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Keep New Zealand Beautiful

Illegal dumping

A review of international strategies and best practice examples

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1.0 Overview

This report is the result of desktop research into international approaches to illegal dumping. The report begins by looking at what is meant by 'illegal dumping' and the different ways countries around the world are tackling it. It then delves into how stakeholders were engaged with when places formed their illegal dumping strategies, and the tools used to change people's behaviour.

Some of the common approaches that came through in the strategies reviewed is the need to have illegal dumping self-reporting tools, collaborating with stakeholders and the community, educating, and making the community aware of the problem, and preventing the dumping from happening through regulation and enforcement¹. Lastly, the report looks in detail at two case studies, both rural and urban that have trialed different behaviour change interventions to reduce illegal dumping.

2.0 Understanding illegal dumping

2.1 What is illegal dumping?

As waste becomes more of an issue worldwide and waste levies and the cost of correct disposal increases, illegal dumping is also becoming a large problem. Illegal dumping, or 'fly-tipping' as it is also known as in some countries, can be defined as "the disposal of waste in an unauthorized or non-dedicated area²."

Unlike 'littering,' illegal dumping usually involves bigger items or large amounts of waste. Common types of materials that are dumped include household rubbish, garden waste, tyres, furniture and building materials³. These items tend to be disposed of illegally at locations such as next to public rubbish bins, in drains or ditches, beaches, in remote locations or outside of charity shops.

Illegal dumping not only impacts the natural environment through the hazardous impacts on the waterways, soil and air, it also impacts the economy (e.g. through lower property values and the financial cost of disposing of this waste), on our social capital (e.g. creating poor aesthetic value

¹ Office of Resource Recovery, Department of Environment and Science. (2021). Keeping Queensland Clean: the Litter and Illegal Dumping Plan. Queensland Government. https://www.qld.gov.au/data/assets/pdf_file/0024/176262/keeping-qld-clean-lid-plan.pdf

Environmental Protection Authority. (2017). NSW Illegal Dumping Strategy 2017-21. State of New South Wales. <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/illegaldumping/17p0158-epa-illegal-dumping-strategy.pdf>

² Ministry for the Environment. (2004). *Landfill Full Cost Accounting Guide for New Zealand*. <https://environment.govt.nz/assets/Publications/Files/Landfill-Full-Cost-Accounting-Guide.pdf>

³ Buller District Council. (n.d.). Illegal dumping. Retrieved August 21, 2022, from <https://bullerdc.govt.nz/district-council/a-z-services/recycling-conscious/illegal-dumping/>

leading to other unwanted behaviours such as vandalism), and lastly, impacts on human health (e.g. through hazardous forms of waste such as chemicals)⁴.

2.2 How countries are dealing with illegal dumping

There are a number of ways illegal dumping is being addressed internationally. Like most complex issues, there is no one size fits all solution and tackling the problem involves a multi-pronged approach. Some countries have specific strategies aimed at reducing the amount of illegal dumping, whilst others are focusing more on the root cause of the problem by transitioning to a circular economy (and do not have specific strategies to address illegal dumping). Some nations are just beginning to formulate illegal dumping strategies.

This report reviews the different international approaches to illegal dumping, focusing on how countries create stakeholder engagement and awareness/education of illegal dumping with the goal of eradicating it.

Australia is a good example of how they are tackling their illegal dumping problem. Similar to places such as the European Union and Canada, Australia is transitioning towards a circular economy⁵. Although not as significant as some other forms of waste, the Australian government acknowledges that litter and illegal dumping are an important waste flow⁶. Unlike New Zealand, the regulation around waste management is not made centrally, and instead is delegated to territory governments to make their own laws and policies around waste regulation. To this end, Australian territories have played their part well.

The Government of New South Wales (NSW) updated their Illegal Dumping Strategy in 2017 with the goal of “reducing all types of illegal dumping incidents across the state by 30% by 2020”⁷. The steps they are using to deal with illegal dumping are as follows:

1. **Building an evidence base** – using social research and data collection (through self-reporting of illegal dumping via RIDonline⁸ (Reduce Illegal Dumping online)) to get a picture of illegal dumping in NSW.
2. **Stakeholder engagement and capacity building** – partnerships across local council boundaries and consistent messaging/ branding for them to use.
3. **Education and awareness** – for the community and waste industry, NSW will develop a toolkit on illegal dumping for partners to use when designing illegal dumping programs.
4. **Prevention, infrastructure and clean-up** – ensuring illegal dumping locations are kept clean and removing incentives to dump illegally.

