Environmental Protection Agency
Annual Report and Accounts | **2016**

ENVIRONMENTAL PROTECTION AGENCY

The Environmental Protection Agency (EPA) is responsible for protecting and improving the environment as a valuable asset for the people of Ireland. We are committed to protecting people and the environment from the harmful effects of radiation and pollution.

The work of the EPA can be divided into three main areas:

Regulation: *We implement effective regulation and environmental compliance systems to deliver good environmental outcomes and target those who don't comply.*

Knowledge: *We provide high quality, targeted and timely environmental data, information and assessment to inform decision making at all levels.*

Advocacy: *We work with others to advocate for a clean, productive and well protected environment and for sustainable environmental behaviour.*

Our Responsibilities

Licensing

We regulate the following activities so that they do not endanger human health or harm the environment:

- waste facilities (*e.g. landfills, incinerators, waste transfer stations*);
- large scale industrial activities (*e.g. pharmaceutical, cement manufacturing, power plants*);
- intensive agriculture (*e.g. pigs, poultry*);
- the contained use and controlled release of Genetically Modified Organisms (*GMOs*);
- sources of ionising radiation (*e.g. x-ray and radiotherapy equipment, industrial sources*);
- large petrol storage facilities;
- waste water discharges;
- dumping at sea activities.

National Environmental Enforcement

- Conducting an annual programme of audits and inspections of EPA licensed facilities.
- Overseeing local authorities' environmental protection responsibilities.
- Supervising the supply of drinking water by public water suppliers.
- Working with local authorities and other agencies to tackle environmental crime by coordinating a national enforcement network, targeting offenders and overseeing remediation.
- Enforcing Regulations such as Waste Electrical and Electronic Equipment (WEEE), Restriction of Hazardous Substances (RoHS) and substances that deplete the ozone layer.
- Prosecuting those who flout environmental law and damage the environment.

Water Management

- Monitoring and reporting on the quality of rivers, lakes, transitional and coastal waters of Ireland and groundwaters; measuring water levels and river flows.
- National coordination and oversight of the Water Framework Directive.
- Monitoring and reporting on Bathing Water Quality.

Monitoring, Analysing and Reporting on the Environment

- Monitoring air quality and implementing the EU Clean Air for Europe (CAFÉ) Directive.
- Independent reporting to inform decision making by national and local government (*e.g. periodic reporting on the State of Ireland's Environment and Indicator Reports*).

Regulating Ireland's Greenhouse Gas Emissions

- Preparing Ireland's greenhouse gas inventories and projections.
- Implementing the Emissions Trading Directive, for over 100 of the largest producers of carbon dioxide in Ireland.

Environmental Research and Development

- Funding environmental research to identify pressures, inform policy and provide solutions in the areas of climate, water and sustainability.

Strategic Environmental Assessment

- Assessing the impact of proposed plans and programmes on the Irish environment (*e.g. major development plans*).

Radiological Protection

- Monitoring radiation levels, assessing exposure of people in Ireland to ionising radiation.
- Assisting in developing national plans for emergencies arising from nuclear accidents.
- Monitoring developments abroad relating to nuclear installations and radiological safety.
- Providing, or overseeing the provision of, specialist radiation protection services.

Guidance, Accessible Information and Education

- Providing advice and guidance to industry and the public on environmental and radiological protection topics.
- Providing timely and easily accessible environmental information to encourage public participation in environmental decision-making (*e.g. My Local Environment, Radon Maps*).
- Advising Government on matters relating to radiological safety and emergency response.
- Developing a National Hazardous Waste Management Plan to prevent and manage hazardous waste.

Awareness Raising and Behavioural Change

- Generating greater environmental awareness and influencing positive behavioural change by supporting businesses, communities and householders to become more resource efficient.
- Promoting radon testing in homes and workplaces and encouraging remediation where necessary.

Management and Structure of the EPA

The EPA is managed by a full time Board, consisting of a Director General and five Directors. The work is carried out across five Offices:

- Office of Environmental Sustainability
- Office of Environmental Enforcement
- Office of Evidence and Assessment
- Office of Radiation Protection and Environmental Monitoring
- Office of Communications and Corporate Services

The EPA is assisted by an Advisory Committee of twelve members who meet regularly to discuss issues of concern and provide advice to the Board.

ENVIRONMENTAL PROTECTION AGENCY

EPA ANNUAL Report 2016

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The layout of this report has been structured and aligned to reflect the EPA Strategic Plan 2016–2020: *Our Environment, Our Wellbeing*.

Key Statistics

LICENCES

165
Environmental licences issued

226
Technical amendments completed

905
Radiation licences issued (849 renewals; 56 new)

ENFORCEMENT

281
Inspections to urban waste water sites

1,552
visits to industrial and waste facilities of which 95% were unannounced

17
prosecutions taken

61 drinking water site audits

15 drinking water Directions issued to Irish Water

46 new research research reports published (including 11 on Fracking)

WASTE

52%
Decrease in waste being landfilled between 2011 and 2015

4
Landfills accepting municipal waste

INFORMATION

22,200
EPA Twitter Followers across 10 Twitter accounts

89
information requests (45 AIE & 44 FOI)

819,000
Visits to the EPA website **www.epa.ie**

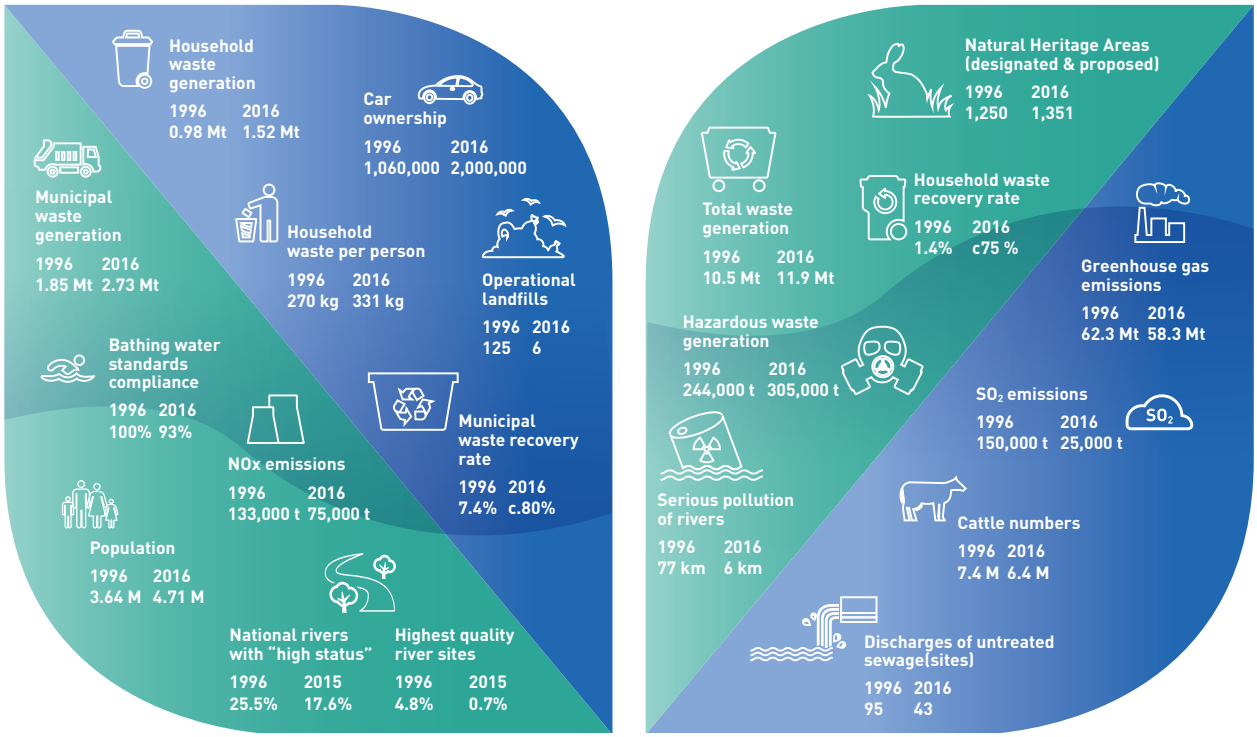
2,200+
Environmental complaints reported via *See it? Say it?* app

