

Local action to address littering and fly tipping in the UK

A review by the: CLAHRC NWC Public Health Theme

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TABLE OF CONTENTS

What is the NIHR CLAHRC NWC neighbourhood resilience programme?.....	1
The purpose of the Very Rapid Review.....	2
Method	2
Introduction – What is littering and fly tipping?.....	3
Impacts of littering and fly tipping.....	5
Facts and figures relating to littering and fly tipping.....	5
Theoretical understandings of littering	11
What are the specific causes of littering?.....	14
Interventions.....	18
Local action to tackle littering and fly tipping.....	19
Walsall Council – prospective anti-fly tipping action.....	19
Addressing fly tipping along with wider social inclusion objectives	20
Southwark’s joined up approach to tackling fly tipping	21
Addressing ‘on-the-go’ recycling	21
Community Summit and Community Litter Plan	22
‘Adopt a Street’	22
Active community intervention – Leithers Don’t Litter action group.....	22
Novel approaches to tackling litter - Ballot Bins.....	23
Charity collection points	24
An innovative approach to litter and dog fouling enforcement.....	24
Community focused campaigns.....	25
Encouraging schools to develop anti-littering initiatives by offering grants	26
Conclusion.....	26

WHAT IS THE NIHR CLAHRC NWC NEIGHBOURHOOD RESILIENCE PROGRAMME?¹

The NIHR Collaboration for Leadership in Applied Health Research and Care for the North West Coast (CLAHRC NWC²) is undertaking an innovative programme known as the Neighbourhood Resilience Programme (NRP). NRP aims to shift the policy and practice focus beyond the resilience of people living in disadvantaged neighbourhoods, to engagement with neighbourhoods as *systems* and how the collective resilience of those living/working in neighbourhoods and that of the public, private and voluntary organisations, can be enhanced.

In recent years, resilience inspired thinking has begun to exert an increasing influence over the development of both health and public health policy agendas in the United Kingdom. Policy documents and health journals are replete with references to resilience, for instance, in the context of patients' as they seek to manage their chronic conditions or in relation to disadvantaged communities as they cope with significant socio-economic hazards to health that are affecting their neighbourhoods.³ Typically, however, these interpretations are narrowly framed, in that resilience is understood as a specific property of individuals, communities, organisations or systems (e.g. the health system). An individual or one-dimensional approach to building resilience assumes that people and organisations are largely independent of the wider socio-economic, environmental and governance context in which they live and function. Just promoting individual or community resilience alone is not enough to improve the social determinants of health. Rather than an individualised or singular property, an alternative conceptualisation is to understand resilience in a holistic multi-dimensional and interconnected sense, as a collective characteristic of all individuals, actors and agencies living, working and operating within a certain place or geography. Seen from this perspective, resilient communities are those that possess the capability to take 'intentional action to enhance the personal and collective capacity of its citizens and institutions to respond to and influence the course of social, economic and environmental change.'⁴ From both theoretical and empirical standpoints, this definition is useful because resilience is understood as a shared property of both individuals and 'collectives' and it locates communities (of place or interest) in the same 'system' as institutions. It also suggests that resilience is not only a state or condition but also a dynamic process or 'programme of action' that connects and utilises all the 'adaptive capacities' available to a community. This points towards a 'whole systems' understanding of resilience, which we have called a systems resilience approach. We argue that enhancing resilience at a systems level is essential to releasing the collective capabilities of residents and the representatives and their organisation that provide and commission the services on which they rely.

¹ All authors are funded/part funded by the National Institute for Health Research, Collaboration for Leadership in Applied Health Research and Care North West Coast (NIHR CLAHRC NWC). The views expressed are those of the author(s) and not necessarily those of the NHS, the NIHR or the Department of Health.

² More information on the programme is available at: <http://www.clahrc-nwc.nihr.ac.uk/index.php>.

³ Amery, F. (2017) Gender and resilience-thinking in the UK: New policy paradigm or neoliberal orthodoxy? In: *European Conference on Politics and Gender*, 2017-06-08 to 2017-06-10, University of Lausanne.

⁴ Colussi, M.M. *The Community Resilience Manual*. Canadian Centre for Community Renewal; 2000.

The NRP operates in nine 'Neighbourhoods for Learning' (Nsfl), chosen by our eight local authority partners⁵ as ward-sized neighbourhoods with relatively poor health. The primary objective of the NRP is to contribute to enhancing 'systems resilience' in these neighbourhoods, to improve the social determinants of health inequalities.

THE PURPOSE OF THE VERY RAPID REVIEW

This Very Rapid Review (VRR) of the evidence on the topic of addressing littering and fly tipping was conducted in response to a request from the Mill Hill and Wensley Fold Neighbourhood for Learning (NfL) in the local authority area of Blackburn with Darwen (BwD), Ellesmere Port Town NfL in Cheshire West and Chester and St Georges NfL in Preston, Lancashire. This VRR will support these programmes of work, which are aimed at improving the condition of the local environment in these Nsfl.

The review explores the evidence base in relation to identifying the most effective local or neighbourhood scale preventative littering and fly tipping initiatives. Particular attention will focus on those initiatives that specifically support neighbourhood systems resilience action (see above for description).

It is important to note that by design VRRs are not intended to be comprehensive in scope, rather they provide a 'snapshot' of some of the available evidence that is focused on a tightly defined topic or closely related set of topics.

METHOD

The Web of Science (WOS) was used as the primary tool to search the current academic and research literature. This tool enables researchers to conduct comprehensive citation searches through access to multiple databases that reference cross-disciplinary research. The timespan for the searches encompassed the period between 2000-2018 to ensure that only the most contemporary sources were identified.

Those articles with an emphasis on local and community focused preventative littering and fly tipping initiatives, especially within the UK, were the main focus of attention. Abstracts of papers were rapidly reviewed to ascertain their relevance to the research focus. Based on this, papers deemed to be relevant were downloaded or collected and reviewed in more depth.

Using a basic search on the 'topic' field, 'refined' to encompass academic papers only, the keyword/phrase search terms used on the Web of Science system were:

- *Search term: Litter* AND disadvantaged areas*
This search returned 15 citations - one was identified and initially assessed, but it did not inform the review (Date searched: 16/08/18).
- *Search term: Street litter* AND communities**

⁵ Lancashire County Council (has two neighbourhoods), Cumbria CC, Blackpool Borough Council, Blackburn with Darwen BC, Knowsley BC, Sefton BC, Liverpool City Council and Cheshire West and Chester Council. Lancaster City Council has recently joined the Public Health Theme.

This search returned 30 citations - one was identified and initially assessed, although it did not inform the review (Date searched: 16/08/18).

- *Search term:* Litter* AND behav* change

This search term was more successful, returning a total of 1,614 citations – nine were identified and initially assessed, five of which were relevant to this VRR. (Date searched: 18/08/18).

As can be seen, initial searches on WOS produced a relative paucity of returns of relevant citations. Consequently, it was decided to conduct further searches using the Google Scholar search tool (also complemented by generic Google searches) utilising the key words that were employed during the WOS searches. These searches unearthed a range of academic 'non-academic' policy literature, which were more relevant to this review. This literature is referenced in the footnotes of this review.

It is important to note that a number of additional sources were also identified from 'snowballing' references in papers and reports that had been initially retrieved.

INTRODUCTION – WHAT IS LITTERING AND FLY TIPPING



Littering, fly tipping and associated environmental damage have been an enduring public policy problem for decades, which policy makers have struggled to address.

There are a range of definitions of littering. The Scottish Government's definition of litter or littering is:

...waste in the wrong place. It can be any man-made material or item associated with food. It includes banana skins, apple cores, food and drink packaging, cigarette butts and chewing gum.⁶

⁶ Natural Scotland, Scottish Government (2014) *Zero waste towards a litter-free Scotland: A strategic approach to higher quality local environments*. Available at: <https://www.gov.scot/Resource/0045/00452542.pdf>. Accessed on: 30/08/18.

Interestingly, in England there is no statutory definition of litter. The House of Commons Library⁷ define litter as:

... most commonly assumed to include materials, often associated with smoking, eating and drinking, that are improperly discarded and left by members of the public; or are spilt during business operations as well as waste management operations.

Another widely accepted definition of litter (e.g. used by Keep Britain Tidy) is 'waste in the wrong place caused by human agency' (Zero Waste Scotland: 2013: 5⁸). As Zero Waste Scotland (2013: 5-6) point out:

... littering behaviours are more complex than might be expected; in addition to simply 'dropping' litter, it includes other sub-behaviours such as folding litter up and tucking it into small spaces, placing litter down carefully in a chosen location, and leaving litter nearby for a length of time before abandoning it.

