

# Identification of dumping behaviour at bring centres in Ireland and their multi-disciplinary solutions

Presenter:

Aidan McDermott (NUIM)  
20<sup>th</sup> June 2013

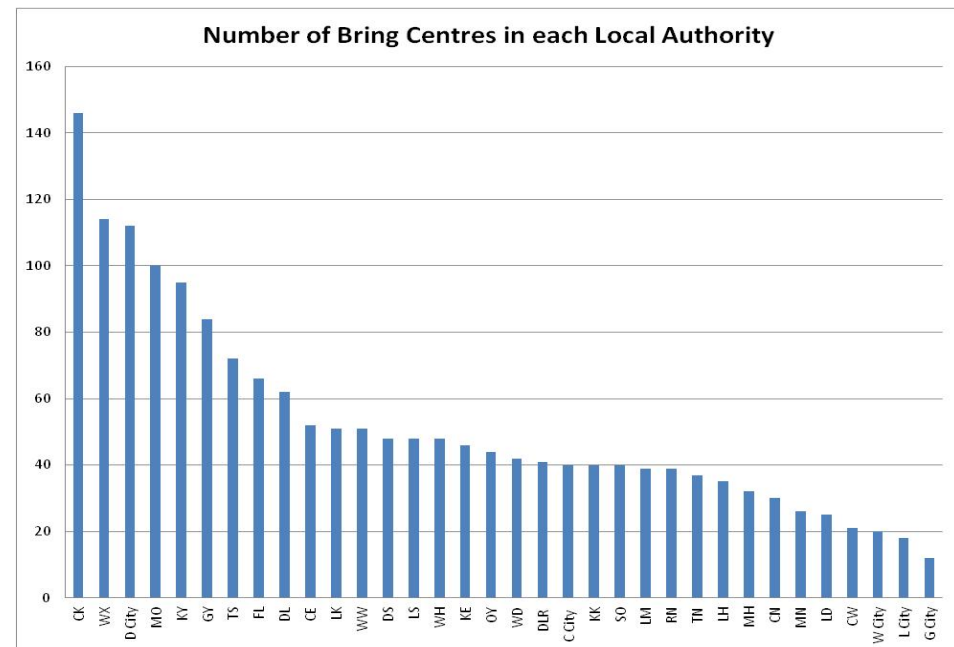
# Agenda

- Introduction / Background
- Why is This Important?
- Design and Planning of Bring Centres
- Technology deployed at Bring Centres
- Human Behaviour at Bring Centres
- Conclusions

- STRIVE Project: ‘Investigation of Novel technologies and New Procedures for Environmental Enforcement’
  - Current situation with Local Authorities, Identification and deployment of technologies to address challenges, dissemination of research findings
- Purpose of this presentation:
  - Share research findings and observations regarding illegal dumping at bring centres in Ireland

# Why is this important?

- Illegal dumping is the main environmental enforcement issue faced by local authorities in Ireland
- Bring Centres are the third highest hot-spot for illegal dumping in urban areas, affecting all local authorities
- 1776 bring centres in Ireland
- Average of 52 for each of the 34 Local Authorities
- Typically 3-5% of bring centre users will leave rubbish behind



## Why is this important?



Illegal dumping concentrated at end of bring centre



Illegal dumping spread everywhere

# Design and Planning of Bring Centres

- Location
  - Visible vs. Hidden and 'out of the way'
- Layout of bring centre
  - Straight, L-shape, U-Shape, Rows
  - Gaps between bins, Gaps at corners
- Area around bring centre
  - Traffic / people flow, Rails, Enclose, Road Surface around bins, Signage
- Health and safety
  - Odours, Glass, Collection Trucks, Overhead Wires, Bin Fatigue, Theft / Crime
- Standardisation of bins
  - Various sizes, shapes, orifice locations, corner bin
- Design for monitoring / cleaning / sustainability
  - Proactive rather than reactive
- Underground / Hole in Wall / Alternative

