

STRIVE

Report Series No. 10

A Nationwide Review of Pay-By-Use (PBU) Domestic Waste Collection Charges in Ireland -

Executive Summary

STRIVE

Environmental Protection
Agency Programme

2007-2013

Environmental Protection Agency

The Environmental Protection Agency (EPA) is a statutory body responsible for protecting the environment in Ireland. We regulate and police activities that might otherwise cause pollution. We ensure there is solid information on environmental trends so that necessary actions are taken. Our priorities are protecting the Irish environment and ensuring that development is sustainable.

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- Office of Communications and Corporate Services

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EPA STRIVE Programme 2007–2013

A Nationwide Review of Pay-By-Use (PBU) Domestic Waste Collection Charges in Ireland

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Executive Summary

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Abstract

This study, 'A Nationwide Review of Pay-By-Use (PBU) Domestic Waste Collection Charges in Ireland', investigated the implementation of pay-by-use (PBU) domestic waste charges in Ireland in order to discern their impact on domestic waste-management activities, such as waste presentation, waste recycling and illegal waste diversion. The research was conducted through two phases: the first was a nationwide local authority survey, from May to September 2006; the second was a case study stage, carried out from August to December 2007.

The nationwide survey Interim Report ('A Nationwide Review of Pay-By-Use (PBU) Domestic Waste Collection Charges in Ireland: Extensive Survey Findings', ERTDI Report 63) and the case study report ('A Nationwide Review of Pay-By-Use (PBU) Domestic Waste Collection Charges: Case Study Report', STRIVE Report 9) are also available for download from <http://www.epa.ie/downloads/pubs/research/waste/>.

1 The Nationwide Survey

The nationwide survey was conducted by collating figures on waste-management behaviour and data on pay-by-use (PBU) charges for each of the 34 local authorities in Ireland. Information was collected using telephone and email surveys, postal questionnaires (in association with the Department of the Environment, Heritage and Local Government) and data gathered by the Environmental Protection Agency as part of the collection of information for the National Waste Database. The data was then analysed using SPSS, a computer-based statistical package that enables analysis of both quantitative and qualitative data. SPSS was used to examine data across local authorities in order to determine overall findings and trends on a nationwide scale. Each local authority was then analysed individually to determine the effects of PBU charges and any associated infrastructure on waste-management behaviour.

The key findings from this first stage of the research are outlined below.

1.1 Waste Collection

In Ireland waste collection can be undertaken by both local authorities and by private waste collectors operating within a local authority's functional area. The research found that 53%¹ of local authorities have exclusively private waste collection within the local authority's functional area; 41% of local authorities have a combination of both private and local authority waste collection; while 6% of local authorities do not have any private waste collectors within their functional area. The average number of waste collectors operating within each local authority's functional area is five. This means that collection practices can vary not only from local authority to local authority, but also within the same local authority area.

1.2 PBU Systems

There are three systems of PBU charges currently used in Ireland: (i) volume-based systems, (ii) tag-based systems and (iii) weight-based systems. Volume-based systems require householders to subscribe to a weekly bin collection, for which they pay an annual charge. This system is considered PBU as householders can select the size of bin they subscribe to; the annual charge is based on the volume of the bin, with larger bins incurring a higher annual charge. Tag-based systems include both tag-a-bag and tag-a-bin. These involve householders purchasing tags to attach to their bag or bin with collectors picking up only those bags and bins with the appropriate tag attached. The system is considered PBU as householders pay only for waste collection when they place bags or bins out for collection. Weight-based systems involve householders paying per kilogramme of waste placed out for collection. The waste collector weighs the bin and bills the householder based on this weight.

1.3 Adoption of PBU Systems

Of the 32 local authorities in Ireland that responded to the postal questionnaire, 11 local authorities (32%) use one PBU system within their functional area, 19 (56%) use two, and 2 (6%) use all three systems. The presence of multiple systems within a local authority's functional area is a result of numerous waste collectors operating within the area. The tag-based system is the most common: the majority of local authorities (82%) use the system through one or more waste collectors within their functional area. Volume-based systems are used in 62% of local authorities' functional areas, with weight-based systems used in only 15%. Waste collectors operating within six local authorities (18%) had not moved to local authority-wide PBU charging at the time of the study and instead used a flat-rate charge in part of the local authorities' functional area. Flat charges are used by 16 waste collectors across the six local authorities.

