentive for households to segregate food waste and would be particularly useful in apartment complexes and housing estates where waste charges are included in the management fee. More work on behavioural change among renters and other residents resistant to proper waste segregation would be particularly useful in the context of apartment complexes, for example the effect of waste management clauses in rental leases could be investigated and measured.

5.3 Success factors

The factors contributing to the success of the Temple Gardens/Temple Lawns study included the following:

- The strong support and involvement of the Temple Gardens/Temple Lawns management company

- The involvement of a ‘champion resident’ and the local knowledge provided
- The incorporation of learnings from earlier studies, particularly from the Sligo trials and particularly in relation to the provision of caddies and liners
- The involvement of the waste collection provider – this required a great deal of effort but paid dividends
- The involvement of the management agents, and in particular the caretaker who kept the bin bays tidy, liaised with the waste company on collections and monitored the bin requirements for the different waste streams
- The careful design of the communication material including appealing signage and clear instructions on the use of the kitchen caddies
- The use of two-way communication and the inclusion of a contact person to answer queries
- The inclusion of food waste prevention information was both welcomed and utilised by some residents

5.4 Recommendations for different actors involved in the introduction or improvement of food waste segregation

5.4.1 Recommendations for policy makers

- Instigate a national programme, coordinated by the Regional Waste Management Offices and the local authorities, to introduce segregated food waste collections to apartment complexes.
- This programme should include, but not be limited to, the following:
 - Change the classification and management approach to apartment waste to better reflect the household kerbside system
 - Implement a review of apartment waste collections with the purpose of introducing a minimum 3 bin pay by weight system at complexes
 - Extend the roll of household brown bin to all apartments, with minimum exceptions
 - Establish a regional task force to work over a 5-7 year timeline to make apartment management companies compliant
 - Create incentivised charging for apartments by decoupling waste management costs from general management fees and put in place a system to allow for incentivised segregation
 - Ensure correct waste storage, both externally in communal bin area and internally inside apartments, is facilitated at the planning stage to enable proper segregation for future builds
 - Research how existing apartment complexes can be retrofitted with infrastructure
 - Trial electronic incentivised waste data systems, such as a swipe card system to access communal waste bins, with a view to wide-scale introduction

5.4.2 Recommendations for local authorities:

- Raise awareness of and enforce the regulations concerning the segregation and collection of food waste is vital in ensuring that food waste segregation occurs in apartment households. Waste collection service providers, apartment management company, property agents and householders must be targeted in such enforcement and awareness raising efforts and there must be penalties for non-compliance
- Devise and implement planning conditions to ensure adequate waste storage space in apartment kitchens in all new builds
- See communication recommendations below for awareness raising planning

5.4.3 Recommendations for Management Companies, Management Property Agents and landlords:

- A high level of commitment and involvement from Board of Directors of the Management Company is vital
- Management Property Agents should be committed to the initiative and agreeable to the caretaker or other employees being involved
- Apartment complex house rules should ideally include a requirement for proper waste segregation, including food waste segregation
- A digital communication system, such as for example, a list of mobile phone numbers, a WhatsApp group or a social media page should be available to residents so that messages about waste and other community issues can be communicated
- Rental leases should include a requirement for proper waste segregation, including food waste segregation
- Once the food waste segregation system is embedded, frequent communication with residents should be carried out to ensure good practices continue
- Waste service providers should be requested to provide a segregated food waste collection for the apartment complex
- Ensure you are informed as to your obligations under waste legislation
- Provide correct and clear information about waste streams collected at the apartment complex in bin bays, in apartment common areas (e.g. lobby areas) and in individual apartments if you are a landlord. Check www.mywaste.ie for the most up to date information and materials
- Reduce the number of general waste bins in the communal bin area and increase the number of bins for segregated waste (i.e. recycling bins, glass bins, food waste bins)
- Ensure the communal bin area is maintained in a clean and tidy manner as untidiness and overflowing bins can discourage good waste practices.