⁴ Office of Resource Recovery, Department of Environment and Science. (2021). Keeping Queensland Clean: the Litter and Illegal Dumping Plan. Queensland Government. https://www.qld.gov.au/__data/assets/pdf_file/0024/176262/keeping-qld-clean-lid-plan.pdf

⁵ Commonwealth of Australia. (2018). *National Waste Policy: Less Waste, More Resources*. <https://www.dcceew.gov.au/sites/default/files/documents/national-waste-policy-2018.pdf>

⁶ Commonwealth of Australia. (2018). *National Waste Policy: Less Waste, More Resources*. <https://www.dcceew.gov.au/sites/default/files/documents/national-waste-policy-2018.pdf>

⁷ Environmental Protection Authority. (2017). *NSW Illegal Dumping Strategy 2017-21*. State of New South Wales. <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/illegaldumping/17p0158-epa-illegal-dumping-strategy.pdf>

⁸ NSW EPA. (n.d.). *Help us reduce illegal dumping*. Report Illegal Dumping Online. <https://ridonline.epa.nsw.gov.au/#/home>

5. **Regulation and enforcement** – enforce illegal dumping laws and encourage community to report (through RIDonline).
6. **Evaluation and monitoring** – report on progress every two years.

3.0 Stakeholder engagement

As illegal dumping is a multi-faceted issue, the strategies reviewed in this report have highlighted that it is important to work with and get cooperation from stakeholders throughout the entire process. When creating strategies for illegal dumping, governments typically identify who the key stakeholders are and then either work in partnership or collaboratively through roundtable discussions with these stakeholders to create the strategy. One of the key stakeholders in illegal dumping is the public and there are examples of countries engaging with the public through online surveys or open forums to get their feedback on their proposed solutions⁹. Examples of how different countries have approached, and incorporated stakeholder engagement are discussed below.

The first thing to do when engaging with stakeholders is identify who the key stakeholders are. New South has identified their key stakeholders as councils, public land managers (someone who is responsible for the care, control and management of public reserves), charities and local Aboriginal land councils to help them work with communities to tackle illegal dumping¹⁰.

A key theme to come out of countries with illegal dumping strategies is the importance of having a partnership approach with stakeholders. This is shown in both the Queensland Illegal Dumping Plan and Scotland's draft fly-tipping strategy. In the Queensland Illegal Dumping Plan, they highlight that it is important to build partnerships with critical stakeholder groups such as state government departments, local government, non-government organisations/ community groups, and individuals¹¹. Building strong relationships with stakeholders is also key in Scotland's draft fly-tipping strategy¹². The Scottish Government worked in partnership with organisations such as Zero Waste Scotland, Keep Scotland Beautiful, and the Scottish Environmental Protection Agency to create their strategy. This partnership then collaborated with other stakeholders to produce the key focus areas for the strategy. Additional to this, each of the actions within the draft strategy recommends further collaboration with stakeholders.

4.0 Approaches used to deal with illegal dumping

This section explores several different approaches that have been trialed and used across the world to try and tackle illegal dumping. These include, education and awareness campaigns, successful behaviour change interventions, monitoring and surveillance, and regulation and enforcement.

⁹ The State of Queensland. (2018). *Beerburum Forest area pilot project: Reducing illegal dumping in natural areas*. https://www.qld.gov.au/data/assets/pdf_file/0030/91947/love-qld-beerburum-report.pdf

¹⁰ Environmental Protection Authority. (2017). *NSW Illegal Dumping Strategy 2017-21*. State of New South Wales. <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/illegaldumping/17p0158-epa-illegal-dumping-strategy.pdf>

¹¹ Office of Resource Recovery, Department of Environment and Science. (2021). *Keeping Queensland Clean: the Litter and Illegal Dumping Plan*. Queensland Government. https://www.qld.gov.au/data/assets/pdf_file/0024/176262/keeping-qld-clean-lid-plan.pdf

¹² Scottish Government. (2021). *Consultation on National Litter and Flytipping Strategy*. <https://www.gov.scot/publications/national-litter-flytipping-consultation/>

4.1 Education and communication

4.1.1 Awareness campaigns

Campaigns that aim to educate the public about illegal dumping are one of the popular methods used to raise awareness about the issue. Oregon (USA) has developed a step-by-step process that can be used by community groups when creating a public awareness campaign¹³:

1. Identify your target audience
2. Define your objective and message
3. Identify available funds
4. Identify tools/ mechanisms to deliver your message
5. Develop a schedule to implement your campaign
6. Obtain support from elected officials and other public agencies (e.g. police, public health)
7. Implement campaign
8. Evaluate success of campaign and report results
9. Modify campaign based on evaluation
10. Repeat the process.