However, littering becomes 'fly tipping' when 'a single plastic sack of rubbish' is discarded or left in an inappropriate location.⁹ More specifically fly tipping is defined as:

... the illegal disposal of household, industrial, commercial or other 'controlled' waste without a waste management licence. The waste can be liquid or solid.¹⁰

'Fly tippers' can receive a maximum of a £400 Fixed Penalty Notice. It should be noted that fly tipping is a criminal offence, for which offenders can receive a range of punishments including significant fines, penalty notices or in severe cases even imprisonment.¹¹

Three types of offenders are responsible for fly tipping incidents: 'Private households who flytip typically small amounts of their own domestic waste, commercial businesses who also flytip comparatively small amounts of their own waste, and organised offenders who flytip waste that is likely to have originated with others, often on a larger scale' (Zero Waste Scotland, 2017: 25).¹²

Dog fouling is also a separate offence from littering.¹³

⁷ House of Commons Library, Briefing Paper, Number CBP06984, 21st July 2017. *Litter*.

⁸ Zero Waste Scotland (2013) *Scotland's Litter Problem. Quantifying the scale and cost of litter and flytipping*. Zero Waste Scotland: Stirling.

⁹ Ibid.

¹⁰ House of Commons Library, Briefing Paper, Number CBP05672, 25th June 2018. *Fly-tipping - the illegal dumping of waste*.

¹¹ Fly tipping is 'punishable by a fine of up to £50,000 or 12 months imprisonment if convicted in a Magistrates' Court. The offence can attract an unlimited fine and up to 5 years imprisonment if convicted in a Crown Court. There are also a number of other possible penalties, including fixed penalty notices and having a vehicle seized.' See: UK Parliament Website, House of Commons Library. *Fly-tipping - the illegal dumping of waste*. Available at: <https://researchbriefings.parliament.uk/ResearchBriefing/Summary/SN05672>. Accessed on: 31/08/18.

¹² Zero Waste Scotland (2017) *Evidence Review of Flytipping Behaviour*. Zero Waste Scotland: Stirling.

¹³ Ibid.

Another term related to littering and fly tipping is refuse. This term refers to a broad range of waste or rubbish from either household and/or commercial sources as well as fly tipping.

IMPACTS OF LITTERING AND FLY TIPPING

Littering and associated environmental degradation have become a growing problem, not only in the developed world but across all parts of the globe. Littering as the saying goes, knows no international boundaries. Driven by the growth in consumerism and the 'disposable society' alongside a massive increase in packaging, paper, plastics and other 'throw-away' products, littering continues to blight and physically damage the living and natural environment.

Not only does littering and fly tipping despoil the appearance of the environment but residing in locations that are heavily littered and environmentally degraded can be detrimental to 'community spirit, well-being and health' (Kolodko, Read and Taj, 2016: 2¹⁴). On the other hand, an 'appealing landscape' can have positive impacts on mental well-being, as well as contribute to greater levels of social well-being (Abraham, Sommerhalder and Abel, 2010: 59¹⁵).

FACTS AND FIGURES RELATING TO LITTERING AND FLY TIPPING

As a form of littering, UK government data suggests that fly tipping has been on the increase in recent years. Between the years 2007-08 and 2013-14 fly tipping incidents fell steadily, only to rise year on year since this period.¹⁶ Department for Environment, Food and Rural Affairs (DEFRA) fly tipping data¹⁷ shows that:

- during the year 2016-17, English local authorities recorded a seven percent increase in fly tipping;
- around two-thirds of fly tipping incidents consisted of household waste, an increase of eight percentage from the previous year;
- fly tipping most commonly occurs on highways, accounting for 49% of incidents over the period 2016-17;
- the most common category for incidents of fly tipping was the 'small van load' size accounting for 33% of total incidents, followed by deposits equivalent to the 'car boot' (27%), during the period 2016-17;
- the cost to local authorities of clearing fly tipping incidents across England was nearly £58 million 2016-17;
- there were around 474,000 fly tipping enforcement actions in 2016-17 at an estimated cost of £16 million (20,000 fewer than the previous year);

¹⁴ Kolodko, J., Read, D. and Taj, U. (2016) *Using behavioural insights to reduce littering in the UK*. Clean up Britain. Available at: <http://www.nudgeathon.com/wp-content/uploads/2016/01/CLUB-REPORT.pdf>. Accessed on: 14/09/18.

¹⁵ Abraham, A., Sommerhalder, K. and Abel, T. (2010) Landscape and well-being: a scoping study on the health-promoting impact of outdoor environments. *International Journal of Public Health*, 55(1), 59-69.

¹⁶ See: DEFRA. *Fly-tipping statistics for England, 2016/17*. 19th October 2017. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/652958/Flytipping_201617_statistical_release_FINAL.pdf Accessed on: 29/08/18.

¹⁷ Ibid.

- however, fixed penalty notices increased by 56% to 56,000 in 2016-17, which is the second most common enforcement action (after investigations).

More generally, there is no accepted method for measuring litter (Dickinson, 2018), which inhibits systematic analysis of the extent of the problem. As DEFRA point out:

- measuring litter by *weight* means we do not know whether there was a small number of heavy items or a large number of small/light items;
- measuring litter by the *number* of items does not necessarily reflect the impact on visual amenity, because a small number of large litter items may make a place appear far more heavily littered than a greater number of small items;
- measuring only the *presence* or *absence* of litter tells us nothing about how long the litter has been there, or how much of it is present.

In response to this measuring conundrum, in February 2017, DEFRA published a new 'dashboard' of indicators relating to litter in England between 2016-17.¹⁸ The so-called dashboard approach aims to develop an understanding of the impacts of litter across England in a way that is 'impartial, affordable and statistically reliable'.¹⁹ The litter dashboard was developed by the grandly titled 'Litter Strategy Working Group for Data and Monitoring' with five indicators or 'angles' to assess and monitor litter 'not just the amount of litter, which is necessarily hard to quantify, but also the public's behaviour and attitude towards it' (Dickinson, 2018: no page numbers).²⁰ The five angles are:

1. Litter on the ground, including beach litter;
2. Public perception of litter;
3. Cleanliness of public places;
4. Getting people involved, and
5. The cost of keeping the streets clean.

Dashboard figures for April 2016 to March 2017 show²¹:

¹⁸ DEFRA website: *Litter and littering in England 2016 to 2017*. Available at: <https://www.gov.uk/government/publications/litter-and-littering-in-england-2016-to-2017/litter-and-littering-in-england-2016-to-2017>. Accessed on: 19/08/18.

¹⁹ Ibid.

²⁰ Dickinson, K. 'No perfect way to measure litter' AS DEFRA creates stats dashboard, Resource Magazine, 14th February 2018. Available at: <https://resource.co/article/no-perfect-way-measure-litter-defra-creates-stats-dashboard-12403>. Accessed on: 20/08/18.

²¹ The litter dashboard is available at: <https://www.gov.uk/government/publications/litter-and-littering-in-england-2016-to-2017/litter-and-littering-in-england-2016-to-2017>. Accessed on: 19/08/18.

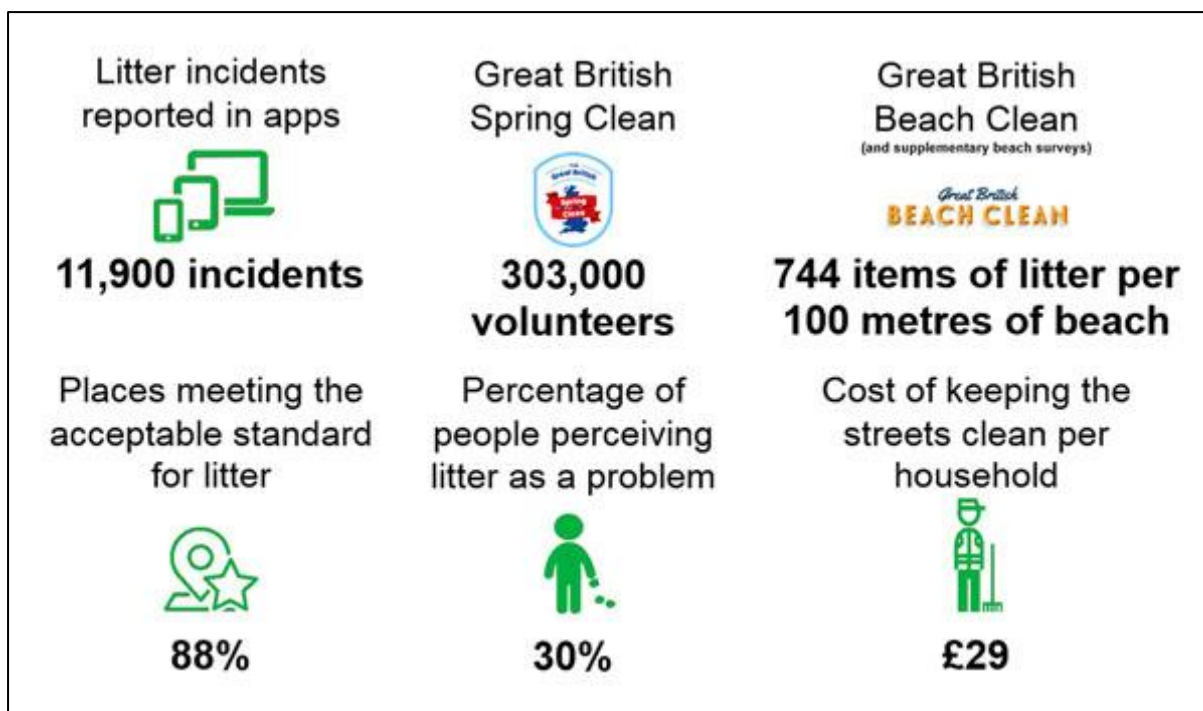


Table 1: Litter dashboard

The data sources used by the dashboard includes the ‘citizen-science’ data from the Love Clean Streets smartphone app that records litter incidents, data from the Great British Spring Clean, the Great British Beach Clean, data collected for the Crime Survey for England and Wales (which provides a picture of the public perception of litter²²) and ‘data self-submitted by 32 local authorities to the Association of Public Service Excellence (APSE), along with a supplementary survey of 12 further authorities based on the four grading standards of cleanliness defined in the Code of Practice on Litter and Refuse²³ (see below for more details). The dashboard is intended to be a long term measuring tool, updated year on year to make use of continually changing data from the sources and surveys utilised in this iteration, helping Defra to inform policy development and assess progress over time (Dickinson, 2018: no page numbers).²⁴

The types of littering

Responses from the Love Clean Streets app provides an overview of the types of littering occurring in Great Britain (see table below).