epa BeGreen
PREVENTING WASTE & SAVING MONEY

2,000
Farmers safely disposed of 200 tonnes of problem & hazardous wastes.

2016 in Numbers

20 Years of State of the Environment Reporting 1996-2016



The State of the Environment report, published in November 2016, is the sixth since the first such report was published in 1995 – more than 20 years ago. These reports provide the national evidence base about the condition of our natural environment and the challenges and opportunities associated with its protection and management. They chart both the successes and failures of national environmental policy over these years and are a critical resource for the State in planning for the next quarter of a century.

More detail and up-to-date environmental indicators.can be found at:
www.epa.ie/irelandsenvironment/environmentalindicators/.

VISION

A clean, healthy and well protected environment supporting a sustainable society and economy.

MISSION

To protect and improve the environment as a valuable asset for the people of Ireland.

To protect our people and the environment from the harmful effects of radiation and pollution.

VALUES

Our Stewardship

We are a trusted, independent and authoritative advocate for the environment.

We make objective decisions based on the best available scientific evidence and information.

We manage our resources effectively and efficiently to deliver value to the public.

Our Work

We regulate in a fair, proportionate and transparent manner and target those who don't comply.

We make a difference by working with others to foster trust and build networks and partnerships to deliver effective outcomes.

We strive continuously for improvement and excellence through learning and development.

Our Service

We are innovative, adaptive and open to new and flexible ways of working.

We design and deliver services from the citizen's point of view.

We provide our services in a manner that is competent, courteous and responsive.

Our Colleagues

We work together to deliver effective outcomes.

We support, trust and value our colleagues and empower each other to make decisions.

We are open and honest with each other.

We constructively challenge and encourage each other to do better.

WHAT WE DO

Knowledge

Provide high quality, targeted and timely environmental data, assessments and evidence to inform decision making by citizens, businesses and Government.

Regulation

Implement effective regulation and environmental compliance systems to deliver good outcomes for people and the environment and target those who don't comply.

Advocacy

Work with others to advocate for a clean, healthy and well protected environment and sustainable environmental behaviour.

HOW WE DO IT

- Monitoring & Assessment
- Research & Expertise
- Timely & Accessible Information
- Licensing
- Enforcement
- Guidance
- Partnering & Networking
- Awareness Raising
- Promoting Sustainable Behaviour

Strategic Goals
for the period 2016-2020

Goals	Objectives	Outcomes What we will have achieved by 2020
Trusted Environmental Regulator	**Ensure** the on-going development of a proportionate and effective regulatory approach. **Align** EPA resources to target interventions and reduce environmental risk.	◢ A risk-based, responsive regulatory approach that engages stakeholders and protects the environment and people. ◢ Reduced environmental risks at EPA regulated facilities through tailored interventions and by ensuring appropriate financial provisions are in place. ◢ Driven the improved delivery and management of water and waste infrastructure.
Leader in Environmental Evidence & Knowledge	**Realise** the full potential of the EPA's knowledge, skill, expertise and regional presence as key national resources in the protection of the environment and human health. **Accelerate** the provision of timely and tailored information to meet the specific needs of stakeholder groups.	◢ More timely evidence-based environmental assessments to inform policy and decision making at national, regional and local levels. ◢ Better provision of online, up-to-date and accessible information on the environment to stakeholders. ◢ A research programme that addresses knowledge gaps and helps identify solutions to emerging and complex environmental problems.
Effective Advocate and Partner	**Strengthen** the EPA's capability and capacity to influence, advocate and partner to help achieve a clean, healthy and well protected environment. **Engage** the public in the protection and improvement of the environment. **Promote** a greater awareness of the impact of environment quality on human health.	◢ Targeted opportunities to integrate environmental priorities and sustainability into sectoral, economic and social policies. ◢ Developed public participation programmes to increase awareness of environmental issues and support the engagement of the public in environmental protection. ◢ Collaborated with health agencies and other bodies to realise the benefits of a good environment for health and wellbeing.
Responding to Key Environmental Challenges	**Tackle** the challenges to deliver improved water quality in Ireland. **Engage** with other strategic partners to promote the development of a holistic national response to climate change. **Enhance** air and radiation protection in Ireland.	◢ Effective and resilient structures in place to deliver better outcomes for water quality. ◢ Established a climate change secretariat in the EPA as a centre of excellence that supports the national transition to a low carbon economy. ◢ Strengthened the air quality and radiation protection frameworks to further protect people and the environment.
Organisationally Excellent	**Develop** our staff and align our organisation to deliver best environmental outcomes. **Focus** on the development and promotion of organisational health, wellbeing and safety at work. **Promote** a culture of leadership, reform and innovation.	◢ Our functions and resources aligned to be responsive and adaptable to meet emerging challenges. ◢ Engaged all staff to foster a supportive workplace environment. ◢ Enhanced capacity in the area of organisational change and in the use of ICT to support reform and innovation.

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1. DIRECTOR GENERAL'S STATEMENT

The EPA's Annual Report reflects the growing importance of environmental issues each year both nationally and internationally. It is my pleasure therefore to provide in this Annual Report an overview of the EPA's work and main achievements during 2016 in the context of national and international developments.