5.4.4 Recommendations for waste collection service providers

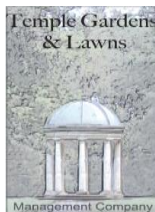
- Offer and provide a food waste segregation collection to householders in apartment complexes, as required under the legislation

- Supply kitchen caddies and clear information about organic waste accepted in segregated food waste collections
- If involved in an initiative to introduce a segregated food waste collection, engage early in the project, provide baseline weights and other waste information in order to enhance the project data set
- Provide ongoing collection weights and, ideally, photos of the waste collected
- Provide feedback on contamination levels and other relevant information where possible

5.5 Communication Recommendations

- Draw up a communications plan for introducing your segregated food waste collection
- Communicate with residents prior to changing signage or introducing other changes letting them know what is happening and why. Do this by letter, e-mail or by social media group, but aim to connect with as many residents as possible
- Aim for frequent and relevant information provision
- Devise messaging that is clear and consistent. Ensure consistency both within and across materials to avoid mixed messaging or confusion
- Communication assets, such as materials and signage, should be succinct, clear and appealing
- Materials and signage should have a good deal of visual content
- Be clear on what types of food and organic items can be placed in the segregated food waste bin. Liaise with the waste company on this. Also check www.MyWaste.ie
- Learn about the demographics of your resident community and use multi-lingual material where necessary
- Make the communication a two-way process by including a contact for queries or providing a fast way for residents to message queries through a social media page, for example
- Communicate all the benefits of the new system; environmental benefits, local community/living area benefits, economic benefits etc.
- Include information on food waste reduction/prevention if possible. A good source of information for this is <https://stopfoodwaste.ie/>

Appendix 1 : Letters to residents to introduce the project and to give prior notices of pre-wave and post-wave door-to-door surveys



**Comhairle Contae
Fhine Gall**
Fingal County
Council



Dear Residents,

The Temple Gardens and Temple Lawns apartment complexes have been chosen to take part in a new waste information project designed for apartments. The aim of the project is to empower residents to segregate waste effectively and will include new signage at the bin bays and information events for residents on recycling and also on food waste.

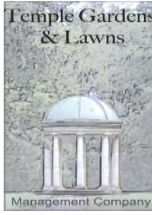
This project is a joint effort between the Temple Gardens and Lawns Management Company, Fingal County Council, the Eastern-Midlands Regional Waste Office and Panda Recycling.

The Temple Gardens and Lawns is the first area where this project will be carried out and so to begin the project we are planning to survey residents using a door-to-door survey during the next week (from July 18th onwards). In all, we hope to survey 125 residents.

The survey company is called **Coyne Research** and their agents will show you ID when they call to your door. The survey will take about **4 – 5 minutes** of your time and will be really helpful to us in terms of tailoring the information on recycling and food waste for your apartment complex.

Agreeing to take part in the survey will benefit everyone in Temple Gardens and Lawns, and we would really encourage you to do so.

If you have any questions about the project or the survey, please contact Joanne Rourke at joanne.rourke@dublincity.ie



**Comhairle Contae
Fhine Gall**
Fingal County
Council



Dear Residents,

Thank you so much for taking part in the Temple Gardens and Temple Lawns apartment waste information project. The aim of the project is to empower residents to segregate waste effectively. The project has been very successful so far and much of this success is due to the work of both the Temple Gardens & Lawns Management Company and the residents.

Shortly before the project began, we conducted a survey of the residents. In order to find out what you think about the new waste system and how it is working for you, we are now planning to carry out another door-to-door survey during the next week (from August 6th onwards). In all, we hope to survey 125 residents.

The survey company is called **Coyne Research** and their agents will show you ID when they call to your door. The survey will take about **4 – 5 minutes** of your time and will be really helpful to us in terms of tailoring the information on recycling and food waste for your apartment complex.

Agreeing to take part in the survey will benefit everyone in Temple Gardens and Lawns, and we would really encourage you to do so.

This project is a joint effort between the Temple Gardens and Lawns Management Company, Fingal County Council, the Eastern-Midlands Regional Waste Office and Panda Recycling.