For example, the City of Surrey (in Canada) proposed developing a campaign designed to change people's behaviour around illegal dumping and make people more aware of the impact that it has¹⁴. They suggested using the campaign to highlight changes to the bylaws relating to illegal dumping, informing people of the different options available for disposing of their waste, the increased enforcement activities that will be happening and informing people on the requirements and locations for disposing of building/renovation materials. The proposed way of getting this message out was through social media, newsletters, advertisements in bus shelters, billboards, mailouts and promotions in traditional media.

NSW helped raise awareness by providing training to public land managers (those responsible for managing public reserves) on techniques relating to illegal dumping prevention and enforcement¹⁵. They also created communication and education plans for how to use RIDonline and how to donate to charities responsibly.

4.1.2 Consistent messaging

Consistency in the messaging around illegal dumping is a key factor for creating awareness. One of the objectives in Scotland's draft fly-tipping strategy is to develop common language and messaging that is used consistently across the country¹⁶. This ensures that there is no confusion around what fly-tipping is and what should be done about it. In addition, one of the proposed actions in the strategy is to create a single source of information in Scotland that educates people on where they can dispose of the most commonly dumped items. The London Environment Directors' Network and Keep Britain Tidy conducted research to better understand fly-tipping in London. One of their

¹³ Department of Environmental Quality, State of Oregon. (n.d.). *Cleaning up illegal dumping sites: community-based strategies*. Oregon.gov: State of Oregon. <https://www.oregon.gov/deq/mm/Pages/Illegal-Dumping-Clean-Up.aspx>

¹⁴ General Manager, Engineering; General Manager, Corporate Services. (2022). *Illegal Dumping Update and Proposed Mitigation Actions*. City of Surrey. https://www.surrey.ca/sites/default/files/corporate-reports/CR_2022-R128.pdf

¹⁵ New South Wales Government. (2019). *NSW Illegal Dumping Strategy 2017-21: 2 year Report Card*. <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/illegaldumping/20p2301-illegal-dumping-201721-report-card.pdf>

¹⁶ Scottish Government. (2021). *Consultation on National Litter and Flytipping Strategy*. <https://www.gov.scot/publications/national-litter-flytipping-consultation/>

recommendations was to make sure any messaging around fly-tipping (or illegal dumping) was consistent and used plain language (using words people would use every day e.g. not 'waste')¹⁷.

4.1.3 Signage

The use of signage is a popular way of creating awareness about illegal dumping. Signs are often placed in areas where a lot of illegal dumping occurs and usually have a simple message about illegal dumping (e.g. "no dumping") and can be accompanied by an image. Keep Britain Tidy has done research into what residents consider to be 'fly-tipping' (or illegal dumping) and state that it is important that the target audience understands the message on the signs¹⁸. Based on their findings, they recommend that any images used should show exactly the type of dumping that the council wants to tackle so that it is easily recognizable. For example, this could be a picture of a black rubbish bag on the side of the curb (as residents do not consider this to be fly-tipping).

Signs can also be used to advertise ways of reporting illegal dumping. An example of this is shown in NSW where they have created a style guide for their online illegal dumping reporting tool (RID online) for people or community groups to advertise and encourage surveillance of the area¹⁹.

4.1.4 Providing information

This review has shown that often people are unaware of what illegal dumping is and often see illegal dumping as large-scale deposits of waste, rather than small scale household levels. One way to address this is to give people information about what illegal dumping is, in a way that makes it relevant to them.

Keep Britain Tidy have trialed sending out letters to residents who left unwanted household items out on the curb, assuming this would be collected by the council²⁰. The letters informed the residents that what they had done was illegal dumping and provided a warning of the potential repercussions of doing this. While there was no quantitative data on how much sending these letters reduced illegal dumping, anecdotal evidence from residents who received the letters showed that they were unaware that what they had done was illegal and were unlikely to do it again.

4.1.5 Toolkits

Toolkits are a great way of providing the community with resources to tackle illegal dumping. With a focus on creating awareness, toolkits help communicate key illegal dumping messages to the public. The perceived benefit of providing a toolkit is that it means individuals or organisations do not have to create their own media campaign²¹.