The environmental problems Ireland faces today are increasingly complex and require a cross-sectoral and societal response. The EPA is at the frontline of environmental protection and policing. It is a huge responsibility but one that we don't carry alone. We are fortunate to work with many other organisations, public, private and voluntary, that support and enhance our efforts at local, national and EU level.

Strategic Plan: 2016 – 2020

In 2016 we published the EPA Strategic Plan for 2016 – 2020 called *'Our Environment, Our Wellbeing'*. The theme of health and wellbeing is a cornerstone of the new Strategic Plan. To support this theme, we have identified five strategic goals to be progressed during the lifetime of our Strategy that provide a clear focus for our work: to be a trusted environmental regulator; a leader in environmental evidence and knowledge; an effective advocate and partner; to respond to key environmental challenges and to be organisationally excellent. During the lifetime of the plan we intend to further strengthen our core functions - regulation, knowledge and advocacy - while prioritising air and water quality, climate change, and enhancing the radiation protection framework in Ireland. We also plan to engage more closely with citizens, communities, and businesses to mobilise sustainable behaviours. The EPA consulted with many people and organisations, including the public, in developing the Strategic Plan.

State of Environment Report 2016

There were many positives in the EPA's sixth State of the Environment report, published in November. Ireland has clearly made progress in many areas over the last 20 years and the overall state of the Irish environment is good - but a highly qualified good. Produced every four years, these reports provide the national evidence base about the condition of our natural environment and the challenges and opportunities associated with its protection and management. They chart both the successes and failures of national environmental policy and are a critical resource for the State in planning for the next quarter of a century.

The report points to worrying signals at a local level about parts of our natural environment; localised problems such as poor air quality and water pollution are masked by composite national figures. The State and all its citizens need to act with a much greater sense of urgency if we are to protect what we now have. Transformational change is needed to deal with climate change and other risks to our health and natural environment.

Developing a much stronger appreciation of the link between a clean and well-protected environment and our health and wellbeing is identified in the report as the first of three systemic issues to be tackled. Climate change and ensuring that the suite of environmental legislation already in place is properly implemented are the other systemic challenges identified.

Climate Change

A year after the world adopted the Paris Climate Change Agreement, climate action continues to grow in ambition across governments, business and societies. By June 2017, the Paris Agreement has been ratified by 148 countries, representing 80 per cent of global emissions and marking a critical turning point toward a low-carbon, resilient world. The UN makes clear that the challenge now for all nations is to take action with a speed and an urgency that reflects the scientific reality. This includes Ireland, however, national greenhouse gas emission projections, released by the EPA in March, cast doubts over Ireland's efforts to transition to a low carbon economy in the long term. They indicated that Ireland is unlikely to meet its 2020 EU target of 20 per cent below 2005 levels, instead projecting that emissions from the non-Emissions Trading Scheme sector would only reach 6-11 per cent below 2005 levels by 2020. Increases in emissions are expected to come predominately from the agriculture and transport sectors, whose emissions are projected to increase in line with economic growth. Preliminary emissions figures for 2015, released in November, confirmed the projected growth as Ireland's greenhouse gas emissions increased significantly. Increases were recorded across all the main sectors with

significant increases in the energy industries (5.4%), transport (4.2%), agriculture (1.5%) and residential (5.1%) sectors. Greenhouse gas emissions from Irish companies in the EU Emissions Trading Scheme also increased in 2015.

Water Infrastructure

EPA water quality reports during the year consistently highlighted that substantial and sustained capital investment is required to deliver the improved water infrastructure Ireland needs. More investment would protect the environment and public health from the adverse effects of waste water discharges, eliminate the threat of long-term drinking water restrictions and enable Ireland to comply with European Union treatment standards. The 2015 Drinking Water report indicated that the majority of the country's 962 drinking water supplies are safe but that over 100 "at risk" supplies, serving 830,000 consumers, require urgent improvement works to ensure they are safe and secure. The 2015 Urban Waste Water report meanwhile showed that raw sewage was still being discharged in 43 areas. While 142 large towns and cities complied with the mandatory EU waste water treatment standards during 2015, 29 failed. As water quality regulator the EPA finds it unacceptable that the planned delivery of more than 20 treatment plants has been delayed, by an average of almost two years, and has taken appropriate enforcement action.

Industrial and Waste Licence Enforcement

The EPA regulates over 800 large industrial and waste sites. During 2016, the EPA conducted 1,552 site visits including detailed inspections and air, water and noise monitoring.

Queries and complaints from the public are a valuable source of information for EPA enforcement activity. Over 1,100 complaints about licensed facilities were received in 2016. Most of the complaints (66%) related to odour nuisance. A small number of sites (10) accounted for two thirds (64%) of all complaints received. Sites causing odour nuisance face further enforcement action, including legal proceedings. Of the 17 EPA prosecution cases heard in 2016, 11 related to industrial or waste licensed sites. The most common charges related to breach of emission limit values, odour nuisance and failures relating to monitoring. The Industrial and Waste Licence Enforcement Report 2015, released in December, noted that the waste and food and drink sectors have work to do to improve their environmental compliance. These sectors accounted for the majority of prosecutions taken in 2015 and a small number of sites accounted for most complaints and non-compliances, mainly due to poor operational procedures and inadequate infrastructure.

Research

The EPA's Research Programme 2014-2020 is designed to identify pressures, inform policy and develop solutions to environmental challenges through providing strong evidence-based scientific knowledge. In 2016 the EPA provided €7.9 million to fund 45 new projects on the following topics: Water (11), Climate (14), Green Enterprise (10) and Sustainability (10). Furthermore, the EPA has supported Irish environmental researchers in securing over €11 million in funding for environmental research during the first three years of the EU's Horizon 2020 research programme.

Bathing Water

The overall quality of Ireland's bathing waters continues to be extremely good with stricter standards, introduced in recent years, providing a high level of protection for bathers. Identified bathing waters are those coastal or inland waters that local authorities consider to be widely used by the public for bathing and manage as such. Of the 137 such waters, 93 per cent (128) met minimum EU standards in 2015. Furthermore, around three quarters (101) were classified as being of 'excellent' quality, with just 6 being classed as 'poor' quality. The Bathing Water Quality in Ireland - 2015 report, released in April, noted that management plans have been drawn up by the relevant local authorities, in conjunction with Irish Water, to improve infrastructure and tackle the main pollution risks at these beaches. The EPA is keen to see new bathing waters being identified, managed and monitored by local authorities under Bathing Water Quality Regulations and provided advice to the public about making submissions to local authorities for the identification of new bathing areas. The EPA provides public information throughout the bathing water season via the national bathing water website, www.beaches.ie and @EPABeaches on Twitter.