If you have any questions about the project or the survey, please contact Joanne Rourke at joanne.rourke@dublincity.ie

Appendix 2: Survey Question Schedule (with coding) and Focus Group Question Schedule

C18-148

Coyne Research

The Regional Waste Office – Waste Management
Questionnaire – Pre-Wave

DRAFT 3



Introduction:

Good morning/afternoon/evening. My name is _____ from Coyne Research. We are conducting some research on behalf of The Regional Waste Office regarding your waste management. Do you have time for a few questions? It shouldn't take more than 10 minutes.

Screener

Q.S Which of the following best describes you?

I am solely responsible for household waste disposal	1	CONTINUE
I am jointly responsible for household waste disposal	2	CONTINUE
I do not have any role in household waste disposal	3	ASK FOR DECISION MAKER

IF CODE 3

INTERVIEWER: Ask to speak to someone who is responsible. If they are not available ask if you can call back at a more suitable time this week.

Section 1: Recycling Behaviour

Q.1 Which of the following can currently be recycled at the common bin area in your apartment complex?

READ OUT

ROTATE STATEMENTS ↓	Yes – can be recycled at our common in area	No – can't be recycled at our common in area, but can be recycled	This material is not recyclable	Don't Know/ Not Sure (DO NOT READ OUT)
Paper/cardboard	1	2	3	4
Hard plastic	1	2	3	4

Soft plastic/film e.g. cling film	1	2	3	4
Tins/cans	1	2	3	4
Glass	1	2	3	4
Food waste	1	2	3	4

Q.2 Which of the following do you currently recycle?

READ OUT. INTERVIEWER READ OUT SCALE

ROTATE STATEMENTS ↓	Always	Sometimes	Never
Paper/cardboard	1	2	3
Rigid plastic	1	2	3
Soft plastic/film	1	2	3
Tins/cans	1	2	3
Glass	1	2	3
Food waste	1	2	3

Q.3 How frequently do you have to take each of the following to your communal bin area?

READ OUT. INTERVIEWER READ OUT SCALE

ROTATE STATEMENTS ↓	Daily	Every 2-3 days	Every 4-5 day	Weekly	Less Often
Non-recyclable waste	1	2	3	4	5
Green bin recycling <i>By green bin recycling we mean paper/cardboard, tins/cans and plastics.</i>	1	2	3	4	5
Glass	1	2	3	4	5

Q.4 How frequently do you throw away each of the following foods...

READ OUT. INTERVIEWER READ OUT SCALE

ROTATE STATEMENTS ↓	A few times a week or more	Weekly	Every few weeks	Every month	Less Often	Never
Bread	1	2	3	4	5	6
Meat	1	2	3	4	5	6
Fruit/Vegetables	1	2	3	4	5	6
Dairy Products	1	2	3	4	5	6
Pasta/Rice	1	2	3	4	5	6

Section 2: Understanding and Experiences of Recycling

Q.5a How easy, or difficult, do you currently find it to do green bin recycling in your apartment complex?

INTERVIEWER READ OUT SCALE

Q.5b How easy, or difficult, do you currently find it to do glass recycling in your apartment complex?

INTERVIEWER READ OUT SCALE

	Green Bin Recycling	Glass
Very Easy	5	5
Quite Easy	4	4
Neither Easy nor Difficult	3	3
Quite Difficult	2	2
Very Difficult	1	1

Q.6 How clear, or not, are you on what can be recycled in the communal bins in your apartment complex?

INTERVIEWER READ OUT SCALE

Very Clear	5
Quite Clear	4
Neither Clear nor Unclear	3
Quite Unclear	2
Very Unclear	1

ASK ALL UNCLEAR (CODE 1-2 AT Q6)

Q.7 You said that you were unclear about what materials can be recycled at your apartment complex/
Please could you tell me more about what you are unclear about? **Probe what else? Probe twice.**

Q.8 Please state if you think that each of the following statements are true or false.