²² DEFRA, *Litter Strategy for England: First annual report (2017-2018)*, July 2018. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/727987/litter-strategy-annual-report-2017-2018.pdf. Accessed on: 30/08/18.

²³ DEFRA, 2006. *Code of Practice on Litter and Refuse*.

²⁴ Dickinson, K. ‘No perfect way to measure litter,’ as DEFRA creates stats dashboard, Resource Magazine, 14th February 2018. Available at: <https://resource.co/article/no-perfect-way-measure-litter-defra-creates-stats-dashboard-12403>. Accessed on: 20/08/18.

Table 2: Litter recorded on mobile phone apps in the Great British Spring Clean, 3-5 March 2017²⁵

Litter	Percentage of litter recorded (3,226 items in total)
Food and food packaging	23%
Alcoholic drinks	22%
Non-alcoholic drinks	20%
Other, including tissues	13%
Smokers' litter	12%
Chewing gum and wrappers	5%
Dog faeces	5%

Unsurprisingly, food and food packaging formed the single highest proportion of litter. Taken together, discarded alcoholic or non-alcoholic drinks waste was the largest source, accounting for 42% of litter recorded. Accounting for around two-thirds of recorded litter, food/food packaging and drinks wastes are the primary sources of littering. Similarly, the Keep Britain Tidy's Local Environmental Quality Survey of England 2014-15 found that the most prevalent litter types were: smokers' materials, confectionery packs, non-alcoholic drinks related litter and fast food litter.²⁶

Location and socio-economic factors also impact on the extent of littering and fly tipping. The Local Environmental Quality Survey of England 2014-15 revealed that the most deprived areas of England have the highest levels of litter, graffiti and dog fouling. The difference in littering and fly tipping between deprived and affluent areas is significant. Keep Britain Tidy found that only two per cent of sites in the most affluent areas have an unacceptable standard for litter, whilst in the most deprived areas this figure is significantly higher, rising up to 25% in some locations.²⁷

The overall costs of addressing littering are significant. Over the period 2016-17, it cost English local authorities an estimated £682 million to clean the streets and surrounding

²⁵ Source: Keep Britain Tidy, Love Clean Streets.

²⁶ Keep Britain Tidy (2015) *How clean is England? The Local Environmental Quality Survey of England 2014/15*. Available at: http://www.keepbritaintidy.org/sites/default/files/resources/KBT_How_Clean_Is_England_LEQSE_Report_2015.pdf. Accessed on: 04/09/18.

²⁷ Ibid.

environment, which is equivalent of £29 per household.²⁸ As such, this is a significant and unnecessary drain on public finances during a time of austerity.

The grading of cleanliness

The Code of Practice on Litter and Refuse (2006) grades the cleanliness of areas and locations across four levels in relation to the extent to which they are litter and refuse free. In alphabetical order the grading standard runs from A to D, with A being the 'gold standard' representing the highest levels of cleanliness.

Grading standard	Description
Grade A	No litter or refuse.
Grade B	Predominately free of litter and refuse apart from some small items.
Grade C	Widespread distribution of litter and/or refuse with minor accumulations.
Grade D	Heavily affected by litter and/or refuse with significant accumulations.

Table 3: Grading of cleanliness

The Government recognise that the Grade A standard 'cannot be maintained at all times, and the presence of a few small items of litter and refuse, not yet accumulating, are regarded by the public as acceptable for short periods of time' (DEFRA, 2006: 14).²⁹

UK Government action to address litter and fly tipping in England

In relation to England,³⁰ the UK Government published its first littering strategy in April 2017. There were 36 actions produced of which four have been completed to date. Some headline priorities identified include:

- Deliver a world class national anti-littering campaign.
- Launch new Litter Innovation Fund.
- Support local authorities in collaborating to co-ordinate cleaning.
- Review and update guidance on "Reducing litter caused by 'food on the go': A voluntary code of practice for local partnerships."
- Lay regulations which allow English councils to fine the keeper of a vehicle from which litter is thrown.
- Review the case for increasing the fixed penalties for littering.

²⁸ Recycling and Waste World website. *Defra publishes litter dashboard to inform future strategy*. 13th February, 2018. Available at: <http://www.recyclingwasteworld.co.uk/news/defra-publishes-litter-dashboard-to-inform-future-strategy/168563>. Accessed on: 04/09/18.

²⁹ DEFRA, 2006. *Code of Practice on Litter and Refuse*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/221087/pb11577b-cop-litter.pdf. Accessed on: 29/08/18.

³⁰ The other national Governments of the UK are responsible for littering strategies and legislation in their territories, indeed the Scottish Government introduced a national strategy for littering in Scotland in 2014.

- Encourage all businesses to work in partnership with their local communities to help tackle littering near their premises and create clean, welcoming public spaces which are attractive to customers and staff.

Other new initiatives include the proposed introduction of a deposit return scheme (DRS) in England during 2018. This will see the introduction of a DRS for single-use drinks containers made from plastic, glass or metal. Operationally, the DRS will involve consumers paying an 'additional charge on a drinks container, which is then redeemed upon the return of the bottle to a designated location, such as a 'reverse vending machine'' (Cole, 2018).³¹ The purpose of the Deposit Return Scheme (DRS) is to target so called 'on the go recycling'³² and prioritise materials which are not universally collected at the kerbside and are currently hard to recycle. While the introduction of the DRS has been almost universally welcomed by the waste recycling sector and policy makers, local authorities have raised concerns that any scheme should not undermine existing local authority operations and 'prioritise materials which are not universally collected at the kerbside' (LARAC, 2018: 3³³). Discussion have also taken place to explore whether a UK-wide DRS scheme should be introduced rather than separate schemes for each of the four component nations of the UK (Carrington, 2018³⁴).

Enforcement initiatives have also featured in the UK Government's anti-littering policy agenda, with the maximum Fixed Penalty Notice (FPN) for littering, graffiti and littering from vehicles having been increased from £80 to £150, effective from April 2018.³⁵ For the first time, these fines will also apply to vehicle owners, if there is proof that litter has been discarded from their vehicle (BBC, 2018³⁶).

The role of local authorities

Statutorily local authorities are responsible for littering, fly tipping, graffiti removal, refuse collection, street cleansing and dog fouling. Councils are also responsible for all highways within their boundaries, apart from roads for which the Highways Agency is responsible. In relation to fly tipping, local authorities manage small, localised incidents of fly tipping. The

³¹ Cole, R. *Government to introduce deposit return scheme in England this year*. Resource, 28th March 2018. Available at: <https://resource.co/article/government-introduce-deposit-return-scheme-england-year-12486>. Accessed on: 09/09/18.

³² 'Recycle on the Go (RotG) facilities enable people to recycle "valuable" materials like newspapers, bottles and cans while away from home or the workplace.' Zero Waste Scotland (2012: 4) *Recycle on the go. A guide for organisations managing or implementing recycle on the go infrastructure*. Available at: <http://www.wrap.org.uk/sites/files/wrap/ZWS165%20RotG%20Guidance%20final.pdf>. Accessed on 18/09/18.

³³ LARAC - The Local Authority Recycling Advisory Committee. *The future of local authority waste funding a LARAC policy paper*, 11th April 2018. LARAC, Knighton. Available at: <https://ciwm-journal.co.uk/wordpress/wp-content/uploads/2018/04/LARAC-POLICY-PAPER-The-Future-of-LA-Waste-Funding-0418.pdf>. Accessed on 18/09/18.

³⁴ Carrington, D. *Bottle and can deposit return scheme gets green light in England*. The Guardian, 27th March 2018. Available at: <https://www.theguardian.com/environment/2018/mar/27/bottle-and-can-deposit-return-scheme-gets-green-light-in-england>. Accessed on: 19/09/18.