Clean Air

In general, air quality in Ireland is good and compares favourably with other EU member states, many of whom exceed EU limit values for certain pollutants. The 2015 Air Quality Monitoring report showed that burning of solid fuel and emissions from vehicle exhausts remain the main threats to our air quality. While Ireland did not exceed any legal EU limit values for ambient air quality, concentrations for some air pollutants were above the World Health Organisation guideline values (for particulate matter and ozone) and European Environment Agency reference levels (for polycyclic aromatic hydrocarbons). EU standards to improve air quality are still not in line with the tighter World Health Organisation air quality guidelines. The EPA again called for movement towards the adoption of these stricter guidelines, especially for particulates and ozone, as legal and enforceable standards across Europe and in Ireland.

In November, the EPA invited comment on the proposed National Ambient Air Quality Monitoring Programme, 2017-2022. It provides for: a greatly expanded national monitoring network; more comprehensive, localised air quality information

linked to public health advice; air quality forecasting and increased public engagement. The EPA plans to finalise the programme and begin implementation in 2017.

In Conclusion

The EPA performs a wide range of statutory functions in fulfilment of our mandate and of our mission - to protect and improve the environment as a valuable asset for the people of Ireland and to protect people and the environment from the harmful effects of radiation and pollution. What is clear through our work is that protecting the environment serves to protect human health. Our regulatory and public facing roles also keep us in touch with individuals and communities in many parts of the country who re-inforce through their communications with the EPA just how important a clean, healthy environment is to their health and wellbeing.

We in the EPA use science and research to constantly find new and better ways to protect and maintain our environment for the health and wellbeing of the people of Ireland. And when the environment is compromised or damaged, we take firm and decisive action to ensure the high standards we set are adhered to.

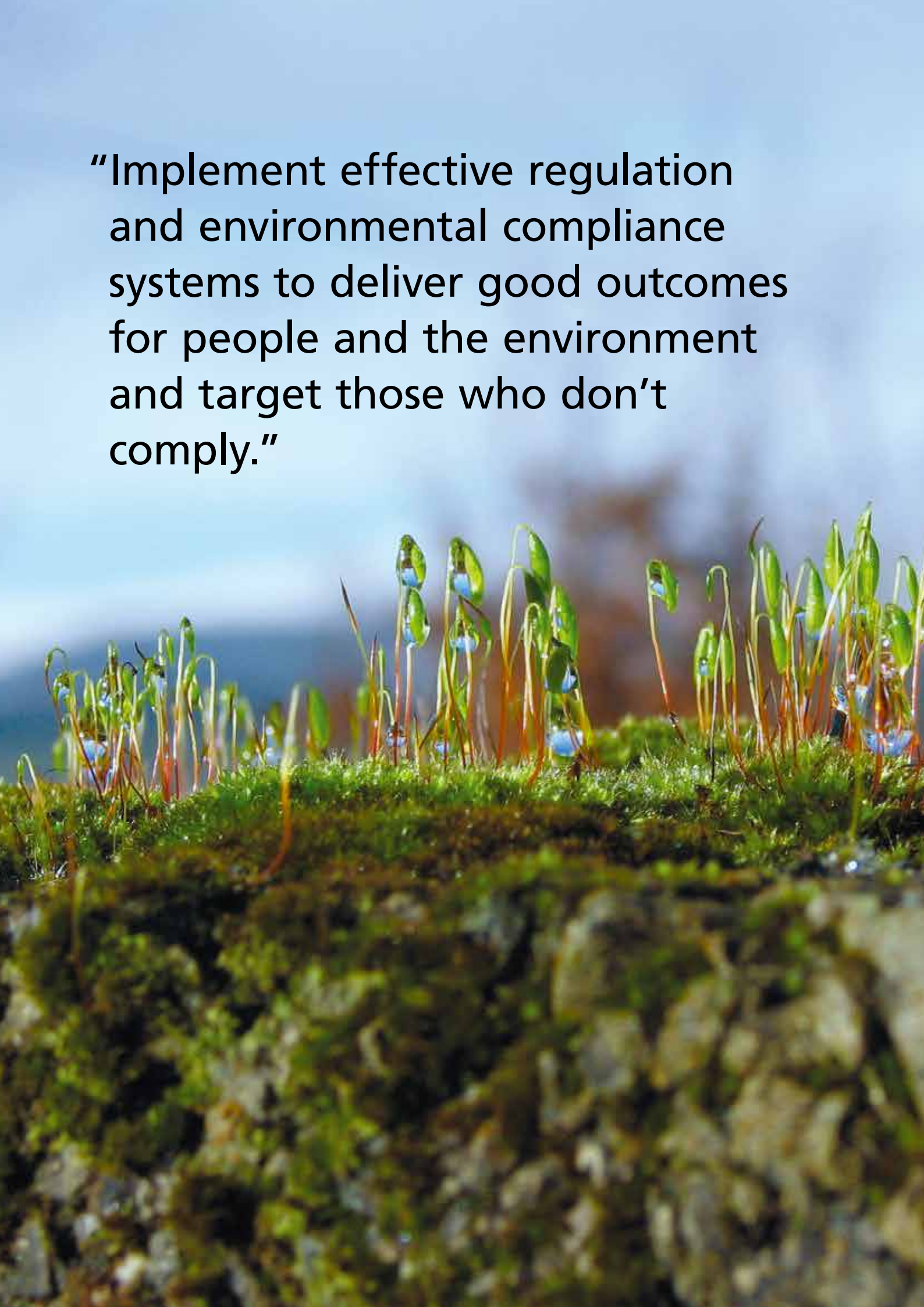
We also recognise our important role in providing online, up-to-date and accessible information on the environment to stakeholders. We are working hard to make environmental information interesting and relevant to the public, to stimulate increased engagement with the environment and to mobilise sustainable behaviours.

We are an organisation of approximately 400 people and the EPA is privileged to have bright and committed people on our team. However, we alone cannot bring about the type of transformative change that is now needed. That's why we are placing a significant emphasis in our Strategy on working with others, including local communities and individuals, to help people to become more engaged, more informed and more energised about the environment. We want people to understand the value of the environment in their lives, and to work with us and others so that problems with the environment can be addressed.

I would like also to acknowledge some changes that occurred in the EPA during 2016. Dr Ann McGarry left the EPA in April having served as Director of the new Office of Radiological Protection since mid-2014 and prior to that as Chief Executive of the Radiological Protection Institute of Ireland (RPII). Ann made a considerable contribution to the work of the Agency, particularly in relation to the merger between the EPA and RPII. Three long-serving members of staff also retired during the year, namely, Ann Rochford, Jim McGarry and Dr Tom McLoughlin. I would like to pay tribute to them and to Ann McGarry on behalf of the staff and Directors of the EPA and wish each of them well in their future endeavours. I was pleased to welcome the appointment by Government of Dr Micheál Lehane to the Board of the EPA in May as Director of the Office of Radiation Protection and Environmental Monitoring.