READ OUT

ROTATE STATEMENTS ↓	True	False	Don't Know/ Not Sure (DO NOT READ OUT)
Wet paper/cardboard can be recycled	1	2	3
Food stained paper should go in the general waste	1	2	3
You should put your green bin recycling in a plastic bag	1	2	3
All glass colours can be put into the glass recycling bin	1	2	3
We contaminate c.40% of our plastics in Ireland at the moment	1	2	3
Tin cannot can be recycled	1	2	3
Pyrex dishes/crockery cannot be placed in the glass recycling	1	2	3
Tops/lids can be left on jars/bottles when put in to glass recycling	1	2	3

Section 3: Drivers and Barriers to Recycling

ASK ALL NOT RECYCLING PAPER/RIGID PLASTIC/TINS/GLASS AT Q2

Q.9a You said that you do not currently recycle, why do you not recycle? **MC Probe what else? Probe twice.**

DO NOT READ OUT. PROMPT TO PRECODES

Q.9b Which of these is the main reason why you don't recycle? **SC**

ROTATE STATEMENTS ↓	Any Reason	Main Reason
It's too much hassle to clean/sort it	1	1
I don't have anywhere to store the recycling in my apartment	2	2
It's too messy/dirty	3	3
It's too hard to transport to the communal bin area	4	4

I don't know what I can recycle/ it's too confusing	5	5
It's too time consuming	6	6
I don't think it makes a difference	7	7
Other (please specify)	8	8

ASK ALL RECYCLING PAPER/RIGID PLASTIC/TINS/GLASS AT Q2

Q.10a You said that you are currently recycling. What encourages you to recycle? **MC Probe what else? Probe twice.**

DO NOT READ OUT. PROMPT TO PRECODES

Q.10b Which of these is the most motivating? **SC**

ROTATE STATEMENTS ↓	All Reasons	Main Reason
It's good for the environment	1	1
Family/friends do it/tell us to do it	2	2
Stories in the news/media about the impact of not recycling	3	3
It saves room in the normal bin	4	4
The apartment managers tell us to do it	5	5
Other (please specify)	6	6

ASK ALL

Q.11 What would help you to recycle/recycle more? **Probe what else? Probe twice.**

--

ASK ALL

Q.12 If a food waste recycling service	Very Likely	5
--	-------------	---

was available in **Temple Gardens/ Temple Lawns** how likely, or not, would you be to use it?

INTERVIEWER READ OUT SCALE

Quite Likely	4
Neither Likely nor Unlikely	3
Quite Unlikely	2
Very Unlikely	1

Section 4: Attitudes Towards Recycling

ASK ALL

Q.13 Listening to the statements below, please tell me how strongly you agree or disagree with each.

READ OUT

ROTATE STATEMENTS ↓	Strongly Disagree (1)	Slightly Disagree (2)	Neither Agree nor Disagree (3)	Slightly Agree (4)	Strongly Agree (5)
Recycling is too time consuming	1	2	3	4	5
I understand the benefits of recycling	1	2	3	4	5
I see myself as environmentally conscious	1	2	3	4	5
Most people in our apartment complex do not recycle	1	2	3	4	5
I can make a difference to the environment with my actions	1	2	3	4	5
I find it harder to recycle here than where I used to live	1	2	3	4	5
I understand how to segregate my waste properly for recycling	1	2	3	4	5

ASK ALL

Q.14 Which of the following do you feel would be the **main benefit** to everyone in your apartment complex recycling properly? **SC**

ROTATE STATEMENT

A cleaner environment	1
A pleasant area to live in	2
Less of the management fee spent on waste means more/better resources for other things for residents/apartment complex	3

Other (please specify)	4
------------------------	---

Section 5: Campaign Awareness

Q.15 Which of the following, if any, have you seen in your apartment complex? **MC**

Instructions on what can/can't be recycled at the communal bins	1
Instructions on what can/can't be recycled in our apartments	2
None of the above	3

Q.16a From which of the following sources do you get your information about what can and can't be recycled? **MC**

Q.16b And which of these would be your main source of information? **SC**

ROTATE STATEMENTS

	Any	Main
Friends/family	1	1
Online	2	2
Signs/instructions from the management company	3	3
I have a leaflet/poster	4	4
Other (please specify)	5	5
I don't use any sources of information (SC)	6	6

IF CODE 2 AT Q16b

Q16.c Which websites do you use to inform you about what can and can't be recycled?