¹⁷ London Environment Directors' Network, & Keep Britain Tidy. (2018). *Understanding and tackling fly-tipping in London*. <https://www.keepbritaintidy.org/sites/default/files/resource/Understanding-and-Tackling-Fly-Tipping-in-London-Final-Report.pdf>

¹⁸ Keep Britain Tidy. (2022). *Beyond the tipping point: Insights to tackle householder fly-tipping*. https://www.c-6.net/virtualdocs/KeepBritainTidy_FlyTipping_Booklet/

¹⁹ NSW EPA. (2021, July 14). *Manage an illegal dumping project*. <https://www.epa.nsw.gov.au/your-environment/litter-and-illegal-dumping/prevent-illegal-dumping/manage-illegal-dumping-project>

²⁰ Keep Britain Tidy. (2022). *Beyond the tipping point: Insights to tackle householder fly-tipping*. https://www.c-6.net/virtualdocs/KeepBritainTidy_FlyTipping_Booklet/

²¹ Zero Waste Scotland. (n.d.). *Flytipping Interventions Communications Toolkit: Overview of Materials*. http://d2zstfw65zv9v0.cloudfront.net/wp-content/uploads/20190711105801/flytipping_overview_28_03_17.pdf

Zero Waste Scotland has created a good example of what a toolkit could look like in a New Zealand situation²². Their toolkit is aimed at community organisations, landowners, land managers or local authorities. The toolkit focuses on communicating about illegal dumping with different messages, depending on the environment that they will be delivered in. For example, they have a 12-page booklet explaining illegal dumping and how it can be stopped which can be delivered to households.

Their toolkit also includes examples of social media posts, Flywatch signs to place on lampposts and bins, street bin stickers and warning stickers for items that have been illegally dumped (e.g. with the text "This is our street, not your dump. The fine for flytipping is £200. Is it worth it?"). New South Wales is another example of another location with an illegal dumping toolkit²³. Theirs was created for their stakeholders and included research, education, media materials and case studies.

4.2 Behaviour change interventions

A range of behaviour change interventions have been trialed internationally, with the United Kingdom appearing to be leading the way. Below illustrates several of the successful interventions that have been used: CSI tape, watching eyes, stencils and repurposing hubs. More in depth examples are explored in the two case studies referenced towards the end of this report.

4.2.1 Crime Scene Investigation tape

Using Crime Scene Investigation (CSI) tape on illegally dumped materials is a popular intervention tool²⁴. The tape, which says "illegally dumped rubbish under investigation" is placed around the dumped items (e.g., a mattress) and then left in situ for several days before being disposed of by the relevant council. While the waste is in situ, it is investigated, and warning letters are sent to the perpetrators. The idea behind this technique is to show the public that investigations and subsequent enforcement does happen to illegally dumped materials and emphasizes that it is not acceptable to illegally dump unwanted items. This technique was trialed by Newham Council (UK), in collaboration with Keep Britain Tidy. They found that during the intervention, illegal dumping reduced by almost two-thirds (64%) and after they stopped using the tape, the number of illegal dumping occurrences were 50% lower than pre-intervention, showing it to be an effective technique.

²² Zero Waste Scotland. (n.d.). *Flytipping Interventions Communications Toolkit: Overview of Materials*. http://d2zstfw65zv9v0.cloudfront.net/wp-content/uploads/20190711105801/flytipping_overview_28_03_17.pdf

²³ New South Wales Government. (2019). *NSW Illegal Dumping Strategy 2017-21: 2 year Report Card*. <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/illegaldumping/20p2301-illegal-dumping-201721-report-card.pdf>

²⁴ Keep Britain Tidy. (2022). *Beyond the tipping point: Insights to tackle householder fly-tipping*. https://www.c-6.net/virtualdocs/KeepBritainTidy_FlyTipping_Booklet/



Figure 1: An example of Crime Scene Investigation (CSI) tape in situ

4.2.2 Watching Eyes

There is evidence in the psychology of surveillance that using a simple image of eyes leads to people acting more pro-socially by giving the impression of being watched²⁵. This technique has been shown to work in a range of situations, including making people more likely to pay for their drinks in an honesty box situation, recycle appropriately and less likely to leave litter in a cafeteria²⁶. This technique has been successfully applied to illegal dumping and is seen as a low-cost way of addressing the issue. For example, in Houston (USA), a research team from Rice University chose 16 sites where illegal dumping was occurring and installed signs with a picture of an eye and the text “Warning. No dumping” at nine of the sites²⁷. The other seven were left as control sites. After a month, the team found that of the nine sites with signs, only one had illegal dumping at it, whereas of the seven control sites, three had received illegal dumping. An example of a ‘Watching eyes’ sign is shown in Figure 2 below.