The EPA's sixth Advisory Committee completed their three-year term in 2016 and I would like to thank them for their valuable input to the work of the Agency. Lastly, I would like to express my sincere thanks to EPA staff and my fellow Directors for their dedication, support and hard work throughout a busy year.

Laura Burke
EPA Director General



"Implement effective regulation and environmental compliance systems to deliver good outcomes for people and the environment and target those who don't comply."

The EPA licenses activities to ensure that their emissions do not endanger human health or harm the environment.

2. REGULATION

2.1 LICENSING

The EPA's Licensing Programme has a wide remit and is responsible for a range of tasks relating to the licensing, permitting, consenting or certification of activities which could have an impact on the environment or on human health. This work incorporates Environmental Impact Assessment and Appropriate Assessment.

Implementation of the Industrial Emissions Directive

The arrangements for new applicants, as required by the Industrial Emissions Directive (IED), existing licensees and the EPA were further bedded-in during 2016. The review of several licences was initiated by the EPA for the purposes of the Directive and the implementation of BAT (best available techniques). A further two Commission Implementing Decisions on BAT were published in 2016 and the EPA is preparing for implementation of these laws, made under the Directive and to be directly implemented by Member States and licensees within four years of publication.

Work continues on extending the web service to include electronic submission of licence applications and environmental reporting data, and updating the licence format to reflect IED requirements.

Best Available Techniques

The EPA has a suite of BAT Guidance Notes that apply to Integrated Pollution Control (IPC) and Waste activities http://www.epa.ie/pubs/advice/bat/.

Existing BAT Reference Documents (BREF) and Commission Implementing Decisions (CID) on BAT Conclusions (BATC) apply to Industrial Emissions Directive (IED) (2010/75/EU) activities. The IED has made the BAT Conclusions (BATC) mandatory in the permitting process. The IED requires that each operator covered by the BREF complies with the Associated Emission Values (AELs) and the BAT detailed in the CID within four years of the publication in the Official Journal. In 2016, the EPA issued one final licence incorporating the requirements of a CID.

Ten CIDs on BATC had been published by end 2016. Two CIDs were published in 2016 (non-ferrous metal industries and the Common waste water and water gas treatment/management systems in the chemical sector) which will require the review of a significant number of licences in the chemical sector within the next four years.

In line with the EPA Strategy 2016-2020, an on-line application process was used in 2016 to initiate seven licence reviews for the BATC self-assessment and submission of the BATC review application forms.

The review process of industrial emission licences for relevant sectors such as cement and lime production and wood-based panels production commenced in 2016, taking into consideration the CIDs published.

Where a CID has not been published for an Industrial Emissions Directive activity, the BAT-associated emission levels in the existing EPA BAT Guidance Notes apply. Further detail on BREF and BATC is available on the EPA website: http://www.epa.ie/licensing/info/bat/

Over the coming years the EPA will be heavily engaged in the process to bring all relevant licences into line with the requirements of the IED and the Commission Implementing Decisions. Table 1 and 2 below outline the licencing and other regulatory tasks completed in 2016.

Emissions Trading

GHG Permits and EU ETS Compliance Cycle

The EPA is the enforcement and implementation Authority for the Emissions Trading Regulation, and implements Union-wide rules for harmonised free allocation of emission allowances designed to reduce free allocation over time and is a key tool to move us to a carbon neutral, climate resilient society.

There were 98 stationary installations (industries, power stations and other high energy users) with reportable emissions for 2015 and Ireland achieved 100% compliance under the 2016 reporting and surrendering cycle of the European Union Emissions Trading Scheme (EU ETS) for all stationary operators.

Aircraft operators covered by the EU ETS Directive and amending regulations continued to operate under a reduced scope covering only flights within the European Economic Area. Fourteen aircraft operators reported on time and surrendered the necessary allowances by the end of April 2016. One, small non-commercial aircraft operator that apparently had reporting and surrendering obligations, did not report or surrender. The aircraft operator is contesting its obligations under the Directive.

The EPA completed the on-line Article 21 Report (Annual questionnaire on the implementation of the ETS Directive) and submitted it to the Commission via EIONET for the 30 June 2016 deadline.

Union Registry for EU Emissions Trading and International Carbon commitments

The Union Registry is used as the compliance tool for regulated installations and operators under the EU Emissions Trading Scheme which, in Ireland, covers close to 100 installations in the energy and industrial sectors as well as 15-20 aircraft operators (depending on their annual flight activity). These operators, both stationary and aviation, are legally obliged to open an account on the Union Registry to fulfil their compliance obligations in relation to carbon emissions. The EPA continues to assure the robust management of a system which holds up to an estimated €300 million of financial assets.

The auctioning of ETS allowances takes place on a common platform shared among 25 Member States of the EU. The EPA tracks that Ireland's quota of allowances is auctioned each week and the correct revenue is received by the Central Bank. By the end of 2016, EU ETS auction revenues from auctions of general allowances (€39,538,230) and aviation allowances (€590,105) totalled €40,128,335.

The Union Registry is also where Ireland demonstrates compliance with Kyoto Protocol and EU Effort Sharing Decision. The 'true up' period under Commitment Period 1 (CP1) 2008-2012 of the Kyoto Protocol expired on 18 November 2015. Before the end of the 'true-up' period, parties to the Protocol had to ensure that they retired a sufficient amount of eligible units (i.e. units valid for the first commitment period) to cover their respective final CP1 emissions. Ireland submitted a True-Up Report to United Nations Framework Convention on Climate Change (UNFCCC) in 2015 which was subject to expert review and in April 2016 UNFCCC confirmed that no issues were raised under the review. Thus, Ireland is deemed to have met its commitments under Article 3, paragraph 1, of the Kyoto Protocol.

In December 2016, the European Commission advised that carryover of international credits to Commitment Period 2 (CP2) of the Kyoto Protocol could proceed. Accordingly, the EPA fulfilled the Government instruction and carried over the State's international credits held on the Union Registry to CP2 on 20 December 2016.

Radiation Protection Licensing

If an individual or organisation wishes to acquire a radioactive source or irradiating apparatus, they must first obtain a licence from the EPA. At the end of 2016, 1,740 licences were held across a range of sectors, including dental, medical, industrial, educational and veterinary. Fifty-six licences were issued to new licensees in 2016. These were spread across industrial, dental, veterinary, hospital and distributer/transport sectors. In 2016, eighty-two licences were closed, where the licensee had to ensure that all licensed products were either properly disposed of or returned to the manufacturer or supplier.

Radiation Licence Renewal Programmes in 2016

Just over 1000 licences from various sectors expired and were due for renewal over the course of 2016 (Table 1) from the industrial, medical and dental sectors. The renewal programmes all took place using the online licensing platform EDEN (Environmental Data Exchange Network).