³⁵ DEFRA Website. *Fixed penalty notices: issuing and enforcement by councils*. Available at: <https://www.gov.uk/guidance/fixed-penalty-notices-issuing-and-enforcement-by-councils>. Accessed on: 31/08/18.

³⁶ BBC Website. *Increased fines for 'litter louts' come into effect*. 1st April 2018. Available at: <https://www.bbc.co.uk/news/uk-england-43609325>. Accessed on: 18/09/18.

Environment Agency is responsible for more serious incidents of fly tipping. Councils issue enforcement penalties (i.e. Fixed Penalty Notices) for littering and fly tipping offences.

In terms of policy and practice, local authorities 'must have regard to the code of practice on litter and refuse which explains how different types of land should be kept clear.'³⁷ This requires Councils to consider the code, which must be adhered to unless there are clear, justifiable reasons not to do so.³⁸

Specific powers to tackle fly tipping and littering incidents are set out under two pieces of legislation.³⁹ The Environmental Protection Act 1990 including, Section 59 which gives powers to local authorities and the Environment Agency to issue a notice requiring "removal of waste unlawfully and knowingly deposited". Section 87 of the same Act describes littering as a criminal offence. Section 88 outlines fixed penalty notices for littering. The Clean Neighbourhoods and Environment Act 2005 updates the Environmental Protection Act 1990 and provides local authorities with increased enforcement powers in relation to fly tipping and littering.

THEORETICAL UNDERSTANDINGS OF LITTERING

As Shukor et al (2012: 2) note, littering was one of the environmental issues that led to the emergence of 'systematic behavioural research,' which began around 40 years ago. Supporting or inducing behavioural change in society is a highly complex area of study and a challenging intervention to implement in practice. In an evidence review of littering behaviour, Zero Waste Scotland (2013: 11) comment that:

Policy makers and practitioners are drawing increasingly on behavioural theories to help them understand such motivations and barriers and to shape the design of interventions. There are many strands of theory and behavioural models to choose from (psychology, sociology, behavioural economics and so on) and no consensus on which is 'best'. Recent practical guides to the theory have suggested that, while it is important not to lose sight of where behavioural models came from originally, practitioners can usefully draw on the insights provided by a range of different approaches.

A range of studies have explored behavioural determinants of littering and fly tipping (For example: Kolodko and Read⁴⁰, 2018; Zero Waste Scotland, 2013; Cialdini, 1990; ⁴¹ Schultz et al, 2011⁴²). Littering behaviour is a complex phenomenon encompassing a plethora of

³⁷ Department for Environment, Food & Rural Affairs (2015; updated 2018) *Guidance: Litter and refuse: council responsibilities to keep land clear*. Available at: <https://www.gov.uk/guidance/litter-and-refuse-council-responsibilities-to-keep-land-clear>. Accessed on: 18/09/18.

³⁸ Ibid.

³⁹ More information of the statutory powers of local government in relation to littering can be found at: WRAP website. *Littering and fly tipping*. Available at: <http://www.wrap.org.uk/sites/files/wrap/Littering-and-flytipping.pdf>. Accessed on: 19/09/18.

⁴⁰ Kolodko, J. and Read, D. (2018) Using behavioural science to reduce littering: Understanding, addressing and solving the problem of litter. *Journal of Litter and Environmental Quality*, May 2018, Volume 2, Number 1, 21-36.

⁴¹ Cialdini, R., Reno, R. and Kallgren, C. (1990) A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology*, 58(6) 1015-1026.

⁴² Schultz, P.W., Bator, R.J., Large, L.B., Bruni, C.M. and Tabanico, J.J. (2011) Littering in context: personal and environmental predictors of littering behavior. *Environ. Behav.*, 45, 35-39.

'different disposal practices' (Zero Waste Scotland, 2013: 15). As Zero Waste Scotland (2013: 15) observe:

Littering behaviour is therefore not a single, easily defined behaviour, but a concept that includes a broad range of sub-behaviours. For example, a study in Australia⁴³ found that litter is often not simply dropped or left behind but is deliberately placed in certain locations. A high proportion of such littering occurs in locations where litter can be hidden, or in places resembling litter bins, for example in bushes or pot planters. The authors note that this is all the more surprising as people often go to a great deal of trouble to place their litter carefully in locations like these, while ignoring nearby bins.

A study of students in New Zealand by Sibley and Liu (2003)⁴⁴ led to conceptualise littering behaviour as either active or passive. This concept is based on the 'latency' or period of time litter is dropped or deposited. If someone is walking along and drops or casually throws away their litter this can be seen as 'active littering', as the process of disposing of the litter and vacating the area is immediate. Alternatively, passive littering behaviour occurs when there is latency or a time delay between disposal of the litter and a person leaving the area where the litter item is discarded. Based on this conceptualisation, the following four independent types of littering behaviour were identified: i) active littering; ii) active nonlittering; iii) passive littering; iv) and passive nonlittering (see Table 4).

Table 4: Definitions of Active and Passive Littering and Nonlittering⁴⁵

	Active	Passive
Littering	Litter is kept in hand while occupying an area; when leaving, litter is <i>placed in the area</i> (e.g. persons drop some packaging on the ground and continue walking along a path).	Litter is placed in an area that is occupied; when leaving the area, <i>litter is left behind</i> (e.g. persons place their packaging on the park bench where they are sitting; later, when they vacate the bench, they leave the litter there).
Non-littering	Litter is kept in hand while occupying an area; when leaving the area, <i>litter is taken</i> (e.g. persons keep hold of their packaging while walking along a path and place it in a litter bin).	Litter is placed in an area that is occupied; when leaving the area, <i>litter is retrieved</i> (e.g. persons place their packaging on the park bench where they are sitting; later, when they vacate the bench, they pick their litter up and take it with them).

Sibley and Liu (2003: 416) argue that littering can be seen as a 'two-stage' process involving '(a) the placement of litter in a proximal location in the environment and (b) the subsequent failure to remove that litter when vacating the immediate area. The results of the study suggested that 'once persons have placed their litter in a territory they are currently

⁴³ Curnow, R. and Spehr, K. (2011) *Influencing Social Change by Engaging the Community in a Holistic Evaluation Methodology*. Paper presented at the Australasian Evaluation Society International Conference, Sydney, Australia, 29th August - 2nd September 2011.

⁴⁴ Sibley, C.G. and Liu, J.H. (2003) Differentiating active and passive littering. A Two-Stage Process Model of Littering Behavior in Public Spaces. *Environment and Behavior*, Vol. 35, No. 3, May 2003, 415-433.

⁴⁵ See Sibley and Liu (2003: 416), Op. cit.

occupying, it will be relatively more difficult to influence them to pick it up again and take it with them than if they had continued to hold onto it' (Sibley and Liu, 2003: 428). Interestingly, it was found that passive littering occurred at a higher rate and therefore was more resistant to behavioural change than active forms of littering. Sibley and Liu (2003) speculate that passive littering behaviour by its nature is covert or less obvious and visible, with the result that there is a reduced risk of negative social consequences for those behaving this way. In addition, passive litterers may have genuinely forgotten to retrieve their litter if it was left for a long period of time. A similar kind of absent mindedness or minimal effort attitude towards littering was identified in a study in the United States regarding littering from vehicles which found that pick-up drivers were not making a 'thorough job of covering or securing their loads' because their focus of attention was 'on the task with which they are involved and, as a result, many seemed to cover or secure their load to the degree that it would get them by, and no more' (Sharp Hartwig, Inc, 2001: 4).⁴⁶

Analogous with the passive and active conceptualising of littering, research conducted in Wales⁴⁷ identified three behavioural groups who displayed particular attitudes towards littering. For 'Litter Louts', littering is an ingrained social habit, with the social and environmental impacts of littering being ignored or dismissed by these individuals. As a result, it is difficult to address behaviour of this group through standard interventions such as anti-littering campaigns. The so-called 'Not My Fault' group view litter as someone else's problem or responsibility to address. Those individuals who are categorised as 'Does That Count', still discard litter if they can do this surreptitiously or without being seen by others, although they may feel guilty for engaging in this behaviour.

Research undertaken by Zero Waste Scotland (2013: 5) exploring the drivers of both littering behaviour and proper disposal highlighted that 'it is the tension between these two alternative courses of action which determines whether or not litter is dropped.' Zero Waste Scotland (2013) has developed a conceptual framework setting out the factors that influence these two behaviours in individuals:

Table 5: Factors underlying littering behaviours

The Personal	The Social
Which refers to personal attributes and influences, including aspects such as values, attitudes, identity and personal norms (e.g. feelings of responsibility and a sense of agency).	Which refers to the influence on our thinking and behaviour from the wider social context, including social norms (established or accepted ways of behaving), cultural conventions and shared understandings.
Habits	The Material
Which refers to patterns of behaviour which	Which refers to the context in which behaviours

⁴⁶ Sharp Hartwig, Inc (2001) *Litter and it will hurt: A Three Year Campaign Plan*. Prepared for the Washington State Department of Ecology. Available at: <https://fortress.wa.gov/ecy/publications/documents/0107043.pdf> Accessed on: 11/09/2018.