²⁵ Bateson, M., Callow, L., Holmes, J. R., Redmond Roche, M. L., & Nettle, D. (2013). Do images of ‘Watching eyes’ induce behaviour that is more pro-social or more normative? A Field experiment on littering. *PLoS ONE*, 8(12), e82055. <https://doi.org/10.1371/journal.pone.0082055>

²⁶ Bateson, M., Callow, L., Holmes, J. R., Redmond Roche, M. L., & Nettle, D. (2013). Do images of ‘Watching eyes’ induce behaviour that is more pro-social or more normative? A Field experiment on littering. *PLoS ONE*, 8(12), e82055. <https://doi.org/10.1371/journal.pone.0082055>

²⁷ Stone, E. (2019, April 22). *Signs with “Watching Eyes” may reduce illegal dumping, say Rice researchers.* Houston Public Media. <https://www.houstonpublicmedia.org/articles/news/2019/04/22/330087/signs-with-watching-eyes-may-reduce-illegal-dumping-say-rice-researchers/>



Figure 2: Example of a 'Watching Eyes' sign

4.2.3 Social impact stencils

Social impact stencils are a temporary measure that can be used to raise awareness of the impact of illegal dumping by highlighting to the community where illegal dumping is occurring. An example of an effective stencil is shown in a trial by Keep Britain Tidy in partnership with Newham Council²⁸. The stencil used in this scenario had the words “Dumping wastes £££ for your community” (see Figure 3 below). Using a chalk-based paint, the stencil was painted onto the ground whenever a fly-tip was removed from the community. This intervention was designed to challenge the idea that illegal dumping has a low impact on the community (which previous research had shown). As a result of this stencil, Newham Council found that there was a reduction in the amount of fly-tipping by an average of 67% during the intervention. Two years after the intervention had ended, they found that fly-tipping was a third lower than what it had been pre-intervention, proving it to be a success.



Figure 3: The stencil used in the Newham Council behaviour change intervention

²⁸ Keep Britain Tidy. (2022). *Beyond the tipping point: Insights to tackle Householder fly-tipping*. https://www.c-6.net/virtualdocs/KeepBritainTidy_FlyTipping_Booklet/

4.2.4 Repurposing hubs

Creating community hubs where people can drop off their reusable items that they would have otherwise dumped illegally is one way of reducing the amount of dumping occurring. An example of this working in practice can be seen in the UK where Groundwork London partnered with the London Community Reuse Network and Middlesex University to pilot repurposing hubs in five housing estates in London²⁹. The issue in these estates was that residents either were not eligible for council collection of their goods, or they did not have transportation to take their items to collection sites. This, along with the fact that any items they did dump illegally were collected very quickly meant they were unaware that illegal dumping was a problem.

The purpose of the pilot was to reduce the amount of flytipping of items that could be otherwise reused by 25%, increase the number of items being reused in the estates by 25%, and increase the skills of the community members. On each estate, redundant spaces were transformed into hubs where collected items were taken to. The items were then repaired or upcycled and resold to the community at a low cost. Having this space created an opportunity for volunteering and training, allowing residents to gain life-long skills. Finally, this intervention was complemented with community engagement via events and activities.

This pilot ran for three years, and they found that results differed by estate. When looking at the goal of reducing flytipping by 25%, two of the estates showed reductions – one of 32% and the other of 16%. The other three proved too hard to measure. They exceeded the goal of increasing reuse of items by 25%, with 27% of items coming through the hubs being reusable after minor repairs.

In terms of increasing the skills of the community, the programme initially had a goal of engaging 850 residents through the pilot, but after three years, they had engaged with 2,262 residents which well exceeded this goal. Overall, the managers of the programme felt it was a success and hoped to continue running it, if funding allowed.

4.3 Monitoring and surveillance

Monitoring illegal dumping using CCTV cameras and getting members of the public to reporting illegal dumping are some of the ways that local authorities can keep track of the illegal dumping that is occurring in their area.

4.3.1 CCTV

Illegal dumping often occurs after daylight hours when people are under the assumption that they cannot be seen. Therefore, installing surveillance cameras to capture what people are doing after dark (and during daylight hours) is an effective way of monitoring and enforcing illegal dumping as the cameras can capture the person(s) and the vehicle involved in the dumping. It appears that cameras work best when they are placed in areas known to have a lot of illegal dumping occurring. Using surveillance cameras and corresponding signs to indicate that the area is being watched is a popular method, along with indicating what the fine is for being caught dumping illegally³⁰.

