

Measuring the Effectiveness of our Enforcement against Waste Crime: Using Combined Approaches

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Waste Crime

- ➔ A broad term to describe the illegal management of waste
- ➔ Its endemic in the waste industry – driven by making money
- ➔ Cost to the UK economy nearly £1 billion per year



The challenge of measuring enforcement effectiveness waste crime

➔ By it's nature, waste crime is hidden

- Activity often out of sight
- Not all reported to us

➔ A broad spectrum of offences that may or may not be related

➔ Our 'enforcement' covers a wide array of interventions

The challenge of measuring enforcement effectiveness waste crime

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- Permit abuse
- Waste fires
- Illegal dumping
- Misdescription
- Illegal Waste Sites
- Illegal Waste exports
- Producer Responsibility Fraud
- The future....

The challenge of measuring enforcement effectiveness waste crime

➔ By its nature, waste crime is hidden

➔ A broad spectrum of offences that may or may not be related

➔ Our 'enforcement' covers a wide array of interventions

eg

- Advice and guidance
- Physical prevention
- Audits and spot checks
- Fines
- Prosecutions

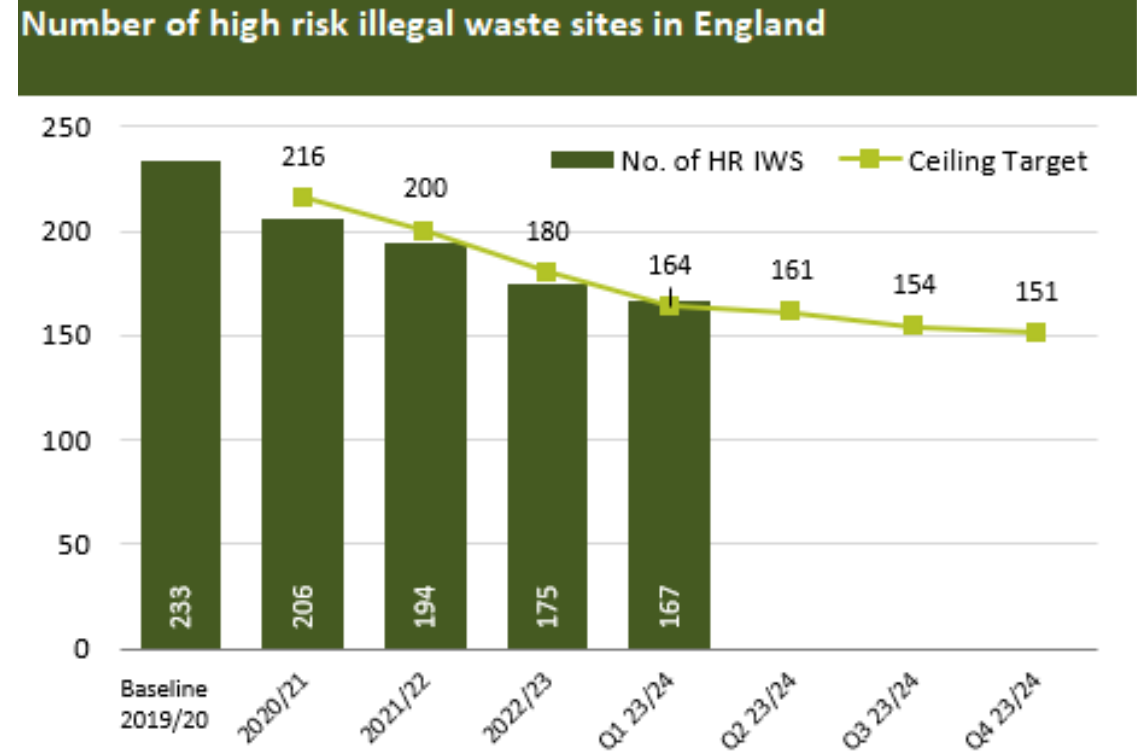
The challenge of measuring enforcement effectiveness waste crime

➔ Number of High Risk Illegal Waste sites

➔ Too much focus on one waste crime type

➔ independent fluctuations in other waste crime types

➔ Incomplete data



Map - density of active high risk illegal waste sites in England (July 2023)

