

WASTE MANAGEMENT SYSTEMS IN EUROPE GOING UNDERGROUND

On considering the underground waste management systems being used across several EU countries, as well as how different EU states practice waste management, Natalie Heritage, LGiU Associate, claims that these systems could present a way forward for local authorities.

The issue of waste management is clearly relevant to the UN's sustainable development goals. In October 2018, a report by the UN Intergovernmental Panel on Climate Change (IPCC) stated that under current greenhouse gas emission levels, the planet would reach the crucial 1.5C warming as early as 2030.

Irish based studies indicate that the country could be experiencing summers that are hotter with warmer wetter winters. Flooding is, according to work by the EPA and others, one of the key ways in which Ireland and other European countries will feel the negative effects of global warming.

The prospect of flooding means that some residents will need to be moved to other areas with the Shannon catchment potentially the most affected. Clearly it is evident that there is a need for the country and others to reduce the effects of climate change.

However, the issue of combating climate change is no small task for local governments across the European Union.

Central Government is under considerable political as well as legal pressure to address the continuing high rates of emissions in Ireland with the country unlikely to meet its existing obligations in 2020.

This is also the case in the UK where there has been heavy criticism of their plans to address climate change by, in part,



offloading the problem onto local authorities. Many EU countries now operate underground waste systems which are seen to reduce greenhouse gas emissions through reduced vehicle collection rates and improved recycling levels. Could this be one way in which local government can address climate change?

WASTE MANAGEMENT

EU WASTE MANAGEMENT

***The Waste Hierarchy**

The Waste Hierarchy is something that Ireland has to abide by, as a member of the EU. Essentially, the EU Waste Framework Directive of 2008 sets out five stages for dealing with waste; ranked according to their environmental impact and this has become known as the waste hierarchy, as follows:

1. **Prevention**
2. **Re-Use**
3. **Recycling**
4. **Other Recovery (e.g. incineration)**
5. **Disposal (landfill)**

The 2008 EU Directive is now fully incorporated into Irish law. Through the Waste Regulations, waste management companies and local authorities have a duty of care to operate according to

the principles of waste minimisation.

The EU has stated through its 2008 Directive that, primarily, there should be a focus on prevention of waste. The Directive also lays down several basic waste management principles. It states that waste should be managed without endangering human health and harming the environment and, in particular, without risk to water, air, soil, plants or animals; without causing a nuisance through noise or odours; and without adversely affecting the countryside or places of special interest.

Thus, when formulating Waste Management Strategies, local authorities have to evidence how they will abide by the principles set out in the 2008 Directive and the stages defined within the Waste Hierarchy. Interestingly, in Northern Ireland the waste collection service has authority to refuse to take a resident's waste, if the resident has put their waste into the wrong bin – for example, food waste in the household waste bin.



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*Zero Waste Scotland

In Scotland, an organisation dedicated to the prevention of waste exists: Zero Waste Scotland (ZWS). ZWS is funded by the Scottish Government and EU and works closely with these bodies, as well as a range of other groups such as, public sector organisations, local authorities, businesses, community groups and industry bodies 'to create a society where resources are valued and nothing is wasted'.

ZWS talks about a 'circular economy'; which is aimed at educating individuals that everything has a value and there is no need for anything to be wasted. With this in mind, Scotland introduced a ban on food waste being sent to landfill in 2015. The aim of ZWS is to support the Scottish Government in achieving the following impacts and targets:

- Recycling 70% of all waste by 2025.
- Reducing waste by 15% by 2025.
- Reducing food waste by 33% by 2025.
- Meeting 50% of energy heat demand from renewables by 2032
- Energy efficiency as a national infrastructure priority
- Reducing Scotland's greenhouse gas emissions by 66% by 2032.

Some councils in Scotland are trialing underground waste systems. Naturally, having such an enterprise work alongside the government in reducing waste will have a positive impact on the carbon footprint of Scotland and is something that clearly adds value to Scotland's attempt to reduce the impact of climate change. Europe therefore presents a solution through its use of underground waste storage systems.

APPROACH TO WASTE MANAGEMENT

Underground Waste Storage Solutions: Advantages & Disadvantages

Many European countries, such as The Netherlands, Portugal and Sweden, have invested in underground waste management infrastructure. This system allows residents to dispose of their waste into bins, which have underground chutes attached to them, leading to different waste chambers.

Residents dispose of their waste material into specified bins, e.g. cardboard and plastics above ground and air is then used to push the waste along the chute to the relevant underground waste chamber. Once the chamber is full, an electronic signal is sent to the local authority; notifying them that the chamber needs to be emptied.

These systems are seen to have tangible advantages, mainly they contribute to greater overall levels of cleanliness and wellbeing in an area; as there is a lower risk of bins overflowing above ground and for litter to be scattered along pavements, which minimises the need for vermin control.

The local authority's budget will also not have to factor in replacement bins for individual residents. Furthermore, collection vehicles are no longer required to make weekly or fortnightly collections; thanks to the automatic signal, councils can rely on this as the indicator for when a collection journey is needed. As a



result, congestion is improved in the locality and greenhouse gas emissions are reduced.