¹ Note: All percentages are rounded to the nearest whole number.

1.4 Kerbside Recycling

To investigate how kerbside recycling facilities were related to waste presentation, the influence of kerbside recycling services was considered in relation to the amount of waste presented for collection. Of the 30 local authorities that responded to this question 29 local authorities have a kerbside recycling service within their functional area. It should be noted that local authorities did not state whether or not this service is available to all householders in their functional area. Only one local authority – Carlow County Council – reported that no kerbside recycling service was currently in place; this local authority has the fifth highest waste-presentation rate in the country (310 kg per person). On the other hand, the local authority with the lowest rate of waste presentation (126 kg per person) – Galway City Council – offers weekly recycling collection throughout its functional area. Interestingly, Galway City Council does not currently use PBU charges: instead, householders are charged using an annual flat rate. This local authority focused on providing recycling services and education to householders in order to reduce waste to landfill. This suggests that both access to recycling and environmental awareness may play an equal role in reducing waste presentation as economic instruments rates.

1.5 Waste-Presentation Rates²

The relationship between PBU and waste-presentation rates was also investigated by using waste-collection figures from the 2003 and 2004 EPA National Waste Database returns and from local authority responses to the postal questionnaire. The research revealed that average waste-presentation rates in local authorities without PBU charges have increased over time (from 240 kg per person in 2003 to 266 kg per person in 2004; an 11% increase) whereas average waste-presentation rates in local authorities with PBU charges have decreased over time – from 227 kg per person in 2003, to 221 kg in 2004, to 219 kg per person in 2005. As more and more local authorities move from flat-rate charges to PBU charges,

there is an overall nationwide trend of decreasing waste-presentation rates year on year. Although this figure must be read in the light of increasing provision of kerbside recycling services (as detailed above), it suggests that PBU charges have influenced waste-presentation rates in Ireland on a nationwide level.

1.6 PBU Systems

Another aim of the study was to identify the influence of different PBU charging systems on waste-management behaviour: whether volume, tag or weight based. However, the research revealed that the local authority level was not the appropriate level at which to gather data for the comparison of PBU systems: although waste-presentation and recycling figures are gathered at a local authority level they are not disaggregated into figures per collector, whereas systems are implemented on a collector, not local authority, level. As a result, in order to analyse the influence of PBU systems on waste management behaviour, further study at the level of waste collectors rather than local authorities is required. Such analysis may be difficult when some data on waste collection is considered to be commercially sensitive by private waste collectors.

1.7 Illegal Diversion

Studies of PBU elsewhere have contended that their introduction may lead to increased illegal diversion of waste, at least initially. Local authorities were asked about incidences of illegal diversion prior to and after the introduction of PBU systems. However, exact figures are hard to establish in this area as many local authorities do not have detailed or comprehensive monitoring and management systems for illegal waste-diversion activities. Interviews with local authority waste-enforcement officers revealed a general perception that overall there has been an increase in the number of waste incidents reported to the local authorities. Officers were nonetheless keen to point out that this may not be solely related to the introduction of PBU charges; they stressed that increased environmental awareness and shifting social values can contribute to a greater reporting of illegal activity.

² Waste-presentation figures calculated in this research do not include recyclable waste presented for collection and therefore differ from EPA National Waste Database figures.

It should be noted that in the nationwide survey the findings relate only to local authority responses, and not to the experiences of private waste collection companies.

1.8 Selection of Charges

The main motivation for local authorities when selecting the amount to charge householders under their selected PBU system was to cover the costs involved in collecting and disposing of household waste.

1.9 Ease of Implementation

Local authorities that opted for tag-based charges chose this system primarily because of its ease of implementation. Other factors that influenced the decision were cost factors and the equitable nature of the system. Local authorities selecting to implement weight-based charges did so because of its reflection of the 'polluter pays' principle, its discouragement of waste compacting and its creation of clear incentives to reduce waste presentation.

1.10 Difficulties

Twelve local authorities stated that they experienced difficulties when implementing PBU charges; five stated that they did not experience difficulties. These difficulties included public resistance to charges, problems with enforcing the adoption of PBU and pressure on local authority resources.