A developing approach

- ➔ National Waste Crime Survey
- ➔ Deterrence Index
- ➔ Digital Waste Tracking

National Waste Crime Survey



- ➔ Waste Industry
- ➔ Landowners/farmers
- ➔ Service Providers

National waste crime survey 2023:
results and findings

Chief Scientist's Group report

National Waste Crime Survey



National waste crime survey 2023:
results and findings

Chief Scientist's Group report

➔ Headline Figure: 18% handled illegally

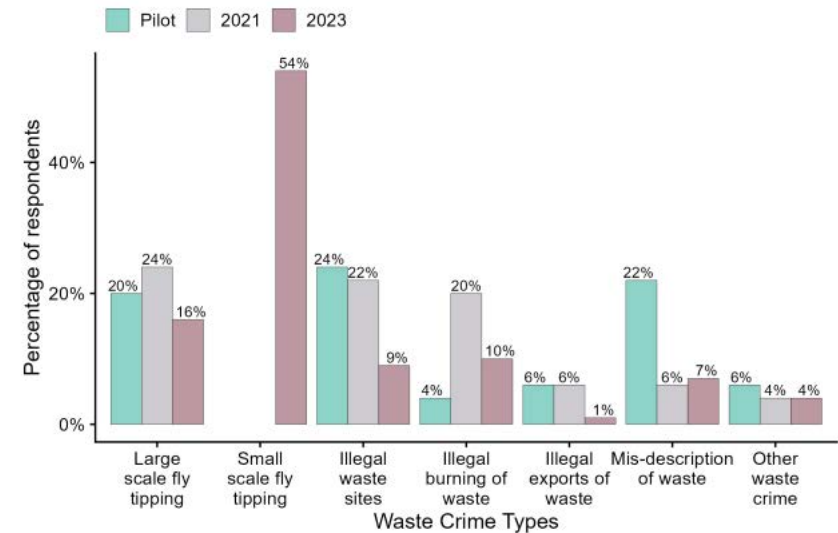


Figure 1 Bar chart to show the percentage of respondents who were directly affected by waste crime in the pilot study, 2021 and 2023 (SYSTRA, 2023). This has decreased across most crime types, except for mis-description. Question: "Have [you, or your organisation / the land you own or manage / your clients] been affected in any way by waste crime in the past 12 months, either directly or indirectly?" N= 239 - Pilot survey, 813 – 2021 survey, 841 – 2023 survey.

National Waste Crime Survey

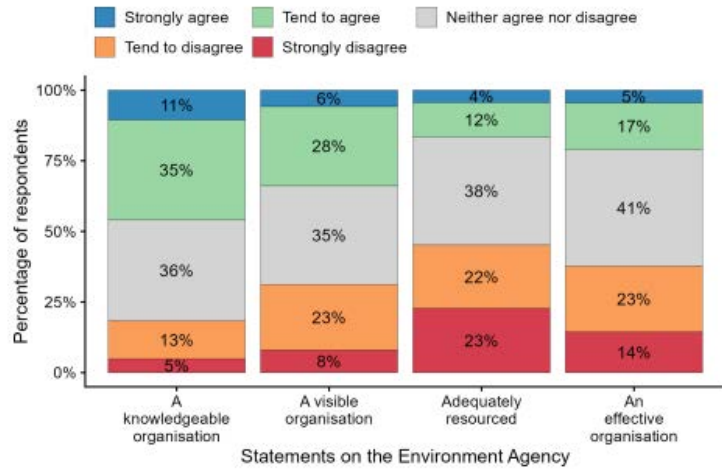


Figure 10 stacked bar chart to show to what extent participants agreed with assessments of the Environment Agency's overall performance with regards to waste crime. All percentages are rounded and may not total to 100% within each bar. Question: "To what extent do you agree or disagree with each of the following statements about the Environment Agency and how it operates as an organisation in relation to waste regulation?", N=841.

Table 6 Percentage of respondents who felt Environment Agency measures were 'very effective' or 'fairly effective' compared with the percentage who felt measures were 'very ineffective' or 'fairly ineffective' in deterring crime, (N=749, landowners/farmers and/or waste industry).