²⁹ Phillips, R. (2017). A case-study on the Repurpose project: A London estate-based pilot tackling fly-tipping through reuse. *Journal of Litter and Environmental Quality*, 1(1), 26-32. https://www.keepbritaintidy.org/sites/default/files/resources/KBT_Journal_of_Litter_and_Environmental_Quality_June2017.PDF54

³⁰ Isaac Regional Council. (2021). *Illegal dumping management and intervention plan (pilot) 2020/2022*. <https://www.isaac.qld.gov.au/downloads/file/5121/illegal-dumping-management-and-intervention-plan>

In Australia, the use of CCTV camera footage appears to be popular. In Byron Bay, they used data from illegal dumping reports to install small hidden cameras (to ensure they were not stolen) in dumping hotspots³¹. Similarly, in Geelong, Australia, they installed CCTV cameras to monitor illegal dumping and as a result, had 20 infringements issued to dumpers in the first three months³².

Although there does not appear to be any measurable results, Ryde City Council (New South Wales) is used as a case study in New South Wales of installing hidden cameras in bollards to monitor illegal dumping³³. One of the tips from Ryde City Council for other councils wishing to copy this approach is the value of investing time in concealing and strategically placing the camera as it means clearer images are captured and less cameras are stolen.

4.3.2 Self-reporting tools

Providing citizens with the ability to report any illegal dumping they find is a popular tool used internationally. Having tools available for people to report illegal dumping allows authorities to collect data on where/ what illegal dumping is occurring. Countries have taken different approaches to this, including apps, online forms or hotlines. In most cases it depends on the local government authorities to decide and roll out an option.

A popular method overseas is to have an online form where people can upload a photo of the illegally dumped material along with details of the location and any other relevant information. The information is then sent to relevant local authorities to collect the dumped items. Scotland³⁴ and New South Wales (Australia)³⁵ are places that use an online illegal dumping form like this.

4.4 Regulation

Regulating illegal dumping is another way authorities use to reduce its occurrence. Depending on how the political structure, waste regulation can either be set at a national or local level. In Australia, each state appears to regulate illegal dumping through Acts that outline the various penalties for illegally dumping different quantities of waste³⁶.

Whereas, in the United Kingdom, fly-tipping is made a criminal offence through their national Environmental Protection Act and is enforceable by local authorities or the Environment Agency³⁷. Countries have a range of penalties for illegally dumping which are discussed below.

³¹ Byron Shire Council. (2022, May 18). *New camera installed to catch people dumping rubbish*. <https://www.byron.nsw.gov.au/Council/Media-centre/Media-releases/New-camera-installed-to-catch-people-dumping-rubbish>

³² City of Greater Geelong. (2021, May 24). *Selfish dumpers on notice*. <https://www.geelongaustralia.com.au/recycling/news/item/8d91c71e3edb1d8.aspx>

³³ NSW Environment Protection Authority. (2017, October 20). *Adapting surveillance techniques to deter different dumpers*. <https://www.epa.nsw.gov.au/your-environment/litter-and-illegal-dumping/prevent-illegal-dumping/manage-illegal-dumping-project/surveillance-techniques>

³⁴ Zero Waste Scotland. (2022). *Dumb dumpers - Report flytipping*. <https://www.zerowastescotland.org.uk/DumbDumpers>

³⁵ NSW EPA. (n.d.). *Help us reduce illegal dumping*. Report Illegal Dumping Online. <https://ridonline.epa.nsw.gov.au/#/home>

³⁶ NSW Environment Protection Authority. (2021, April 28). *Illegal dumping laws and penalties*. Retrieved September 22, 2022, from <https://www.epa.nsw.gov.au/your-environment/litter-and-illegal-dumping/illegal-dumping-laws-penalties>

³⁷ National Fly-Tipping Prevention Group. (2015). *Penalties and legislation*. <https://www.tacklingflytipping.com/penaltiesandlegislation/1498>

4.4.1 Penalties

Using economic tools such as fines for illegal dumping is one way local and central governments enforce illegal dumping. The amount of the fine varies depending on the amount of waste dumped and whether it was done by individuals or companies/ corporations.