Q.17 What information do you feel you need to help you recycle? **Probe what else? Probe twice.**

Q.18 Would you be interested in going to a local event which gives you information about the correct way to recycle?

Yes	1
No	2
Don't Know/Not Sure	3

Section 6: Demographics

ASK ALL

Q. A Record gender.

Male	1
Female	2

ASK ALL

Q.B What age are you?

18-24	1
25-34	2
35-44	3
45-54	4
55-64	5
65+	6

Code into the following age breaks →

ASK ALL

Q.Ci How many adults (18 or older) do you live with?

Q.Cii How many children (17 or under) do you live with?

ASK ALL

Q.D Which of the following best describes you?

Owner-Occupier	1
Renting	2

ASK ALL

Q.Ei What is your first language?

Q.Eii Do you speak any other languages?

--

Interviewer: Now please capture the following information:

Respondent Name:	
Respondent Flat Number:	
Date of Interview:	

Interviewer: Thank & Close

C19-200 Waste Management Campaign Evaluation

Residents Discussion Guide

1. Introduction (10 mins)

- Name, length of time in Northwood (Temple Lawns and Gardens), Life-stage i.e. single, married, no. of kids, no. in household.

2. Experience of the Temple Gardens & Temple Lawns Waste Segregation Project Overall

- ❖ When first heard about project?
- ❖ Where heard from?
 - Neighbours
 - Leaflet
 - Letter
 - Management company/ reps.
- ❖ Overall opinion of project?
 - Positives
 - Negatives
- ❖ Was the project a success?
 - What drove the success?
 - Why not a success?
 - Impact on attitude to recycling?
 - Impact on recycling behaviour?
- ❖ Recommendations if this project was introduced in another area?
- ❖ What improvement would you suggest?

3. Recycling Behaviour

- ❖ Awareness of what can be recycled in common area?
- ❖ Awareness of what cannot be recycled?
- ❖ What do you currently recycle?
- ❖ How often do you use the communal bin area for the following?
 - Non-recyclable waste?
 - Green bin recycling?
 - Glass?
 - Food waste?
- ❖ Any problems encountered using bins in the communal areas?
- ❖ How clear is it regarding what can be recycled in the communal area?
- ❖ How could awareness and knowledge be improved if at all? (Show prompt cards and ask to categorise).
 - True
 - False
 - Don't know
- ❖ Discuss categorisation.
- ❖ Triggers for recycling?
 - Stories in news/media?
 - Good for environment?

- Told to recycle?
- Feel pressurised?
- Management committee advice?
- Other?
- Sense of community?
- ❖ Barriers to recycling?
 - Inconvenience/time consuming?
 - Messy/dirty?
 - Odour from waste?
 - Space, etc?
 - Lack of information/uncertainty as to what can be recycled?
- ❖ Whether attended any information evenings on the waste recycling project overall?
 - Overall experience of attended?
 - Overall perceived benefits of recycling for apartment complex residents?
 - Any other benefits?
 - Is this an attractive source of information?

4. Use of Caddy Bin and generally the experience of separating out food waste (as this was not done before) (xx mins)

- ❖ When first start to use?
- ❖ Overall experience with caddy bin? Opinion on it now versus before.
- ❖ How often emptied?
- ❖ Whether recycling more or less food waste over time?
- ❖ Awareness of what permitted in caddy bin?
- ❖ Experience of using bin liners?
- ❖ Awareness of leaflets/posters/information on caddy bins usage?
- ❖ What was most effective in encouraging you to separate out your waste ?
 - Food stickers?
 - Signage from management company?
 - Instruction leaflet?
 - Brown bin waste collection?
 - Data placed on apartment notice boards?
 - The caddy bin and liner provision?
 - It is the law?
 - It is the right thing to do?
 - It is a way you can contribute to creating a cleaner environment?