Waste Crime Type	Effective (% respondents)	Ineffective (% respondents)	Net effective
Large-scale fly tipping	17%	45%	-28%
Small-scale fly tipping	8%	67%	-59%
Illegal waste sites	19%	36%	-17%
Illegal burning of waste	17%	33%	-16%
Illegal exports of waste	4%	25%	-21%
Mis-description	13%	27%	-14%

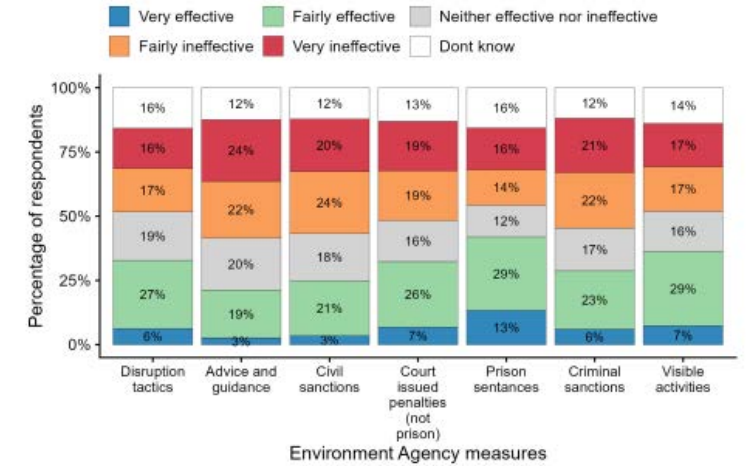


Figure 7 Bar chart to show the percentage of respondents who ranked the different actions available to the Environment Agency in terms of efficiency (ranging from very effective to very ineffective). All percentages are rounded and may not total to 100% within each bar. Question: "To what extent do you think each of these individual measures undertaken by the Environment Agency have been effective in deterring people from committing waste crimes in England?", N= 749 (waste industry and/or landowners/farmers)

National Waste Crime Survey

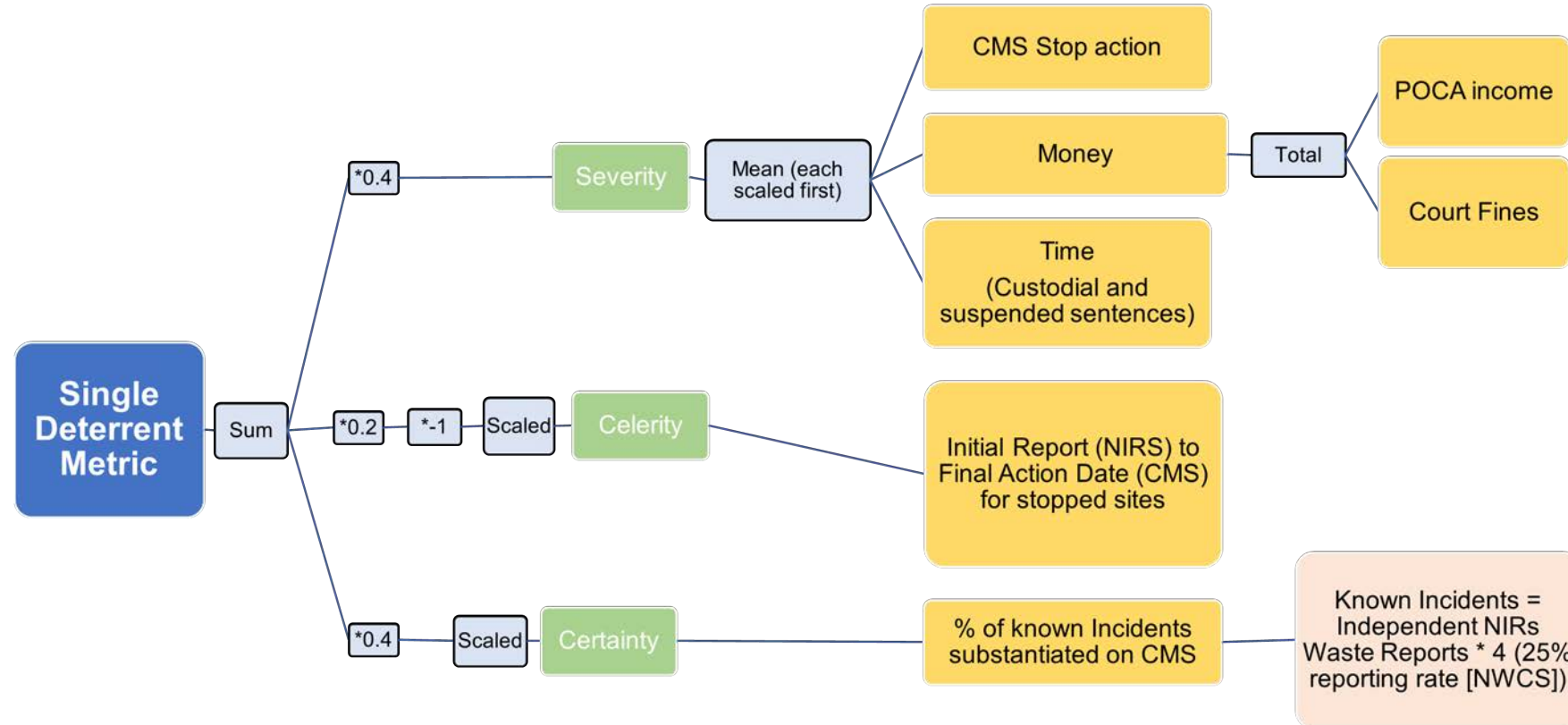
Table 5 The top 5 most selected motivators of waste crime, in rank order. Question: “Which of the following factors do you believe motivate waste crime?” (N= 749, waste industry and/or landowners/farmers).