⁴⁷ Keep Wales Tidy (2010) *Litter in Wales: Understanding Littering and littering*. Prepared by Beaufort Research. Available at: http://www.keepwalestidy.org/research/0415litter_perception_summary_report%5b1%5d.pdf. Accessed on: 17/09/18.

individuals carry out almost automatically; in other words, unconscious drivers of behaviour which result from becoming 'locked in' to certain patterns.

are formulated and acted out, which can enable or constrain particular kinds of behaviour. It can include, for example, services, infrastructure and technologies.

As Zero Waste Scotland (2013: 6) comment, these 'four types of influences interact and modify each other's effects.' This framework was built around earlier research by the Scottish Government and the notion of habits was incorporated into the framework from Triandis' model of Interpersonal Behaviour, as 'habitual influences' was viewed as being relevant in relation to explaining littering behaviour (Zero Waste Scotland, 2013). As Darnton (2008) points out, Triandis ranks habit as the primary factor determining behaviour and at its heart the theory of interpersonal behaviour and subsequent iterations of this approach challenge rational choice theory in that human behaviour and actions are not solely driven by rational thought or choice but often by emotions and habitual behaviours.⁴⁸

What are the specific causes of littering?

It is the case that most people at some point in their lives will have left litter in public spaces. For instance, research in Wales (Keep Wales Tidy, 2010: 4) found that half (50%) of the Welsh population were 'found to be litterers in that they had dropped [an item] instead of using a bin or taking it home.'⁴⁹

Whilst there is no archetypal litterer or demographic as such, there are certain social groups or behavioural characteristics that are associated with 'slightly higher predispositions to littering. These are:

- Age – younger people litter slightly more than older people, and are more willing to admit to littering;
- Gender – men drop slightly more litter than women do, and are also more willing to admit to littering; and
- Smoking – not only are smoking-related items littered more frequently than most other litter items, but smokers also tend to litter more in general, compared to non-smokers' (Zero Waste Scotland, 2013: 6).

Research on littering in Wales found that by far the most common source of littering comes from pedestrians, accounting for 88.4% of litter dropped on Welsh streets.⁵⁰

⁴⁸ Darnton, A. *Reference Report: An overview of behaviour change models and their uses*. Darnton, Centre for Sustainable Development, University of Westminster, July 2008.

⁴⁹ Keep Wales Tidy (2010) *Litter in Wales: Understanding Littering and littering*. Prepared by Beaufort Research. Available at: http://www.keepwalestidy.org/research/0415litter_perception_summary_report%5b1%5d.pdf. Accessed on: 17/09/18.

⁵⁰ Keep Wales Tidy (2016) *How clean are our streets? All Wales Local Environmental Audit and Management System Report 2016-17*. Available at: <https://www.keepwalestidy.cymru/Handlers/Download.ashx?IDMF=4fada00b-343c-416b-a813-b50fb01d7292>. Accessed on: 17/09/18.

There is insufficient evidence to establish whether there is a direct causal relationship between socio-economic status of the individual and their littering and disposal behaviour (Zero Waste Scotland, 2013). However, research suggests that geography and socio-economic factors can impact on the prevalence of littering and fly tipping. A report by Hastings et al (2009: 5)⁵¹, which investigated the cleanliness gap between different kinds of neighbourhoods in England and Scotland, stated that ‘... independent surveys show that on average more affluent neighbourhoods show a cleanliness level above the standard expected in national performance monitoring while for less affluent neighbourhoods the tendency is to perform below the standard.’ The research identified a range of ‘risk factors’ that contributed to poor street cleanliness that are ‘related to the demographic and social composition of neighbourhoods such as low income, child density and the proportion of young-adult households’ (Hastings et al, 2009: 6). It should be noted that these risk factors are an independent variable in that they have an impact in any location but are more prevalent in less affluent areas, ‘thus helping to explain *what it is* about deprived neighbourhoods that makes them more likely to have environmental problems’ (Hastings et al, 2009: 6). In addition, physical characteristics of neighbourhoods can also be an important determinant in that ‘high housing density, small or no gardens and disused buildings pose a risk for poor cleanliness whatever the deprivation level of the neighbourhood’ (Hastings et al, 2009: 6). Interestingly, there is also an equality dimension to outcomes in relation to addressing littering and poor street cleanliness. It was found that the mode of service delivery and the level of resources allocated to specific neighbourhoods or areas by public authorities are key factors in addressing poor cleanliness. The report concluded by stating that the research showed ‘clear evidence on the rationale for organising services according to need in order to tackle inequality’ (Hastings et al, 2009: 9) and that it is ‘possible to deploy mainstream street cleansing services⁵² in ways which close the gap in outcomes between more and less disadvantaged areas’ (Hastings et al, 2009: 72).

Zero Waste Scotland (2013) identify a range of other factors influencing people’s propensity to litter (see table 6 below).

⁵¹ Hastings, A., Bailey, N., Bramley, G., Croudace, R. and Watkins, D. (2009) *Street cleanliness in deprived and better-off neighbourhoods. A clean sweep?* Joseph Rowntree Foundation; York.

⁵² It is acknowledged in the report that there are significant technical and political challenges involved in achieving this goal.

Table 6 - Summary: Motivations for littering⁵³

<p style="text-align: center;">Personal</p> <ul style="list-style-type: none"> • Belief that it is someone else's responsibility to keep the space clean (lack of a sense of personal responsibility); • Feeling alienated or disenfranchised from a community; • Act of minor rebellion or social protest; rebellious identity; • Immediacy – dislike of holding on to litter (especially items considered messy or dirty); • Desire to keep own space clean and tidy. 	<p style="text-align: center;">Social</p> <ul style="list-style-type: none"> • Descriptive norm⁵⁴ that 'gives permission' for littering; • Lack of clear or consistent sense that littering is socially disapproved of; • Social networks of family and friends who also litter; • Immediate presence of peer group (for young people).
<p style="text-align: center;">Habitual</p> <ul style="list-style-type: none"> • Lack of thought given to littering; • Ingrained behavioural patterns. 	<p style="text-align: center;">Material</p> <ul style="list-style-type: none"> • Littered, graffitied, and run-down environments; • Presence of professional cleaners on site (visible or otherwise); • Anonymity provided by location.

Although focused on young people, research by Leijdekkers et al (2015)⁵⁵ identified a range of general determinants that influence levels of littering and fly tipping, which largely accorded with Zero Waste Scotland's findings (see below):

⁵³ See: Zero Waste Scotland (2013: 34).

⁵⁴ In other words: what other people are observed to be doing or deduced to be doing.

⁵⁵ Determinants of littering behaviour in: Leijdekkers, S., Marpaung, Y.M., Meesters, M., Naser, A-M., Penninx, M., van Rookhuijzen, M. and Willems, M. (2015) *Interventions on littering behaviour of youngsters. What are the ingredients?* (Page 6). Available at: [https://www.wur.nl/upload_mm/9/2/6/4beb526f-d6cc-4ac9-8bee-636a53de7068_Effective%20interventions%20on%20littering%20behaviour%20of%20youngsters%20\(Final%20Report%20ACT-group%201530\).pdf](https://www.wur.nl/upload_mm/9/2/6/4beb526f-d6cc-4ac9-8bee-636a53de7068_Effective%20interventions%20on%20littering%20behaviour%20of%20youngsters%20(Final%20Report%20ACT-group%201530).pdf). Accessed on: 04/09/18.

Attitude
<ul style="list-style-type: none"> • Perceived effect of littering • Laziness • Belief that others will clean • Receptivity • Size of packaging • Perceived biodegradability/packaging • Inconvenience of keeping the litter • Idea of getting caught
Subjective Norm
<ul style="list-style-type: none"> • Peer influence • Personal norms • Type of company • Sense of community • Group size • Crowding • Anonymity of environment
Perceived behavioural control
<ul style="list-style-type: none"> • Hurry
Environmental factors
<ul style="list-style-type: none"> • Existing litter level • Amount of bins • Distance to the bin • Fullness of the bin • Characteristics of the bin (attractiveness) • Distance to nearest supermarket • Penalties • Rewards

Table 7: Factors influencing littering behaviour

It is clear from the evidence that a number of overarching and interlinked factors contribute to higher levels of littering, not all of which are the result of individual behaviour or attitudes. These are: personal norms, behaviours and a sense of responsibility (i.e. people's ingrained beliefs, habits and attitudes towards littering, and sense of personal and social responsibility); environmental context (e.g. the state or condition of the environment; the quality and accessibility of the 'binrastructure' and the ease/convenience of disposal); social factors (e.g. the influence of social networks and prevalence of social approval/disapproval); enforcement,

penalties, rewards and benefits (e.g. enforcement officers, fines and incentivising people not to engage in littering).

INTERVENTIONS

Sibley and Liu (2003: 416) state that:

... litter reduction interventions commonly function through two general behavioural principles: first, by changing the antecedent conditions of littering behaviour using interventions such as prompts or the presence or absence of prior litter and second, by changing the consequences of littering behaviour through interventions such as rewards or penalties.⁵⁶

It is the case that the two main strands of anti-littering interventions have traditionally been: i) national or local public communications campaigns to persuade and educate a mass audience not to engage in various forms of littering behaviour, and ii) public authorities introducing penalties, regulations or laws to penalise individuals who litter (i.e. 'deterrent or enforcement approaches').