5. Rating of Project Communication Materials (xx mins)

(Show posters/leaflets/letter, etc.)

- ❖ Which recalled?
- ❖ Which found most useful?
- ❖ What information stands out?
- ❖ Which would stand out more?
- ❖ What improvements would you recommend?

6. Recommendations for improvements (xx mins)

- ❖ How could the project implementation be improved?
- ❖ What materials or initiatives were most effective?
- ❖ What would encourage greater recycling?
- ❖ Interest in attending local waste information event?

Appendix 3 : A selection of communication materials and notices used in the Northwood Apartments Brown Bin Project

1st May 2019

Phase 3 of Pilot Project on Food Recycling

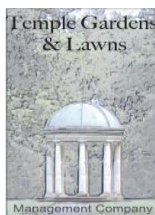
The food waste bins for your kitchen will be left outside your apartment doors on Friday morning.

All food, cooked or uncooked can be placed in the small brown bin and then placed in the brown bin in the bin bay.

We are also supplying compostable bin liners that can be put inside the caddy along with leaflets explaining what food waste you can put into the bins.

We are very pleased with the weights being collected from the brown food waste bins. The brown bins are collected and weighted on Mondays.

This initiative is supported by the Eastern Midlands Regional Waste Office and Fingal County Council Environmental Department.



This is your new FOOD WASTE CADDY!

Temple Gardens and Temple Lawns apartment complexes have been chosen to take part in a new food waste / Brown Bin project designed for apartments. All residents using bin bay 6 are included in the third phase of this project.

Your project package includes the following:

- A caddy for waste food
- Compostable liners for your caddy (enough to last 12 weeks)
- Stickers for your caddy and your kitchen to remind you of what you can place in the caddy
- An instruction leaflet with basic information

More information on using your food waste caddy can be found at www.brownbins.ie or you can email any questions you might have to joanne.rourke@dublincity.ie

Segregating your food waste is a great step towards reducing your food waste and saving money! It's really easy and we are here to help you, every step of the way.

This project is a joint effort between the Temple Gardens and Lawns Management Company, Fingal County Council, the Eastern-Midlands Regional Waste Office and Panda Recycling.

With best wishes, Joanne Rourke, Eastern-Midlands Waste Regional Office

Using Your Brown Bin



1. Find a place for your caddy bin in your kitchen. Pick somewhere that suits YOU!

2. Line your caddy bin. Use only paper bags or compostable bags with the SEEDLING LOGO



3. Fill it with FOOD WASTE
Remove all packaging

4. CHANGE the caddy liner every few days to avoid odours



5. Bring your filled caddy liner to your BIN BAY and place it in the Brown Bin

6. RINSE your caddy regularly with warm water and wipe with kitchen roll, to keep it clean. Avoid disinfectant - it will affect the composting process



Questions & Answers

What can I put in my food waste caddy?

All types of food can be recycled. This includes raw food, peelings, cooked food, vegetables, fruit, meat, fish and bones. It also includes dairy, soups and sauces. Cooking oil **CANNOT** be placed in your caddy. It goes in the general waste.

Why should I use the food waste caddy?

1. It makes you more aware of the amount and types of food wasted in your home, and helps you to **REDUCE** this waste.
2. It's the **LAW!** Food waste must be segregated and sent for recycling (composting).
3. It's better for the environment as food sent to landfill releases gases that contribute to **CLIMATE CHANGE**.

Can I place any food packaging in my food waste caddy?

No. All packaging must be **REMOVED** before food is placed in your food caddy and Brown Bin.

Quick Tips to Prevent Food Waste

- ✓ Plan your food shopping. Make a list and stick to it.
- ✓ Use your leftovers or freeze them for later
- ✓ Store food correctly
- ✓ Control portion size
- ✓ Check your Best Before dates

Further Information:

www.brownbins.ie | joanne.rourke@dublincity.ie

mywaste