Perceived motivators of waste crime	Percentage of respondents
Size of financial gains	84%
Low likelihood of detection	78%
Low likelihood of penalties/enforcement measures being applied	68%
Penalties/enforcement measures do not match the potential gains	61%
Slow delivery of penalties/enforcement measures	49%

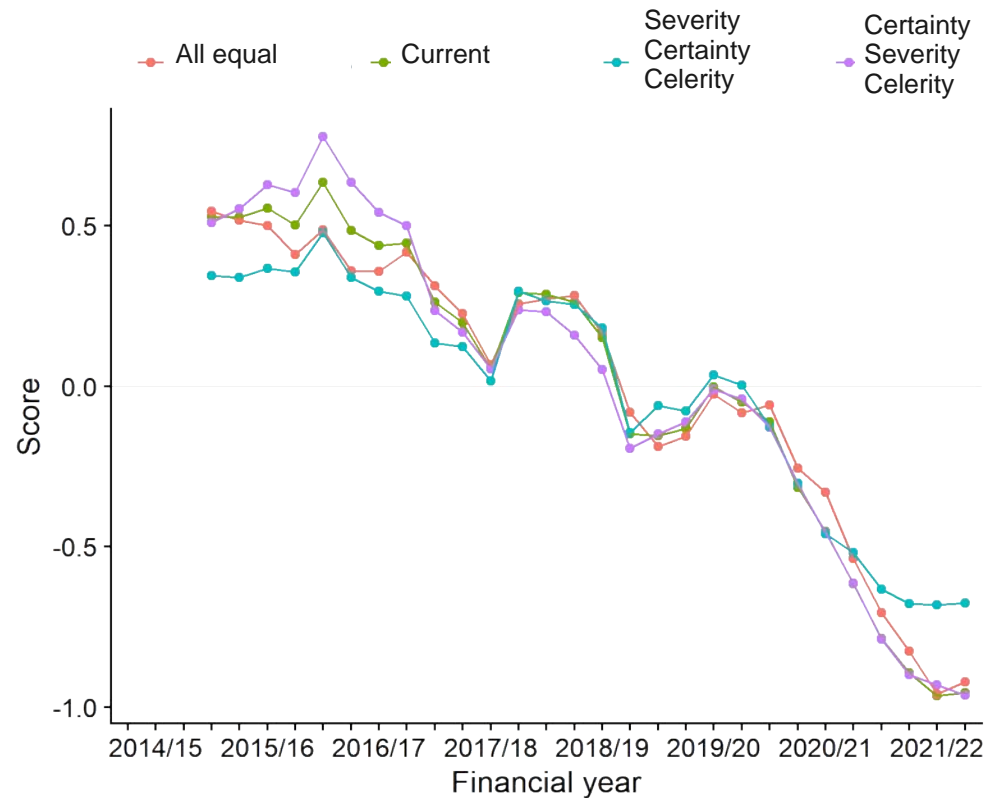
Deterrence Index

- ➔ Based on academic theory (Abramovaite, Bandyopadhyay, Bhattacharya & Cowen, 2022)
- ➔ 3 factors:
 - ➔ Severity
 - ➔ Likelihood
 - ➔ Celerity
- ➔ Scale and model different crime type and enforcement data into a single figure