Transposition of the Basic Safety Standards Directive

The Euratom Basic Safety Standards (BSS) Directive aims to protect the health of people against the dangers of ionising radiation The EPA is the designated competent authority responsible for regulating the use of ionising radiation in Ireland. The directive was substantially revised in 2014 and must be transposed into Irish legislation by February 2018. In 2016 the EPA completed a gap analysis of Irish legislation and arrangements against the new directive. This analysis is being used by the Department of Communications, Climate Action and Environment (DCCAE) and EPA to develop new legislation and update arrangements in the area of radiation protection of workers and the general public.

Integrated Regulatory Review Service Mission

In 2015 the EPA's radiation protection functions were subject to a review by an International Atomic Energy Agency (IAEA) team of international experts. The review team made several recommendations to further strengthen Ireland's regulatory radiation safety framework. During 2016 the EPA assessed the findings from the review and developed an Action Plan to address them. This plan will be delivered over the next four years.

Table 1. Environmental Licensing Programme Licensing Tasks 2016

Licence Type	Total Applications Received 2016	Total PDs issued 2016	Total Objections Received 2016	Total Decisions issued 2016
IED/IPC Licences (includes IE Waste)	43	62	36	61
Waste Licences	7	2	3	5
Waste Water Licences	5		N/A	0
Waste Water Certs of Authorisation	3		N/A	2
GMO Permits (Contained use)	41		N/A	35
GMO Permits (Deliberate release)	0		N/A	0
Historic Landfill Certificates	1		N/A	0
Dumping at Sea Permits	6		N/A	2
Certificates of Registration (Waste)	50		N/A	47
VOC Permits	13	13	0	13
Radiation licences	1107	N/A	N/A	1061
TOTALS	**1276**	**77**	**39**	**1226**

N/A means Not Applicable

Table 2. Environmental Licensing Programme Other Regulatory Tasks 2016

Tasks	Total tasks assessed 2016
Article 11 Requests	83
IE/IPC Amendments	45
IE Amendments (EPA initiated)	1
ELRA/CRAMP/Financial Provisions	6
Fire Control Amendments	24
Waste Amendments	6
WWTP Amendments	3
WWTP Amendments (EPA initiated)	63
Dumping at Sea Amendments	1
Article 27 requests (by-product)	4
Article 28	2
EMA (GMO)	3
Directive 2001/18/EC (GMO)	1
Directive 2009/41/EC (GMO)	0
EIA Assessments on applications	27
Planning Correspondences Examined	570
TOTAL	**839**

The EPA implements and enforces environmental and radiological protection legislation in Ireland.

2.2 ENFORCEMENT

Clean Water

As the environmental regulator for public water services, the EPA's strategic focus has been on Irish Water's delivery of priority infrastructure improvements in drinking water and urban waste water.

Drinking Water

At the end of 2016, the number of people affected by drinking water restrictions dropped to 5,743 people on 12 supplies, the lowest number to date.

The number of supplies on the Remedial Action List (RAL) fell from 117 to 99 at the end of 2016, though this is partially explained by Irish Water's amalgamation of water supply zones.

The EPA published its annual Drinking Water Report for the year 2015 providing the public with data on the performance of public water supplies.

Municipal Wastewater Discharges

Fifty nine long-term incidence of pollution (indicated by 'recurring incidents') were resolved, due to the following works:

- 24 new/upgraded waste water treatment plants were installed
- 6 new or upgraded ferric dosing systems provided
- 21 operational improvements
- 8 incidents didn't reoccur following significant period of normal operations.

Four agglomerations (Hacketstown, Dromahane, Ballyclough and Glenties) completed measures to protect the freshwater pearl mussel habitat. These are four out of a total of 17 agglomerations identified to make improvements.

Ireland submitted a waste water compliance roadmap to the EU Commission as part of the ongoing work to bring the remaining 29 large-scale treatment plants (out of a total of 171 plants) into compliance by 2021. The EPA reiterated the need, in its 2015 waste water report published in the course of the year, for increased capital expenditure; more efficient delivery of projects; and better operational practices.

Domestic Waste Water Treatment Systems (Septic Tanks)

The EPA published the fourth implementation report of the National Inspection Plan for Domestic Wastewater Treatment Systems. The EPA helped the National Federation of Group Water Schemes roll out community education and de-sludging initiatives.

Preventing Environmental Damage

Financial Provision for Environmental Liabilities

It is a strategic priority for the EPA to ensure that licensees make adequate financial provision to cover their environmental liabilities. These liabilities can be associated with the closure, remediation and aftercare of sites or with potential incidents. Significant progress was made during 2016 in securing financial provision following the publication of guidance in 2015.

In particular:

- Agreement of costs in closure plans increased from €398m to €507m;
- Agreement of costs associated with potential incidents increased from €217m to €308m;
- An additional €232m in financial provision was secured to cover these costs representing a significant reduction in the risk to the environment and to the State.

Market Surveillance, Producer Responsibility and Chemicals in the Environment

Chemicals (including solid fuel regulations):

The EU has a rapid alert system known as RAPEX which facilitates the exchange of information between Member States and the Commission on measures taken to prevent or restrict the marketing or use of products posing a serious risk to the health and safety of consumers. During 2016, the EPA assessed 35 such RAPEX notifications from other member states. Follow up inspections of 25 importers and retailers were carried out. However, none of the products described in the notifications were found.

Fifty household items (including batteries) were procured during 2016 for testing for certain hazardous substances restricted under the Restriction of Hazardous Substances (RoHS); Persistent Organic Pollutants (POPs) or the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACh) regulations.

Ten pesticides were also tested for the presence of Persistent Organic Pollutants and were found to be within the prescribed limits.

There were 35 coal bagging operators and 42 solid fuel suppliers on the fuel register at the end of 2016, under the Solid Fuel Regulations (S.I. 326 of 2012) as amended.

Waste Electrical and Electronic Equipment and Batteries Regulations

To ensure that the Waste Electrical and Electronic Equipment (WEEE) and batteries waste stream is managed correctly, the EPA:

- Verifies WEEE waste management plans and reports prepared by business to business producers through both on-site audits and desk-top inspections;
- Disseminates Guidance either directly through its website or in co-operation with Local Authorities;
- Inspects retailers and distance sellers;
- Meets regularly with the Producer Registration Body and the Approved Compliance Schemes under the WEEE and Batteries Regulations.

During 2016, the EPA carried out a total of 63 announced and unannounced inspections of producers or suspected producers under the European Union (Waste Electrical and Electronic Equipment) Regulations 2014 and the European Union (Batteries and Accumulators) Regulations 2014.

Ozone Depleting Substances and Fluorinated Gases

As part of the EPA's work to significantly reduce the use of Ozone Depleting Substances (ODS) and Fluorinated gases (F-gas) with high global warming potential it produces guidance and carries out both desk top and on-site inspections of engineering contractors servicing the relevant equipment and meets with and inspects the end-users.