For example, in Queensland, Australia, their Waste Reduction and Recycling Act 2011 allows authorized people to issue penalty infringement notices for illegal dumping. The amount in the penalty infringement notice for an individual illegally dumping less than 2500L of waste is \$2,300AUD and for a company this is \$7,187AUD³⁸. If the case goes to court, the maximum penalty for individuals dumping less than 2500L of waste is \$57,500AUD and for corporations, this is \$287,500AUD.

In Japan, they increased the fine for dumping industrial waste to match those of economic offenses such as the fine for private monopolization, to emphasize the seriousness of dumping waste illegally³⁹. This, along with other measures, helped reduce Japan's illegal dumping problem.

Other forms of penalties are also implemented across the world. In New South Wales, Australia, they have recently amended their Protection of the Environment Operations Act 1997 to increase the penalties for illegal dumping to include seizing vehicles involved in repeat illegal dumping offences, giving repeat offenders prison sentences of up to two years and requiring waste transporters to install GPS trackers in their vehicles to be monitored by their EPA⁴⁰.

4.4.2 Prosecution

Prosecution is one way of enforcing illegal dumping regulation but is not very commonly used across the globe due to the time and resource required. For example, in Scotland the number of prosecutions for illegal dumping decreased from 18 in 2014/15 to just two in 2019/20 despite there not being a change in the amount of illegal dumping occurring⁴¹.

The Scottish government suggests that challenges around identifying the offenders, gathering appropriate evidence and recovering fines are some of the leading issues behind the low prosecution rate and have suggested a review into how their enforcement regime can be more effective.

³⁸ Queensland Government. (2022, July 12). *Litter and illegal dumping legislation*. <https://www.qld.gov.au/environment/management/waste/litter-illegal-dumping/law>

³⁹ Fujikura, M. (2011). Japan's efforts against the illegal dumping of industrial waste. *Environmental Policy and Governance*, 21(5), 325-337. https://www.researchgate.net/publication/230546844_Japan%27s_Efforts_Against_the_Illegal_Dumping_of_Industrial_Waste

⁴⁰ NSW Environment Protection Authority. (2021, April 28). *Illegal dumping laws and penalties*. Retrieved September 22, 2022, from <https://www.epa.nsw.gov.au/your-environment/litter-and-illegal-dumping/illegal-dumping-laws-penalties>

⁴¹ Scottish Government. (2021). *Consultation on National Litter and Flytipping Strategy*. <https://www.gov.scot/publications/national-litter-flytipping-consultation/>

5.0 Rural case study: Beerburrum Forest, Queensland

In Queensland, a behaviour change campaign was trialed in 2018 by the Department of Environment and Science in the Beerburrum Forest area (a forest approx. 300km²) to reduce the amount of illegal dumping occurring⁴². Stakeholder engagement was used at the beginning of this trial through three different research streams: an online survey with the whole Queensland population, telephone surveys with people from the Beerburrum area, and interviews with illegal dumping offenders. The Department also initially engaged with stakeholders to gather anecdotal evidence about their views on illegal dumping. As a result of stakeholder engagement, three strategies were decided upon for the trial: 1) encouraging the reporting of illegal dumping, 2) discouraging the behaviour of illegal dumping, and 3) encouraging the appropriate disposal of waste.

The main behaviour change intervention used in this trial was signage, accompanied by community engagement (through information brochures, window stickers etc.) which was led by Crimestoppers. As shown in Figure 4 below, the signs used were large, easy to read and had simple messaging. To complete the intervention, baseline illegal dumping data was collected prior to installing the signs. The first group of signs (26 signs) were installed on the eastern side of the forest area and after nine weeks, more field data was collected on illegal dumping. The Department then installed the second group of signs (34 signs) on the western side of the forest and then after eight weeks, did the final round of field data surveys. The results from the use of signs showed that illegal dumping reduced by 30 dumpsites per 100km. While this result was not strong, Griffith University (who ran the research) suggested that this technique needed more experimentation and would be a good framework to test in other areas.

The effectiveness of the signs was also measured in relation to people's knowledge about illegal dumping. The signs were found to be successful at portraying the desired messages, with 96% of people surveyed about them being aware that offenders can be fined, 87% being aware that illegal dumping can be reported, and three-quarters (75%) indicating that the department can investigate illegal dumping.