Inevitably, there are some disadvantages to this infrastructure. The initial investment in the system is large and is usually recouped only over a long-term period. One firm, Plastic Omnium headquartered in France, states that the recoupment period can be up to 10 years for an underground waste management system. Whereas the Portuguese firm Sotkon, claim that the recoupment period will be between three to five years.

Some UK councils have also made the move to these systems, most notably in North West Cambridgeshire and Tower Hamlets. Sotkon are the providers of the underground waste system in Cambridgeshire, which was a design idea of a new 3000 house development. As is often typical in new-build English estates, space can be limited and wheelie and waste bins can certainly add to the lack of space on the streets. Thus for Cambridgeshire, the construction of 500 underground waste bins was seen as a pragmatic solution.

Similarly in Tower Hamlets, when a housing association took over the running of several council estates in the area and decided to rebuild some of the infrastructure, it was again seen as logical to install an underground waste management system. Residents have since reported the area looks much cleaner and the smell of waste is no longer a blight on the community.

Could underground waste management systems lead to better rates of recycling?

According to the European Commission, The Netherlands has one of the best waste management systems in Europe. It recycles 64 per cent of its waste, with the remaining 36 per cent being incinerated and overall, less than 5% of Dutch waste is sent to landfill. A mixture of wheeled bins and underground systems make up The Netherlands' waste management infrastructure and its system is seen as an example of best practise.

Portugal also offers an underground system and when this mechanism was first introduced in the municipality of Cascais, recycling rates dipped (between 2009 and 2014). However, this has been explained as being partly a result of the financial crisis; when consumption rates were lower, which accounted for the fall in recycling rates.

In Sweden, underground systems for waste are a prominent feature of the capital city. Stockholm reports that as waste is disposed of close to the point of origin, this reduces the risk of contamination and encourages residents to recycle more. Again, the benefit of the reduced need for collection vehicles is cited as having helped to improve air quality in the area.

In the case of Belgium there is a landfill ban and severe waste restrictions. In Flanders, the locality is aiming to reduce greenhouse gas emissions and the amount of waste ending up in landfill, whilst attempting to improve recycling and composting rates. As a result, since 1998 there has been a ban on unsorted waste and separately collected materials being sent to landfill. This ban is regarded worldwide as a huge success, mainly because no household waste in Flanders has been sent to landfill since 2006.

The Flemish Government cites a focus on prevention as the main reason for this success; residents were taught that unavoidable waste should be either re-used or recycled. Also, the emergence of greater technology has made it easier for waste to become disposed of in this way. Flanders has an underground waste system in the densely populated areas, whereas the other areas still maintain a kerbside collection service.

From these examples, it is clear to see that underground waste systems are regarded internationally as innovative pieces of infrastructure, which contribute to improving a region's air quality. However, the question of whether these systems lead to higher recycling rates is still debated, with some countries arguing that advanced waste management systems are ones that focus on prevention, not necessarily underground waste management.

The Netherlands and Belgium are widely regarded as having enviable waste management systems, yet, they still export a significant amount of waste abroad. As Sweden and Denmark export the lowest amount of waste, this could be taken as the fact that these countries prioritise prevention in their waste practises.

Naturally, further work would need to be undertaken to ascertain whether underground waste management systems correlate to a reduction in waste, yet the results seem to display that this system could be worth the initial investment; as it may also encourage waste prevention.

NO TIME TO WASTE!

In summary, over the long-run underground waste management systems certainly make the collection of household waste a smoother process, as well as contributing to improving air quality and general cleanliness in an area. However, unfortunately the investment required to install such a system is large and will take at least several years to be recouped.

Whilst this infrastructure is innovative, modern and forward-thinking, when it comes to waste, prevention is the most effective

ABOUT THE AUTHOR

Natalie Heritage, Policy Briefing Writer for the Local Government Information Unit (LGIU), contributes content to the International and Overview and Scrutiny sections. With experience of working with both national and local politicians, Natalie believes that for communities to thrive, it is essential that central and local government work together and continually communicate about how best to address the challenges that both are facing.

She has worked in local government and directly with elected members since 2015, both at an executive and non-executive level. Previously, Natalie worked in the third sector seeking political support for projects within the EU. Outside of the office, Natalie acts as a mentor to young people and volunteers with adolescents who are going through the criminal justice system, and holds a BA in International Relations and French from the University of Birmingham.



means to combat climate change. Whether underground waste management systems correlate to waste prevention requires further research. This data will then help to make the case stronger – on either side – for local authorities to decide if this should be the focus of their next strategic investment.

In the maze of solutions for combatting climate change, one could be forgiven for thinking that underground waste management systems are just the latest idea being pedalled to struggling local authorities. Interestingly, in the areas and countries where these systems are operational, neither have there been any widespread complaints nor a strong desire to return to a kerbside collection service.

What is for certain, however, is that if the government is serious about addressing climate change, then it needs to work in partnership with local government. If these waste systems are the way forward, then perhaps government ought to offer grants or incentives to local authorities to take the leap and invest in such a scheme.

As with most, if not all of the contemporary issues facing local government, a crucial national-local dialogue is required, as well as agreement on shared objectives.

Tackling climate change and achieving sustainable development needs that partnership. A discussion around underground waste management systems is a good starting point.

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