Activities in 2016 included:

- 61 desktop surveys of end-users were carried out. Surveys were across four main sectors – retail (large food retail chains); hospitality & leisure (large hotels); offices & public buildings (datacentres) and refrigerated trucks and trailers;
- 11 end-users were inspected across 3 sectors – retail (large food retail chains); hospitality & leisure (large hotels); offices & public buildings (hospitals);
- 19 Contractors and 2 distributors were inspected;
- Desktop surveys on milk coolers were issued to 8 milk cooler manufacturers;
- A leaflet on refrigerant gas use on dairy farms was distributed at Farm Hazardous Waste Collections;
- Issuing 110 Prior Annual Notifications (PAN) to contractors who move waste gases to cover the period 1 April 2016 to 31 March 2017.

Environmental Inspections

2016 Inspections and Audits

Table 3. Number of inspections by sector undertaken in 2016

Activity	Number of inspections
Industrial & Waste Licences	1552
Urban Waste Water Discharge Licences	281
Drinking Water Treatment Plant	61
Dumping At Sea Permits	6
Market surveillance - chemicals	25
WEEE and Batteries	63
ODS & F-gas	11

Complaints 2016

Table 4. Number of complaints received in 2016 and number of facilities subject of those complaints by sector

Activity	Number of complaints	Number of facilities subject of those complaints
Industry & Waste Licences	1101	108
Waste Water	83	42
Drinking Water	22	14
Total Complaints	**1206**	

Industrial and Waste Licence Enforcement

One of the EPA's strategic priorities is to target its enforcement efforts at priority sites and issues. In 2016 this was achieved by:

- Completing 320 planned inspections and 616 reactive visits, many of which were in response to odour complaints;
- Resolving 190 compliance investigations concerning site specific issues;
- Concluding 17 prosecutions in the District Court, 11 were in relation to industrial/waste licensed facilities, and approving a further 29 cases for prosecution;
- Developing a system to rank licensed sites by their compliance record and focussing EPA enforcement efforts at these National Priority Sites;
- The publication of Guidance on conducting Fire Risk Assessments at Waste Facilities and the amendment of 25 licences to require such an assessment.

In addition, in 2016 the EPA enhanced public access to environmental information by commencing the publication to the web of key licence enforcement documents such as site visits and monitoring reports.

The EPA received 1101 complaints in relation to licensed facilities in 2016; the majority of which related to odour nuisance from the waste and food and drink sectors. The securing of compliance at sites causing odour nuisance is a priority for enforcement.

The EPA developed and further refined a new approach for the identification and prioritisation of National Priority Sites for enforcement. The methodology uses licensee performance and EPA enforcement data such as the number of incidents, complaints, non-compliances and the status of Compliance Investigations assigned to each licensed facility.

Data on the national priority sites shows that less than 2% of licences in 2016 were a national priority for enforcement, but these facilities accounted for a disproportionate amount of incidents, complaints and non-compliances and received the most enforcement effort in terms of site visits and compliance investigations. The system of prioritising sites on a national basis will continue to facilitate the EPA in focussing its enforcement effort towards the small group of sites which are consistently non-compliant.

Of the 11 district court cases concluded for industrial and waste sites seven included charges relating to breach of emission limit values. Breaches relating to waste management, non-notification of incidents, odour or noise nuisance, and failures relating to monitoring were among the most common charges.

Radiation Protection Inspections

The EPA carries out radiation protection inspections to assess both the standards of radiation protection across the various sectors and the level of compliance by licensees with national legislation and licence conditions. The inspections allow the EPA to assess the radiation protection culture and standards that are in place at each location where sources of ionising radiation are held and used.

The selection of licensees to be inspected each year is based on a number of criteria, including the radiological risk associated with the licensees' activities, the time elapsed since their last inspection and any incidents reported within their sector of operation.

In 2016, 122 radiation protection inspections were carried out, including three security surveys with the assistance of An Garda Sìochàna's National Crime Prevention Unit, (Table 5). Of the 122 inspections undertaken, 40% were unannounced. The main focus of the programme was the industrial and medical sectors.

While levels of compliance were generally found to be good, the EPA had to temporarily restrict the use of specific X-ray equipment in two hospitals and a chiropractor clinic as it had concerns about the radiation protection arrangements in place. The use of X-ray equipment and radioactive sources used by a company involved in non-destructive testing was prohibited for one month following serious concerns relating to radiation safety identified by an inspector during an unannounced inspection. The prohibition was lifted following a review of safety procedures and risk assessment documents and the implementation of new safety measures by the licensee.

Following a surveillance visit by the Irish National Accreditation Board in October, the EPA was successful in retaining accreditation against the international standard ISO 17020 for Conformity Assessment for bodies performing inspections.

Table 5. Radiation protection licensee categories and inspections undertaken during 2016

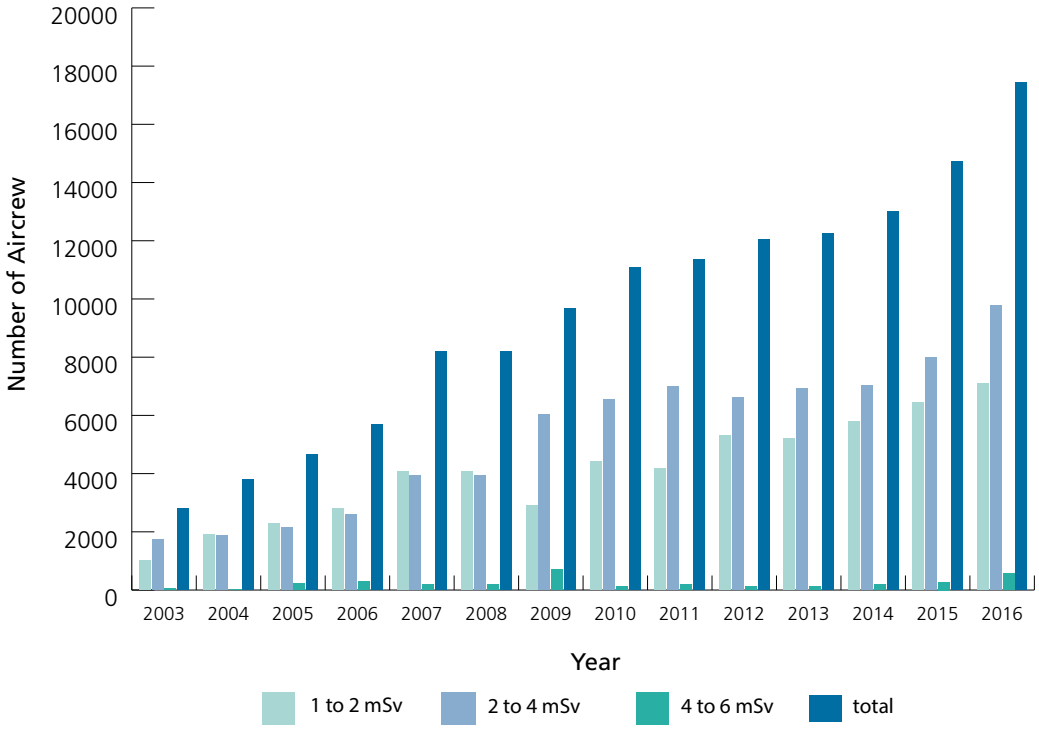
Licensee Sector	Risk Category	Number of completed inspections
Dental	Low	4
Veterinary	Low	3
Education	Medium	6
Industrial	Medium/High	63*
Medical	Medium/High	46
Total		**122**