Figure 4: Examples of the signs installed in the Beerburrum Forest area

⁴² The State of Queensland. (2018). *Beerburrum Forest area pilot project: Reducing illegal dumping in natural areas*. https://www.qld.gov.au/data/assets/pdf_file/0030/91947/love-qld-beerburrum-report.pdf

6.0 Urban case study: Canterbury-Bankstown, New South Wales

In the city of Canterbury-Bankstown, in NSW (Australia), the council launched an illegal dumping campaign funded through the NSW EPA's Better Waste and Recycling Fund, called 'Eyes on It'. The campaign was launched in 2019 and was trialed over 16 weeks. The purpose of the campaign was to try and reduce the number of residents who were leaving unwanted items on the side of the street without pre-booking a clean-up through the council⁴³. The aim was to intervene and educate residents that what they were doing was illegal dumping. The main message that was used was "Putting items on the street without a booked Clean Up is illegal". This was accompanied by a stamp that stated there were "Fines up to \$4000" and signs with images of eyes above statements such as "You are being watched". Council workers then went out and identified illegal dumps with CSI like warning tape, stickers, and dropped postcards into houses surrounding the illegally dumped materials. An example of what some of the tools looked like in situ is shown in Figure 5 below.

The location, size and makeup of the illegally dumped materials were recorded in an app and the items were then requested for the council to pick up after approximately 72 hours. The council also communicated their key messages through other platforms such as on social media, on billboards by railways and the side of the road, in libraries and community centres and on rates notices.

The council found this campaign to be largely successful. The campaign involved identifying and removing 6,866 illegal dumps. Once the items had been identified as illegally dumped, almost half (45%) were removed by the residents themselves, meaning there was no additional cost to the council for their removal. The media campaign had a reach of over 3.5 million and over the course of the campaign, the amount of illegal dumping declined by 39%. They also found that the number of reports of illegal dumping increased by two-thirds (64%) and there was an increase in the number of residents booking council clean ups (12% in Canterbury and 3% in Bankstown). Reflecting on the campaign, the council noted that it involved a lot of time and resources to identify and label the illegal dumping. The funding that was made available through NSW's EPA was thought to be a great example of state and local governments collaborating to tackle illegal dumping.



Figure 5: Example of the signage placed on illegally dumped materials used in the Canterbury-Bankstown trial

⁴³ Santucci, D., & Gray, B. (2020, September 17). *Our Eyes on it: A campaign to tackle illegal dumping in West Sydney*. Local Government Information Unit (LGIU). <https://lgiu.org/briefing/our-eyes-on-it-campaign-tackles-illegal-dumping/>

7.0 Recommendations and insights

There are a number of insights and recommendations that can be gathered from the findings of this review. The five key recommendations can be summarized into the following:

1. Countries that appear to be the furthest along on their journey to tackling illegal dumping are those with specific national or statewide illegal dumping strategies. It is **recommended that New Zealand creates an illegal dumping strategy** to map out how the issue will be addressed.
2. Of those places with illegal dumping strategies, it is evident that forming partnerships with stakeholders is key to the success of the strategy. **It is recommended that the Ministry for the Environment identifies the relevant stakeholders and works to create partnerships with the key ones.**
3. This review highlighted the importance of having consistent messaging around what illegal dumping is, the penalties and how to report it. To help ensure the messaging around illegal dumping is as consistent as possible, it is **recommended that a national illegal dumping toolkit is created** (similar to Scotland's) that can be used by community groups and councils that contains key messaging around illegal dumping and examples of media outreach that can be copied.
4. Interventions can be an effective tool for reducing the amount of illegal dumping occurring. When used in isolation, CSI tape and social impact stencils appear to be the most effective techniques. However, when multiple interventions are used together (such as in the Canterbury-Bankstown example) they can be more effective than just one. **It is recommended that some of these behaviour change interventions are trialed in a local council setting** (particularly low cost options such as watching eye signs, stencils or CSI tape) and if effective, rolled out at a national level. This could be funded through a central government grant/ fund.
5. Most of the approaches used to deal with illegal dumping appear to focus on getting less people to dump illegally rather than getting more people to report illegal dumping. **It is recommended that New Zealand focuses on reducing the amount of illegal dumping occurring complemented by promoting the reporting of illegal dumping by the public.**

8.0 Conclusion

Illegal dumping is a problem experienced worldwide and unfortunately is not an issue that New Zealand is immune to. There are different approaches countries have taken to deal with the issue. Some have created strategies targeted at illegal dumping while others are transitioning towards a circular economy. It is clear from this review that when creating an illegal dumping strategy, stakeholder engagement is key to ensuring that all views are being considered. There are a number of behaviour change techniques that have been used, ranging from education and awareness campaigns, to interventions, to regulation and enforcement. It is important that New Zealand takes the learnings from these other countries to deliver an effective strategy to tackle illegal dumping.

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