Deterrence Index



Deterrence Index



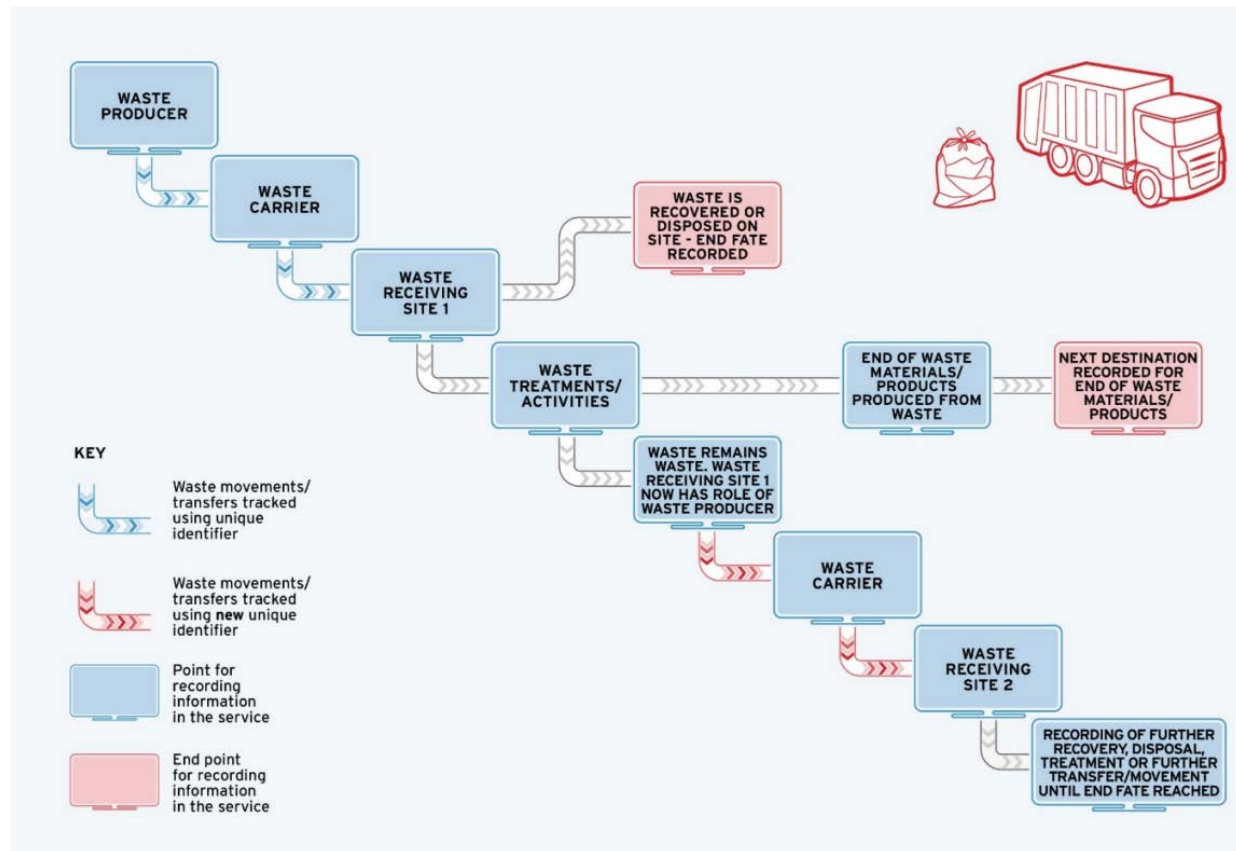
Development model only – NOT final data

Motivators	Percentage
Size of financial gain	84 %
Low likelihood of detection	75 %
Low likelihood of penalties	64 %
Penalties do not match potential gain	57 %
Slow delivery	46 %

National Waste Crime Survey 2021

Digital Waste Tracking

- ➔ All waste will be entered and tracked on system
- ➔ Will also produce a wealth of data across all waste streams in a single place



A developing approach

- ➔ National Waste Crime Survey
- ➔ Deterrence Index
- ➔ Digital Waste Tracking
- ➔ No approach is sufficient alone
- ➔ Combining creates insight and validation

Acknowledgements

- ➔ Matt Hess, Senior Advisor – Chief Scientist’s Group
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- ➔ Digital Waste Tracking Team