1.11 Levels of Satisfaction

Thirteen local authorities stated that they were either 'satisfied' or 'very satisfied' with the impact of PBU charges within their functional area. The reasons given were increased recycling, decreased waste to landfill and greater cost recovery. Seven local authorities stated that they were 'dissatisfied' with the impact of the charges, and seven expressed mixed feelings on the charges. The main reason given for dissatisfaction was the form of PBU charging used by private waste collectors within their functional area. Other reasons given for dissatisfaction were increased illegal waste diversion, the cost of waste collection if waste-presentation figures declined and finally the view that PBU may encourage people to believe that recycling has no cost attached to it.

The first stage of the research, the nationwide survey, while answering many questions on the implementation of PBU, was unable to provide detailed answers to questions on the impacts of PBU. The second stage of the research, the case studies, aimed to address both several of the areas left unanswered by the nationwide survey, and several additional areas raised by local authority responses to this first stage.

2 The Case Study Stage

Four main issues were selected for investigation during the case study stage:

1. the impact of various PBU systems on householders waste-presentation rates;
2. waste-presentation rates for landfill under different levels of access to a kerbside recycling service;
3. the relationship between PBU domestic waste charges and illegal domestic waste diversion; and
4. the role of the private waste collector in domestic waste collection in Ireland.

These issues were examined through studies conducted in two local authority case studies (a Cork County Council case study and a Dublin Waste Management Region case study) and with a selection of six private waste collectors. Quantitative information gathered from the interviews was analysed using SPSS, and qualitative information was analysed using descriptive and conceptual coding techniques. The key findings from the case study stage are outlined below.

2.1 Impact of PBU System on Domestic Waste-Presentation Rates

Two local authorities with equal access to kerbside recycling, but with different PBU systems, were studied to compare the effectiveness of both the weight-based PBU system with the tag-based PBU system on household waste-presentation rates to landfill. The analysis revealed that from the year prior to the introduction of PBU to the year subsequent to its introduction, under the weight system waste presentation to landfill decreased by 49%, whereas under the tag system presentation decreased by 23%. A further study area selected to move from a tag system to a weight system and realised initial decreases

of 19% followed by a further decrease of 8% upon implementation of a weight-based PBU charge. These figures indicate that the weight-based system may be more effective in reducing landfill waste-presentation rates in householders than tag-based PBU.

2.2 Impact of Kerbside Recycling on Domestic Waste-Presentation Rates

In an area with kerbside recycling and an area without kerbside recycling a 33% difference was found in overall reductions in waste to landfill from the year prior to the introduction of the weight-based PBU system to the latest figures available, 2007. Both areas moved from a flat-rate system to a PBU system, the only difference being access to a kerbside recycling service. This 33% difference in reduction under a PBU system indicates that presence of a kerbside recycling service has a significant role in achieving reductions in household waste to landfill.

2.3 Destinations of Diverted Waste

In several areas data was available to allow limited investigation into the possible destinations of the diverted waste; source reduction, recycling and illegal waste diversion.

2.3.1 Impact of PBU on Source Reduction

The case study stage allowed for a preliminary examination of the impact of PBU charges on domestic source reduction. Source reduction involves householders decreasing the overall amount of waste they produce through changes to their shopping habits. Two waste-management areas that had moved from a flat-rate system to a PBU system provided data suitable for analysis. One of these areas uses the weight-based system; the other area uses the tag-based system. Within the weight-based

PBU waste-management area a 16% decrease in the total amount of waste managed by the local authority was experienced and within the tag-based PBU area a 20% decrease in the total amount of waste managed by the local authority was witnessed. These figures indicate that both the tag and weight forms of PBU may be effective in prompting source reduction in householders; however, it is not possible to determine whether these decreases were achieved through source-reduction behaviour, as householders may have alternatively selected to dispose of their waste illegally.