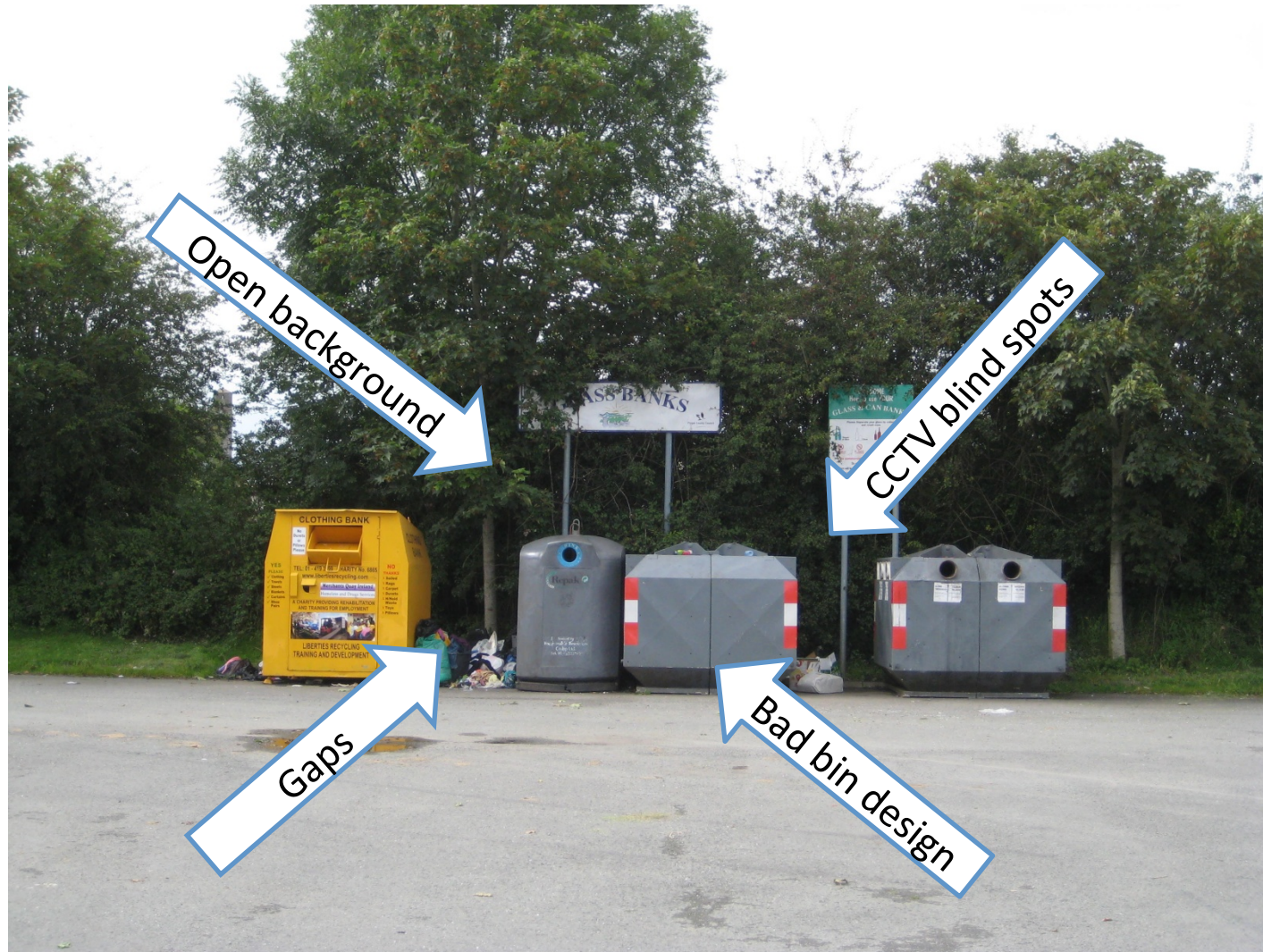
What you expect...





# Design and Planning of Bring Centres... Examples

What you often find...





# Design and Planning of Bring Centres... Examples

What you often find...



# Design and Planning of Bring Centres... Examples - Alternatives



Underground – Coolnagown, Co. Cork



Tesco, Cumbria, UK  
- Tesco accused of corporate greed

- Traditionally no technology deployed
- CCTV introduced to monitor illegal dumping
  - Costly, typically used on temporary basis
  - Dummy CCTV used in some cases with short-term benefits
- Opportunities for Preventative Technologies
  - Programmable Audio Device – Describe and share results
  - Bin level Sensors
  - Fun Theory
  - Footfall / Usage data: Target areas
  - Rotation of CCTV across sites to maximise cost benefit