Public communications/PR campaigns appear to have some impact on littering behaviour. Zero Waste Scotland (2013: 44) state that 'large-scale, long-term campaigns, run by government (national or local) or publicly funded bodies, targeted at the general public, and frequently using mass media communications ... have achieved significant reductions in littering'.⁵⁷ However, the effectiveness of anti-littering campaigns are difficult to measure precisely and establish whether there is a direct clear causal link between these campaigns and other communications approaches and its effect on behavioural change.

There is mixed evidence as to whether 'deterrent' or 'enforcement' approaches, especially penalties or fines, have a significant impact on littering behaviour. Research by Lewis, Turton and Sweetman (2009: 25⁵⁸), which was based on UK data, found that there was 'no significant correlation between the use of fines and improvements in littering.' However, an evidence review conducted by Zero Waste Scotland (2013) quoted research in the United States which found that the 'threat of a litter picking community service as punishment is seen by most people as an extremely strong deterrent for littering behaviour, due to the embarrassment involved.' Research conducted in Wales indicated that enforcement action can be a deterrent to littering, and that 'awareness of fines is a deterrent as well as the fines themselves' (Keep Wales Tidy, 2010: 8).⁵⁹ However, it should be noted that most of the research relating to deterrent or enforcement approaches is based on attitudinal surveys of public perceptions, or 'self-reporting', rather than quantitative evidence.

⁵⁶ Sibley, C.G. and Liu, J.H. (2003) *Differentiating active and passive littering. A Two-Stage Process Model of Littering Behavior in Public Spaces*. Environment and Behavior, Vol. 35, No. 3, May 2003, 415-433.

⁵⁷ However, 'care should be taken when attributing impact to intervention, and impacts are reported in such varied ways that it is difficult to draw comparisons between interventions' (Zero Waste Scotland, 2013: 44).

⁵⁸ Lewis, A., Turton, P. and Sweetman, T. (2009) *Litterbugs. How to deal with the problem of littering*. London: Policy Exchange.

⁵⁹ Keep Wales Tidy (2010) *Litter in Wales: Understanding Littering and littering*. Prepared by Beaufort Research. Available at: http://www.keepwalestidy.org/research/0415litter_perception_summary_report%5b1%5d.pdf. Accessed on: 17/09/18.

Another common response to littering by public authorities, often supported by community organisations and businesses are infrastructural improvements (the so-called 'binrastructure' to facilitate disposal and access to recycling) and 'beautification' (e.g. planting and planters/floral displays) to enhance the appearance of public spaces and amenity. There is some limited evidence that infrastructural improvement and an improved appearance can have an impact on littering (Zero Waste Scotland, 2013). Enhancements to street or environmental cleansing services, improved maintenance regimes or the introduction of special cleansing or response teams are also initiatives that are commonly deployed to tackle littering and fly tipping. Service enhancements or changes can make significant contributions in efforts to reduce littering and fly tipping (Hastings, 2009⁶⁰). These initiatives are often linked to community environmental participation, the purpose of which is to educate the public and encourage community responsibility to protect the local environment.⁶¹

In summary, a number of factors can support and encourage disposal behaviour among the public (see table 8 below).

Table 8 - Summary: Motivations for proper disposal⁶²

<p style="text-align: center;">Personal</p> <ul style="list-style-type: none"> • Sense of personal responsibility for litter, and for the physical space; • Pride in local area or neighbourhood; • Respect for others; • Personal values and norms that are against littering; • Sense of guilt or embarrassment from littering; • Fear of the health impacts of litter. 	<p style="text-align: center;">Social</p> <ul style="list-style-type: none"> • Injunctive social norm of littering being unacceptable;⁶³ • Descriptive norm of other people not littering; • Being in the company of 'respectable' people; • Setting an example for children; • Immediate presence of peer group (for older age groups).
<p style="text-align: center;">Habitual</p> <ul style="list-style-type: none"> • Moments of change that break existing habits. 	<p style="text-align: center;">Material</p> <ul style="list-style-type: none"> • Threat of fines or other enforcement measures (although there are issues with believability); • Tidy/presentable area.

LOCAL ACTION TO TACKLE LITTERING AND FLY TIPPING

There have been a range of innovative local initiatives which aim to tackle littering and fly tipping. Below are a representative sample of initiatives that have taken place or are being considered by public authorities.

Walsall Council – prospective anti-fly tipping action⁶⁴

⁶⁰ Hastings, A., Bailey, N., Bramley, G., Croudace, R. and Watkins, D. (2009) *Street cleanliness in deprived and better-off neighbourhoods. A clean sweep?* Joseph Rowntree Foundation; York.

⁶¹ Sibieta, L. and Rogger, D. *An evaluation of different ways to incentivise citizens to co-produce public services in Lambeth*. IFS Briefing Note, BN184. July 2016. The Institute for Fiscal Studies: London. Available at: <https://www.ifs.org.uk/uploads/publications/bns/BN%20184.pdf>. Accessed on: 17/09/18.

⁶² See: Zero Waste Scotland (2013: 34).

⁶³ That is: stressing that people should not litter.

Walsall Council is currently discussing whether to trial several initiatives to encourage the disposal of waste after fly tipping incidents. Initiatives combine both a 'carrot and stick' approach and include:

- A free skip service for the deposit of bulky household items.
- Extended opening hours at two Household Waste Recycling centres in Leamore and Aldridge.
- Free kerbside collections of bulky household items.
- An increased reward for information leading to successful prosecution of 'fly tippers' – from £100 to £500.

The proposal for a free skip would see a receptacle located in each of the authority's 20 electoral wards for the deposit of bulky household items. Items placed in the skips would be collected by the Council, free of charge, on a designated 'skip day' each week. The proposal would see skips introduced on a 10-week trial basis, from 21st January to 31st March 2019. The total cost to the Council would be £1,840 per day.

These initiatives are in response to fly tipping incidents that have cost the Borough more than £426,000 in the last financial year.

Addressing fly tipping along with wider social inclusion objectives

Boston Borough Council has set up 'Operation Fly Swat' a project designed to tackle fly tipping and rehabilitate offenders. Working with a range of partners including the local prison, the project involved 'placement of offenders in the Council's Fly Swat team to help provide vocational experience and increase the Council's ability to detect and clear up fly tipping incidents.'

The Borough Council acts as project lead and has coordinated the project since October 2011, which involves a broad range of partners.⁶⁵ Offenders from HMP North Sea Camp go on placement at the Council's waste depot so they can benefit from work experience and engaging in the 'routine' of work. There is also an opportunity to gain vocational qualifications. The 'offender volunteers' do not replace paid employees, rather their work is additional to that already provided by partner agencies.

The project costs approximately £23,000 per annum, which is split between the partner organisations.⁶⁶ It is estimated that £350,000 worth of fly tipped refuse has been cleared for

⁶⁴ More information relevant to this section can be found at: BBC website. Walsall Council plans to install street skips to tackle fly-tipping, 30th August 2018. Available at: <https://www.bbc.co.uk/news/uk-england-birmingham-45355156>. Accessed on: 17/09/18. Dickinson, K. Walsall to trial free street skips to tackle fly-tipping, Resource, 31st August 2018. Available at: <https://resource.co/article/walsall-trial-free-street-skips-tackle-fly-tipping-12809>. Accessed on: 17/09/18.

⁶⁵ HM Prison North Sea Camp, South Holland District Council, Lincolnshire County Council, Environment Agency, Black Sluice, Witham Fourth, Welland and Deepings and South Holland Internal Drainage Boards, Longhurst and Havelok and Mayflower Housing Associations. See: Boston Bulletin Daily, March 15, 2016. *Operation Fly Swat: £350,000 worth of clean-up for just £60,000*. Available at: <http://www.boston.gov.uk/CHttpHandler.ashx?id=17533&p=0>. Accessed on: 19/09/18.

⁶⁶ Boston Council (no date) *Operation Fly Swat*. Available at: <http://www.tacklingflytipping.com/Documents/NFTPG-CaseStudies/A.pdf>. Accessed on: 19/09/18.

an investment of around £60,000 over a four year period (2012-2016) in the Boston borough and South Holland local authority areas.⁶⁷

However, no data could be found as to whether the project had lowered reoffending rates.

Southwark's Joined up Approach to Tackling Fly tipping⁶⁸

London Borough of Southwark's approach to addressing fly tipping involves working with local communities. Southwark's approach combines education with rigorous enforcement action. Anti-fly tipping educational and awareness-raising efforts takes place through the use of poster campaigns, information leaflets, engagement with schools and community groups. There are also schemes such as Street Leaders, Community Wardens, Street Action Teams and Community Councils. The Council has adopted a zero tolerance approach to enforcement action utilising the full range of legislative powers available to local government. Southwark also work closely in partnership with other key agencies which address fly tipping problems including the Driver and Vehicle Licensing Agency (DVLA), Metropolitan Police, Environment Agency and Community Wardens.