2.3.2 *Impact of PBU on Recycling*

The majority of householders in two of the waste management areas studied already had a kerbside recycling service before the local authority's implementation of PBU charges. In one area, analysis of kerbside recycling figures revealed that during the 2003–2007 study period householders with a kerbside recycling service had increased the amount placed out for recycling by only 9% on average. In addition, in the year the tag-based PBU system was implemented and householders reduced their landfill waste presentation by 23%, the amount presented for recycling also actually decreased by 4%. These findings indicate that households did not select to divert their waste through increasing use of the kerbside recycling service. However, although kerbside recycling levels did not increase significantly on the introduction of PBU, data was available to investigate the impact of the charges upon total diversion using county council civic amenity sites (CAS), bring banks and two bin collections, the kerbside recycling bin and the pilot organic bin. Taking these diversion options together, the analysis reveals that during the study period, on average, households increased the amount of waste diverted via these routes by 100% – indicating a large level of participation in recycling. In the second area studied in the year weight-based PBU charges began and householders reduced their landfill waste presentation by 49%, the amount of recycling placed in householder recycling bins increased by 25%.

2.3.3 *Impact of PBU on Illegal Diversion*

Investigation into the impact of PBU on illegal diversion in the first stage of the study focused on changes in the number of reported incidents. This relies on reporting levels and so may actually reflect public awareness changes rather than real changes in illegal dumping activity. The case study stage examined illegal dumping in the two local authority case study areas (Cork County Council and the Dublin Waste Management Region) following the implementation of PBU charges. By interviewing 30 people, working in many different roles, a picture was built up of experiences of illegal dumping. Interviewees were asked whether they had witnessed changes in illegal diversion levels over time, and what factors they felt influenced these changes. The interviews revealed that the majority of interviewees felt that levels of illegal waste diversion had in fact increased. The most commonly cited reason was the introduction of PBU domestic waste charges. The second most commonly provided reason was an increase in the amount of rental properties in the area. Based on the responses provided by the interviewees, PBU can be considered a contributing factor in increasing illegal domestic waste diversion at least in the early stages of implementation.

2.4 *The Role of Private Collectors*

The number and influence of private collectors in the domestic waste collection market was identified in the first stage of the research. In 41% of county/city councils both the local authority and private collectors operate a domestic waste service. One aim of the case study stage was to examine the relationships between local authorities and private waste collectors, and to gather the views of private collectors on PBU. Interviews revealed a high degree of competition between local authorities and private waste collectors, with both parties claiming that the absence of a level playing field places the other side at an advantage. Local authorities referred to the private collectors' profit motive encouraging private collectors to use environmentally less effective PBU systems to 'cherry

pick' customers, and to not offer low-income customers a fees waiver. On the other hand, private collectors referred to the conflicting roles of local authorities as waste regulators and collectors. In particular, private collectors felt that local authority grants from the Environment Fund were unfair. Both local authorities and private waste collectors are generally supportive of the proposed introduction of

an independent waste regulator, feeling that this might help remove the current level of inequality. However, the local authorities interviewed also expressed a preference for local authority ownership of waste regulation, with private collectors applying for permits using a competitive tendering process.

3 Overall Conclusions

The findings of the study lead to several conclusions on PBU domestic waste charges in Ireland, which may be useful in informing future policy.

3.1 Positive Consequences of PBU

On a nationwide level, there has been a general decrease in the amount of waste produced in cases where PBU has been introduced, whereas those areas without PBU systems have seen an increase in average rates of waste presentation.

3.1.1 Systems

Under a pay-by-weight system, case study areas reported reductions in domestic waste-presentation rates of between 28% and 61% from the year prior to PBU to the most recent figures available, 2007.

The pay-by-weight system is an effective tool for waste reduction in its own right – bringing reductions in waste to landfill of 28% overall in a waste-management area without kerbside recycling. However, weight-based PBU is much more effective in the presence of a kerbside recycling service, with areas using these together experiencing reductions of 53% and 61%, from the year prior to PBU to the most recent figures available, 2007.

The weight-based PBU system is more effective at reducing household waste to landfill than the tag-based PBU system.

3.1.2 Recycling

There has been an improvement in recycling levels in the time period following the introduction of PBU although this increase is often a continuation of a general trend that was occurring before PBU was introduced (and it has also occurred in locations where PBU has not been introduced). Recycling behaviour is influenced by other developments such as improved recycling infrastructure and changing public attitudes towards recycling activities.

3.2 Negative Consequences of PBU

3.2.1 Illegal Diversion

While illegal diversion has been mooted as an unwanted by-product of PBU, the systems for monitoring such activities frequently lack sophistication, making the evaluation of this claim difficult. The sporadic, unpredictable and illicit nature of such behaviour makes the development of a monitoring system problematic and a time- and resource-intensive activity. The development of such monitoring systems could lead to both a better understanding of the actual occurrence of such events and also act as a deterrent for such behaviour.