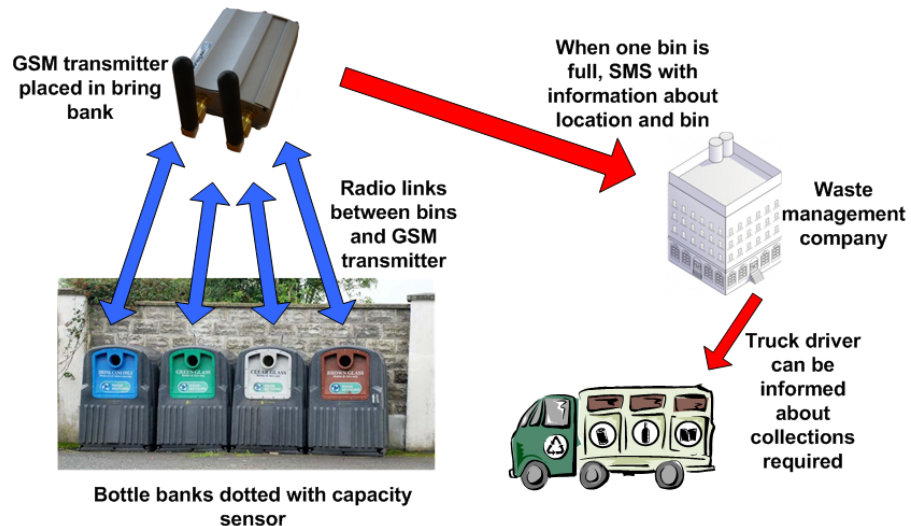


# Technology deployed at Bring Centres Programmable Audio Device

- Reinforces bring bank regulation to users
- Complements signage
- Programmed message plays when user visits bring centre
- Tested in rural and urban bring centres
- Very significant impact on reducing illegal dumping behaviour



# Technology deployed at Bring Centres Bin Level Sensors



- Dumping can occur when bins are full - people leave bottles on the ground
- Real time capacity monitoring is a solution for avoiding this situation
- SMS is sent to waste management company or county council with daily update of bin level
- Not widely deployed in Ireland
- Room for integration with other technologies to create a smart bring bank



# Technology deployed at Bring Centres

## The 'Fun Theory'

Initiative by Volkswagen carried out in Scandinavian countries to make recycling fun and appealing

Could this work in Ireland?....



<http://www.thefuntheory.com>

- Male / Female profile: Data from Lusk
  - 61% of users are male, 39% female over 9 week period
  - 5.5% of bring bank users leave rubbish behind
  - Males are 60% more likely to leave rubbish than females
- Dumping when rubbish is already there
- Dumping at ends / between bins
- Opportunity: Education – awareness, what is acceptable

# Human Behaviour at Bring Centres

## Rubbish calls rubbish

During the current research project it was observed how the cases of illegal dumping increased when previously rubbish had been left in the bring bank





# Human Behaviour at Bring Centres Environmental Law Awareness

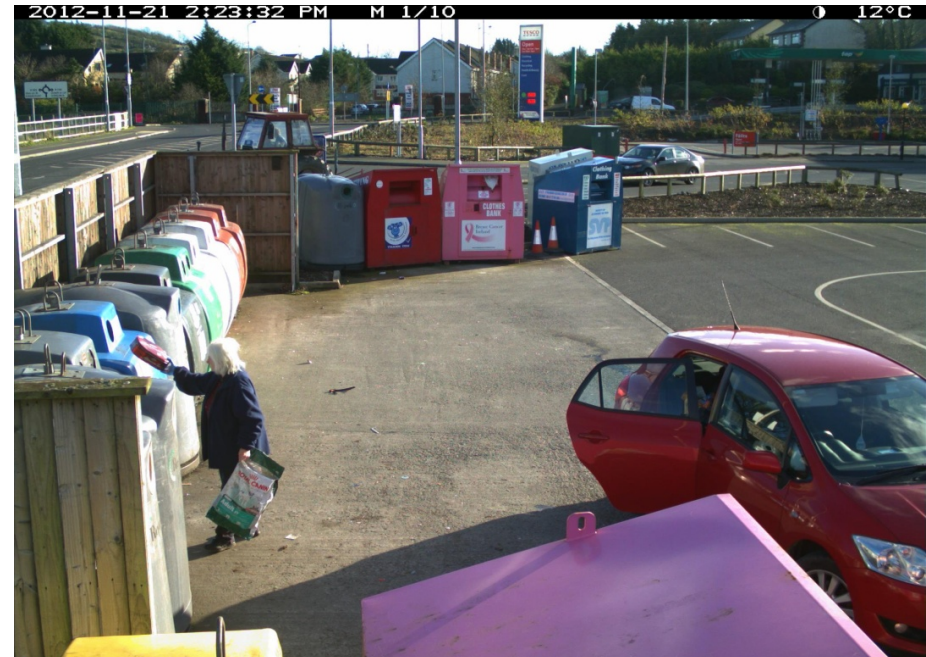
- Dumping tends to take place at the end of bring banks or between the bins
- “Tidy dumper”: There is a feeling of acceptability since rubbish is not left in the middle, but at side for collection services



# Human Behaviour at Bring Centres

## Environmental Law Awareness

- What is more acceptable - leaving a big black rubbish bag or a small biscuit tin at a bring centre?
- According to the regulations, none of them
- These regulations need to be made clear to the general public by education and awareness campaigns





## Conclusions

- Illegal dumping is the main environmental enforcement challenge facing local authorities in Ireland
- Bring centres are the third highest 'hot-spot' for illegal dumping in urban areas
- All local authorities grapple with similar issues at bring centres
- Design and planning of bring centres can make significant improvements at a relatively low cost
- Preventative technologies such as Audio Device makes significant improvement to behaviours
- Best practice sharing across local authorities in addition to public education and awareness is needed to ensure sustainable long term solutions are achieved

# Thank You...

---

## Questions?