Addressing 'on-the-go' recycling

The city of Leeds is a site for an 'on-the-go' recycling project called '#LeedsByExample', which has been developed by the environmental behaviour change charity Hubbub and the recycling compliance scheme Ecosurety.⁶⁹

On-the-go recycling has been a major inhibitor in the UK's attempts to improve its recycling rate as many retail and leisure facilities etc (e.g. shopping centres) lack the necessary infrastructure to separately collect different forms of waste, especially empty food and drink containers and packaging.⁷⁰ The #LeedsByExample aims to address this issue by introducing a range of different recycling options to consumer hubs around the city centre, in partnership with Leeds City Council. There will be improved recycling infrastructure consisting of new street bins along with new recycling facilities in 'managed locations' such as universities, shopping centres, transport hubs and workplaces. At least 200 new or improved recycling bins will be installed around Leeds city centre, although these new receptacles will be the responsibility of local waste companies, not the City Council.⁷¹

An innovative aspect of the initiative is the first UK trial of a new app developed by OPRL (On-Pack Recycling Label) scheme, which will utilise on-pack barcodes to help the public

⁶⁷ Boston Bulletin Daily, March 15, 2016. *Operation Fly Swat: £350,000 worth of clean-up for just £60,000*. Available at: <http://www.boston.gov.uk/CHttpHandler.ashx?id=17533&p=0>. Accessed on: 19/09/18.

⁶⁸ National Fly Tipping Prevention Group website. *Southwark's Joined up Approach to Tackling Fly tipping*. Available at: <http://www.tacklingflytipping.com/Documents/NFTPG-CaseStudies/southw.pdf>. Accessed on: 11/10/18.

⁶⁹ Ecosurety is the leading compliance scheme investing in quality recycling for packaging, Waste Electrical and Electronic Equipment (WEEE) and batteries in the UK. See: Ecosurety website: Available at: <https://www.ecosurety.com/compliance/>. Accessed on: 19/09/18.

⁷⁰ Dickinson, K. Leeds to host new hubbub on-the-go recycling project, Resource, 27th June 2018. Available at: <https://resource.co/article/leeds-host-new-hubbub-go-recycling-project-12709>. Accessed on: 13/09/18.

⁷¹ Leeds City Council. Industry giants join forces to tackle 'on-the-go' recycling. 26th June 2018. Available at: <https://news.leeds.gov.uk/industry-giants-join-forces-to-tackle-on-the-go-recycling/>. Accessed on: 19/09/18.

understand what can be recycled and where, along with a map to find the nearest recycling facility.⁷²

The six-month campaign will launch on the 9th October 2018.

Community Summit and Community Litter Plan

The Angus area hosted the first community-led litter summit in Scotland in November 2017. The summit provided members of the public with an opportunity to discuss clean-up initiatives in the county alongside the local authority, Zero Waste Scotland and local community groups.⁷³

Funded by LEADER,⁷⁴ the summit was viewed as an example of 'community empowerment in action' with the aim of involving the public 'in a meaningful way to prevent littering in a more strategic and coordinated manner.'⁷⁵

Residents in the East Haven area of Angus have subsequently produced a community litter prevention action plan,⁷⁶ which links directly to the local authority's anti-litter strategy.

'Adopt a Street'

Adopt a street or place initiatives have been set up by a number of local authorities. The Angus local authority in Scotland has developed a comprehensive Adopt a Street scheme. The authority supports local volunteers by providing litter picking equipment and guidance, which is available at the local Access Office. Volunteers agree to be responsible for cleaning a designated street. The scheme is promoted through Angus Council's website and other communication channels such as an information leaflet. It is important to note that the scheme aims to enhance levels of street cleaning, not lead to a reduction or replacement for existing cleansing services provided by the authority.

Active community intervention - Leithers Don't Litter action group⁷⁷

Leithers Don't Litter, a local campaign and anti-litter action group in Edinburgh, has developed a reputation as a proactive community group tackling litter with a range of local initiatives. The group developed one of Scotland's first adopt a street schemes, which has inspired other community groups elsewhere to take forward similar initiatives in their localities. In addition, the group work with local schools, including a two-month educational programme with the local Leith Academy. At the end of the programme a litter-pick was organised with the pupils resulting in the collection of 100 bags of litter. Leithers Don't Litter also organises regular weekly litter-picks and holds two major local clean-up days annually.

⁷² Ibid.

⁷³ Strachan, G. *Community-led litter summit for Angus*. Courier.co.uk. Available at: <https://www.thecourier.co.uk/fp/news/local/angus-mearns/522382/community-led-litter-summit-for-angus/>. Accessed on: 20/09/18.

⁷⁴ LEADER programme is a European Union initiative supporting local rural development projects.

⁷⁵ Strachan, G. *Community-led litter summit for Angus*. Courier.co.uk. Available at: <https://www.thecourier.co.uk/fp/news/local/angus-mearns/522382/community-led-litter-summit-for-angus/>. Accessed on: 20/09/18.

⁷⁶ East Haven Together (2017) Litter Prevention Action Plan. Available at: <https://www.keepsotlandbeautiful.org/media/1560370/east-haven-lpap.pdf>. Accessed on: 20/09/18.

⁷⁷ Leithers Don't Litter website. *Introduction*. Available at: <https://leithersdontlitter.org/>. Accessed on: 19/09/18.

The group also printed 200 window stickers for display at takeaway shops to remind customers to dispose of their litter responsibly.

In May-June 2018 the group ran their innovative 'Flyspotting' campaign⁷⁸ which was developed for Changeworks' Zero Waste Leith project, aimed to prevent fly tipping. Flyspotting (which is a reference to the famous Trainspotting films), consisted of a number of components:

- The campaign appeared in social media continuously for six weeks including on Facebook, Twitter and Instagram platforms.
- Limited edition T-shirts and badges.
- A high profile campaign launch event and video on 13th May which created an 'on-street living room' from discarded furniture collected in Leith.
- A booklet distributed to 4,000 households offering advice to residents about tackling fly tipping.
- Bin stickers and pavement stencils.
- Indoor and outdoor posters.

According to Leithers Don't Litter, the campaign reached:

- Over 100,000 people reached on social media.
- Generated articles in the Edinburgh Evening News, Edinburgh Reporter, The Broughton Spurtle, was mentioned in the Scottish Parliament and on BBC Radio Scotland.

Findings from an online survey showed:

- 9 out of 10 respondents found the campaign useful.
- 85% of people now feel their community is better informed on how to tackle fly tipping.
- More than half of the respondents said they were now more willing to report fly tipping.
- Public awareness of the uplift cost (of collecting fly tipped refuse) increased by 50%.

Novel approaches to tackling litter - Ballot Bins

Ballot bins have been a novel approach used in some cities to tackle littering, especially cigarette litter. The behavioural psychology behind this approach is to 'make people stop and think' about litter. For example, in Edinburgh and London, the Hubbub organisation has installed double slot 'ballot' bins for general waste and cigarette butts. The bins provide a means for the public to vote with their rubbish, with humorous questions designed to attract

⁷⁸ Information for this section can be found: Zero Waste Leith (2018) Flytipping prevention campaign in Leith, 14th May - 30th June 2018. Available at: https://storage.googleapis.com/wzukusers/user-15462986/documents/5b6fe03d4bb0aCToZ2JF/Flyspotting_campaign_WEBsummary_12.08.18.pdf. Accessed on: 19/09/18.

the public's attention, for instance: 'Messi or Ronaldo?'⁷⁹ or 'Batman or Superman?' The public register a vote by placing the litter in a slot of their choice.

According to Zero Waste Scotland⁸⁰, the Edinburgh campaign received significant exposure within the city, with four out of five people interviewed associating the campaign with the issue of litter and 90% of business owners and employees in the area stating they were aware of it.

In London, the ballot bin campaign was focused on just one busy street. The impact of the campaign included:

- Cigarette butt littering reduced by 8% during the campaign, at one point dipping by 18%.
- Ballot bins collected 29% of a street's correctly disposed-of waste.
- Voting-by-bin went viral on social media.
- The campaign buzz drew 80 enquiries asking to use ballot bins in other areas.⁸¹

The Southend Business Improvement District installed 21 Ballot Bins in the summer of 2017. Southend-on-Sea Borough Council subsequently carried out a 12-week evaluation of the sites and a 46% reduction in cigarette litter was reported.⁸²

Most litter bins are designed to blend in with the surrounding street furniture or streetscape. The ballot bins are effective, certainly in the short term, as they stand out from the surrounding environment in a highly visible way (they are usually brightly coloured).⁸³ However, it is not clear from the current evidence whether this approach will lead to long term or sustained reductions in littering.

Charity collection points⁸⁴

The 'Bin it for Good' approach to littering has been developed in the city of Birmingham. Birmingham City Council turned high street bins into charity collection points.

The selling point here is that the more waste deposited will result in more money being donated to charity by the scheme's sponsors.