3.2.2 Information

The adoption of different systems of PBU (and in some cases non-adoption) by different collectors (public and private) both within and across local authority boundaries makes the evaluation of system effectiveness difficult at a local authority level; analysis at a collector level is more appropriate.

Current systems of information collection for waste-related activities (such as illegal diversion, recycling and waste presented) are dispersed and fragmented. As a result, it is difficult to compare the data collected across locations. In addition, data can be incomplete owing to the retention of information by private sector collectors who claim that it is commercially sensitive, or because of a lack of monitoring, such as with illegal waste activities.

3.2.3 Competition

The roles and responsibilities of public and private sector collectors should be clarified. Greater transparency of waste permit systems, grant aid, and collection requirements should be established. This may well be best done through an independent waste regulator.

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An Gníomhaireacht um Chaomhnú Comhshaoil

Is í an Gníomhaireacht um Chaomhnú Comhshaoil (EPA) comhlachta reachtúil a chosnaíonn an comhshaol do mhuintir na tíre go léir. Rialaímid agus déanaimid maoirsiú ar ghníomhaíochtaí a d'fhéadfadh truailliú a chruthú murach sin. Cinntímid go bhfuil eolas cruinn ann ar threochtaí comhshaoil ionas go nglactar aon chéim is gá. Is iad na príomh-nithe a bhfuilimid gníomhach leo ná comhshaol na hÉireann a chosaint agus cinntiú go bhfuil forbairt inbhuanaithe.

Is comhlacht poiblí neamhspleách í an Gníomhaireacht um Chaomhnú Comhshaoil (EPA) a bunaíodh i mí Iúil 1993 faoin Acht fán nGníomhaireacht um Chaomhnú Comhshaoil 1992. Ó thaobh an Rialtais, is í an Roinn Comhshaoil agus Rialtais Áitiúil a dhéanann urraíocht uirthi.

ÁR bhFREAGRACHTAÍ

CEADÚNÚ

Bíonn ceadúnais á n-eisiúint againn i gcomhair na nithe seo a leanas chun a chinntiú nach mbíonn astuithe uathu ag cur sláinte an phobail ná an comhshaol i mbaol:

- áiseanna dramhaíola (m.sh., líonadh talún, loisceoirí, stáisiúin aistrithe dramhaíola);
- gníomhaíochtaí tionsclaíocha ar scála mór (m.sh., déantúsaíocht cógaisíochta, déantúsaíocht stroighne, stáisiúin chumhachta);
- diantalmhaíocht;
- úsáid faoi shrian agus scaoileadh smachtaithe Orgánach Géinathraithe (GMO);
- mór-áiseanna stórais peitreal.

FEIDHMIÚ COMHSHAOIL NÁISIÚNTA

- Stiúradh os cionn 2,000 iniúchadh agus cigireacht de áiseanna a fuair ceadúnas ón nGníomhaireacht gach bliain.
- Maoirsiú freagrachtaí cosanta comhshaoil údarás áitiúla thar sé earnáil - aer, fuaim, dramhaíl, dramhuisce agus caighdeán uisce.
- Obair le húdaráis áitiúla agus leis na Gardaí chun stop a chur le gníomhaíocht mhídhleathach dramhaíola trí chomhordú a dhéanamh ar líonra forfheidhmithe náisiúnta, díriú isteach ar chiontóirí, stiúradh fiosrúcháin agus maoirsiú leigheas na bhfadhbanna.
- An dlí a chur orthu siúd a bhriseann dlí comhshaoil agus a dhéanann dochar don chomhshaol mar thoradh ar a ngníomhaíochtaí.

MONATÓIREACHT, ANAILÍS AGUS TUAIRSCIÚ AR AN GCOMHSHAOL

- Monatóireacht ar chaighdeán aer agus caighdeáin aibhneacha, locha, uiscí taoide agus uiscí talaímh; leibhéil agus sruth aibhneacha a thomhas.
- Tuairisciú neamhspleách chun cabhrú le rialtais náisiúnta agus áitiúla cinntiú a dhéanamh.

RIALÚ ASTUITHE GÁIS CEAPTHA TEASA NA HÉIREANN

- Caimníochtú astuithe gáis ceaptha teasa na hÉireann i gcomhthéacs ár dtiomantas Kyoto.
- Cur i bhfeidhm na Treorach um Thrádáil Astuithe, a bhfuil baint aige le hos cionn 100 cuideachta atá ina mór-ghineadóirí dé-ocsaíd charbóin in Éirinn.

TAIGHDE AGUS FORBAIRT COMHSHAOIL

- Taighde ar shaincheisteanna comhshaoil a chomhordú (cosúil le caighdeán aer agus uisce, athrú aeráide, bithéagsúlacht, teicneolaíochtaí comhshaoil).

MEASÚNÚ STRAITÉISEACH COMHSHAOIL

- Ag déanamh measúnú ar thionchar phleananna agus chláracha ar chomhshaol na hÉireann (cosúil le pleananna bainistíochta dramhaíola agus forbartha).

PLEANÁIL, OIDEACHAS AGUS TREOIR CHOMHSHAOIL

- Treoir a thabhairt don phobal agus do thionscal ar cheisteanna comhshaoil éagsúla (m.sh., iarratais ar cheadúnais, seachaint dramhaíola agus rialacháin chomhshaoil).
- Eolas níos fearr ar an gcomhshaol a scaipeadh (trí cláracha teilifíse comhshaoil agus pacáistí acmhainne do bhunscoileanna agus do mheánscoileanna).

BAINISTÍOCHT DRAMHAÍOLA FHORGHNÍOMHACH

- Cur chun cinn seachaint agus laghdú dramhaíola trí chomhordú An Chláir Náisiúnta um Chosc Dramhaíola, lena n-áirítear cur i bhfeidhm na dTionscnamh Freagrachta Táirgeoirí.
- Cur i bhfeidhm Rialachán ar nós na treoracha maidir le Trealamh Leictreach agus Leictreonach Caite agus le Srianadh Substaintí Guaiseacha agus substaintí a dhéanann ídiú ar an gcríos ózóin.
- Plean Náisiúnta Bainistíochta um Dramhaíl Ghuaiseach a fhorbairt chun dramhaíl ghuaiseach a sheachaint agus a bhainistiú.

STRUCHTÚR NA GNÍOMHAIREACHTA

Bunaíodh an Gníomhaireacht i 1993 chun comhshaol na hÉireann a chosaint. Tá an eagraíocht á bhainistiú ag Bord lánaimseartha, ar a bhfuil Príomhstíúrthóir agus ceithre Stíúrthóir.

Tá obair na Gníomhaireachta ar siúl trí ceithre Oifig:

- An Oifig Aeráide, Ceadúnaithe agus Úsáide Acmhainní
- An Oifig um Fhorfheidhmiúchán Comhshaoil
- An Oifig um Measúnacht Comhshaoil
- An Oifig Cumarsáide agus Seirbhísí Corparáide

Tá Coiste Comhairleach ag an nGníomhaireacht le cabhrú léi. Tá dáréag ball air agus tagann siad le chéile cúpla uair in aghaidh na bliana le plé a dhéanamh ar cheisteanna ar ábhar imní iad agus le comhairle a thabhairt don Bhord.

Science, Technology, Research and Innovation for the Environment (STRIVE) 2007-2013

The Science, Technology, Research and Innovation for the Environment (STRIVE) programme covers the period 2007 to 2013.

The programme comprises three key measures: Sustainable Development, Cleaner Production and Environmental Technologies, and A Healthy Environment; together with two supporting measures: EPA Environmental Research Centre (ERC) and Capacity & Capability Building. The seven principal thematic areas for the programme are Climate Change; Waste, Resource Management and Chemicals; Water Quality and the Aquatic Environment; Air Quality, Atmospheric Deposition and Noise; Impacts on Biodiversity; Soils and Land-use; and Socio-economic Considerations. In addition, other emerging issues will be addressed as the need arises.

The funding for the programme (approximately €100 million) comes from the Environmental Research Sub-Programme of the National Development Plan (NDP), the Inter-Departmental Committee for the Strategy for Science, Technology and Innovation (IDC-SSTI); and EPA core funding and co-funding by economic sectors.

The EPA has a statutory role to co-ordinate environmental research in Ireland and is organising and administering the STRIVE programme on behalf of the Department of the Environment, Heritage and Local Government.