An innovative approach to litter and dog fouling enforcement

In 2013, Leeds City Council launched⁸⁵ a litter and dog fouling campaign, which included a reward scheme for residents who were seen by enforcement officers using litter bins. The

⁷⁹ 'Votes' on supporting questions appear to be the most popular. Local Government Association website. *Reducing cigarette butt litter*. Available at: <https://www.local.gov.uk/reducing-cigarette-butt-litter>. Accessed on 14/09/19.

⁸⁰ Zero Waste Scotland website. *7 top litter prevention campaigns from around the world*. Available at: <https://www.zerowastescotland.org.uk/litter-flytipping/top-campaigns>. Accessed on 14/09/19.

⁸¹ Ibid.

⁸² Local Government Association website. *Reducing cigarette butt litter*. Available at: <https://www.local.gov.uk/reducing-cigarette-butt-litter>. Accessed on 14/09/19.

⁸³ Zero Waste Scotland website. *7 top litter prevention campaigns from around the world*. Available at: <https://www.zerowastescotland.org.uk/litter-flytipping/top-campaigns>. Accessed on 14/09/19.

⁸⁴ Zero Waste Scotland website. *Using communications to promote behaviour change*. Available at: <https://www.zerowastescotland.org.uk/litter-flytipping/behaviour-change-communications>. Accessed on 14/09/19.

environmental patrols targeted high profile areas in the city centre and 'problematic hot spots' over a six month period.

The patrols acted as a visible reminder to residents and visitors to deposit their rubbish or dog waste in bins or take it home with them. The patrols also enforced littering and dog fouling laws. If the patrol witnessed anyone dropping litter or failing to pick up dog waste, a £75 fixed penalty notice was issued for these acts.

Community focused campaigns

Most local authorities at some point, often working alongside community organisations, have undertaken public information or education campaigns to educate and 'persuade' the public or businesses not to litter or fly tip.⁸⁵

Fenland District Council undertook a 'Tidy Fenland' anti-litter campaign design to encourage behaviour change, which used posters to highlight that eight out of ten people do not discard litter in public places. This approach was combined with a voluntary code of practice for businesses to support the campaign and the provision of bins to ensure business premises are kept litter free. The campaign has led to a 58% reduction in littering.

Mid Suffolk District Council hold Democracy Days that provide teenagers with an overview of the public realm/street cleaning service that the Council offers. The events explain the contribution Council Tax makes in terms of paying for cleansing services and the role of Council environmental operatives.

Some Councils have run very visual, shock-type campaigns. For instance, Sutton Council's anti-litter campaign began with an eleven tonne mountain of rubbish being placed in the middle of Sutton High Street to visually demonstrate the quantities of street litter that are collected by the local authority each day and the associated £4 million cost per year to tax payers.

Croydon Council's campaign focuses on tackling fly tipping through enforcement and community-based action. This work has led to support from more than 200 local volunteers and dozens of businesses. Over 200 residents have joined the Council's 'Don't Mess With Croydon – Take Pride' campaign, that aims to change long-term public attitudes to fly tipping and littering.⁸⁶

More than 30 businesses in one part of the Borough have signed a pledge to keep the area around their premises litter free. The Council aim to encourage shopkeepers across the whole of the Borough to become involved in the scheme, with local authority officers and elected members conducting regular 'walkabouts' to recruit more businesses to the scheme.

⁸⁵ Information in this section can be found at: Leeds City Council. *Council to trial new approach to litter and dog fouling enforcement*. 16th April 2013. Available at: <https://news.leeds.gov.uk/council-to-trial-new-approach-to-litter-and-dog-fouling-enforcement/>. Accessed on: 21/09/18.

⁸⁶ Information below is taken from: Local Government Association briefing. *Litter and fly-tipping in England*. Westminster Hall debate, 25th February 2016. Available at: <https://www.local.gov.uk/sites/default/files/documents/westminster-hall-debate-l-1ac.pdf>. Accessed on: 21/09/18.

⁸⁷ Find a skip website. *Don't Mess With Croydon Council Campaign*. Available at: <https://www.findaskip.co.uk/blog/dont-mess-with-croydon-council-campaign/>. Accessed on: 21/09/18.

The Council have also established the Community Champions scheme, which local citizens can join. This role involves arranging 'litter action days' and boosting resident litter picking volunteer numbers within their neighbourhoods to engage in street clean-ups and reporting fly tipping.

The local authority tackles fly tipping through penalty notices and court action, leading to a number of successful prosecutions. Since its launch, the initiative has led to:

- the clearing of 88% of reported fly tipped waste within 48 hours (compared with only 3% before the campaign⁸⁸);
- the issuing of almost 500 fixed penalty notices of up to £80;
- carrying out of more than 570 business licence inspections;
- more than 4,000 people reporting fly tipping issues.

Encouraging schools to develop anti-littering initiatives by offering grants⁸⁹

Maidstone Borough Council initiated a 'Love where you Learn' campaign, which actively involved local schools. The primary aim of the campaign was to encourage schools to develop anti-littering initiatives by offering grants that were funded from fines issued to people who discarded litter in the town centre.

CONCLUSION

Few littering and fly tipping initiatives could be described as attempting to make systems-level changes, even at the neighbourhood scale. Most initiatives in this field are micro-scale in scope, or precisely targeted at specific localised problems, rather than adopting a holistic approach to litter reduction to address the range of factors (e.g. environmental, social and personal) that lead to littering and fly tipping. Although novelty approaches to tackling littering such as ballot bins are eye-catching, initiatives of this kind appear to only have highly localised impacts. Indeed, this review found little evidence of systematic evaluation of many of these littering and fly tipping initiatives, making it difficult to assess the efficacy of them.

As Brooks and Davoudih (2017: 22)⁹⁰ point out:

... the highly systemic and interwoven nature of litter causality can be contrasted with policy interventions to combat littering, which, although varied and inventive, are largely based on a linear model of causality, and an implicit 'closed systems' theory of policy impacts, whereby one or more independent variables (corporate practice, individual behaviour, legal penalties etc.) are manipulated to generate positive change in the

⁸⁸ Recycling and Waste World website. *Croydon to launch Young People Take Pride campaign*. 14th June 2017. Available at: <http://www.recyclingwasteworld.co.uk/news/croydon-to-launch-young-people-take-pride-campaign/156372/>. Accessed on: 21/09/18.

⁸⁹ Information below is taken from: Local Government Association briefing. *Litter and fly-tipping in England*. Westminster Hall debate, 25th February 2016. Available at: <https://www.local.gov.uk/sites/default/files/documents/westminster-hall-debate-l-1ac.pdf>. Accessed on: 21/09/18.

⁹⁰ Brooks, L. and Davoudi, S. Litter and social practices. *Journal of Litter and Environmental Quality*. Volume 1, Number 1, June 2017. Available at: http://www.keepbritaintidy.org/sites/default/files/resource/KBT_Journal_of_Litter_and_Environmental_Quality_June2017.PDF. Accessed on: 25/09/18.

dependent variable of interest, littering. Social systems are, however, open and complex systems where changes to any element have multifarious downstream effects, some of which are predictable, some of which are not.

Brooks and Davoudih (2017: 22) argue that: 'In contrast to the linear approach, a 'systems thinking' approach would suggest at the very least joining up policies on waste with those promoting environmental awareness and behaviours, to all agents from corporations and governments down to individuals.' Initiatives that adopt a network governance⁹¹ approach of 'joining up' government, key agencies, commercial/corporate actors working alongside communities on the basis of a shared agenda, are a step towards a holistic systems response to littering and fly tipping. This suggests that a policy focus that is primarily based on changing personal behaviour will be insufficient on its own in effectively tackling littering and fly tipping.

Perhaps an initial step towards systems thinking, specifically at a neighbourhood scale, is to empower communities in ways that enable them to engage with and influence the decision making of the range of actors who have responsibility for litter prevention (in its broadest sense), in order to develop holistic and tailored localised responses to littering. This means more than 'co-opting' communities into engaging in activities that simply complement the street-cleansing work undertaken by local authorities. For example, as this review has shown, initiatives such as community litter summits and the development of neighbourhood litter prevention strategies that are directly linked into local, regional and national strategies, could provide useful mechanisms to begin developing more systems-type approaches, especially in localities blighted by littering and fly tipping. There are also examples of innovative and effective grassroots campaigning and anti-litter action groups engaged in wide-ranging activities to tackle neighbourhood littering and environmental degradation. The effectiveness of these groups could be enhanced, if their potential was harnessed within the wider networks and systems of environmental governance.

It is clear that 'traditional' responses to littering and fly tipping still dominate the thinking of most policy makers and there is relatively limited evidence of genuine systems-level approaches to litter prevention being implemented in practice. However, as this review shows, where systems approaches have been implemented, they show potential to effectively tackle littering and fly tipping problems in a more sustainable and comprehensive way. As such, they require further investigation by policy makers in this field.

⁹¹ Alexander, S.M., Andrachuk, M. and Armitage, D. Navigating governance networks for community-based conservation. *Frontiers in Ecology and the Environment*, Volume 14, Issue 3: 155-164.