*Three of these were security related

Control of Aircrew Exposure

Under S.I. No. 125 of 2000 the holder of an air operator's certificate is required to evaluate doses received by aircrew to determine if measures to control exposure to cosmic radiation are warranted and to report the results to the EPA. For 2016, the information received from seven licensed air operators showed that 564 individuals received doses over 4 mSv; but no doses exceeded the 6 mSv threshold above which air operators must organise the working schedules of air crew with a view to reducing their exposures. Since monitoring of aircrew began in 2003 there has been a consistent yearly increase in the number of aircrew receiving doses in excess of 1 mSv (Figure 1). This can be attributed to an increase in the number of aircrew required for the operation of new and existing routes as the demand for air travel increases.

Figure 1. Number of aircrew receiving radiation doses greater than 1 mSv



Prosecutions

The EPA has a range of enforcement tools available, from issuing non-compliances to formal enforcement processes such as prosecution. Prosecutions are taken when there is substantial or repeated breach of environmental legislation, licence conditions, and/or where other enforcement actions have not resulted in improved compliance.

In the majority of cases, the legal action results in actions being taken to addess the compliance issue, and improved compliance overall with the licence.

In total 17 prosecutions were heard in the District Court and the EPA approved a further 29 proceedings for prosecution.

Table 6. Legal enforcement activities undertaken in 2016

Legal Enforcement Activity	Output
District Court Prosecutions heard	17
DPP cases heard	0
Fines awarded in District Court	€27,300
Costs awarded in District Court	€114,362.57
Charitable donations	€55,000
Total Fines & Costs	**€141,662.57**

The EPA produces advice and guidance to industry and the public covering a wide range of environmental activities to ensure compliance with best practice.

2.3 GUIDANCE

Industrial and Waste Licensed Sites

Guidance to assist industrial and waste licensed sites comply with their licences was published in 2016 which set out the minimum requirements for Accident Prevention Procedures (APP), Emergency Response Procedures (ERP), and their linkage to incident notification.

In order to assist licensees in the interpretation of licence requirements in relation to the recording and reporting of periods of unabated operation and emissions at large combustion plants, the EPA published guidance outlining how this requirement of the Industrial Emission Directive should be interpreted and applied by licensees.

Supplementing guidance published in 2015 on financial provision for environmental liabilities, additional guidance was published in 2016 in the context of ensuring that insurance meets the overarching principles and cover the full costs of responding and remedial measures if an incident occurs at a licensed facility.

In order to strengthen licence requirements in relation to fire risk at certain large-scale non-hazardous waste facilities, guidance was published in 2016 which set out the scope for completing a fire risk assessment.

A flow chart summary of the process for industrial emissions and integrated pollution control licensing, including the various stages, timeframes and statutory notices was published in 2016. Guidance was also published to assist relevant operators of installations controlled under the Industrial Emissions Directive, to better understand the provisions of Article 15 and information requirements regarding the applications of alternate emission limit values (ELVs) to those associated with best available techniques (BAT) or, by way of derogation, the application of less strict ELVs than those associated with BAT.

Guidance was also published which set out the information required from a licensee and proposed transferee when completing a licence transfer application for the transfer of an industrial emissions, integrated pollution control or waste licence.

Sector specific guidance was published to assist in calculating the relevant emissions and reporting of off-site waste transfers from EPA-licensed facilities in the intensive agriculture sector. Furthermore, guidance produced in 2016 set out the EPA's requirements on how licensees should respond to a bypass of an air abatement system.

A revised Noise Guidance Note (commonly known as NG4) was published in 2016 to assist licensed sites with the assessment of their potential and actual noise impact on the local environment. Furthermore, an updated methodology for exposure assessment, based upon the noise mapping results, was issued as a revision of 2011 guidance on strategic noise mapping for the environmental noise regulations 2006.

Waste Water

Guidance was issued to Irish Water in 2016 to bring about efficiencies in processing requests for Waste Water Discharge Licences (WWDL) and Certificates of Authorisations (CoA). In addition, guidance was published to assist in completing an Annual Environment Report for the 2016 reporting year.

Radiological Protection

Revised guidance notes were published in 2016 for licensees undertaking radiation risk assessments on the steps needed to draft good radiation protection and safety procedures and to compile a radiation safety manual. In addition, guidance was published on carrying out an online application for a radiological protection licence.

New guidelines were published for applicants seeking approval by the EPA for inclusion on the Radiation Protection Adviser's Register for both Category I and II practices.

Guidelines and a registration form were published in 2016 for radon measurement services in order to promote quality and expertise in radon measurement services; ensure the consistency and quality of radon measurements; enhance public confidence in the results produced by services in Ireland and to support research into indoor radon gas. In addition, a revised protocol for radon measurement in homes was published.

An advice note was published in 2016 setting out guidance on the enforcement of the European Union (Radioactive Substances in Drinking Water) Regulations 2016; in particular

the monitoring requirements and actions where necessary to improve the water quality from a radiation protection point of view.

Strategic Environmental Assessment

A manual providing guidance on the application of Geographic Information Systems (GIS) as a tool to enhance the evidence base in environmental assessment was published in 2016. It provides recommendations for the application of GIS to support Strategic Environmental Assessment (SEA) under Directive 2001/42/EC (CEC, 2001). In addition, the EPA's SEA Spatial Information Sources and guidance for Planning Authorities on the SEA scoping process continued to be updated.

Ozone Depleting Substances

As part of the EPA's work to significantly reduce the use of ozone depleting substances, two guides were published in 2016 to promote industry and farmer compliance under the regulations.

All publications are available under Advice and Guidance in the publications section of the EPA website: http://www.epa.ie/pubs/advice/

"Provide high quality, targeted and timely environmental data, assessments and evidence to inform decision making by citizens, businesses and Government."

The EPA provides evidence based assessment and timely information to all our stakeholders, to support action to protect and manage the environment.

3. KNOWLEDGE

3.1 MONITORING AND ASSESSMENT

Air Quality

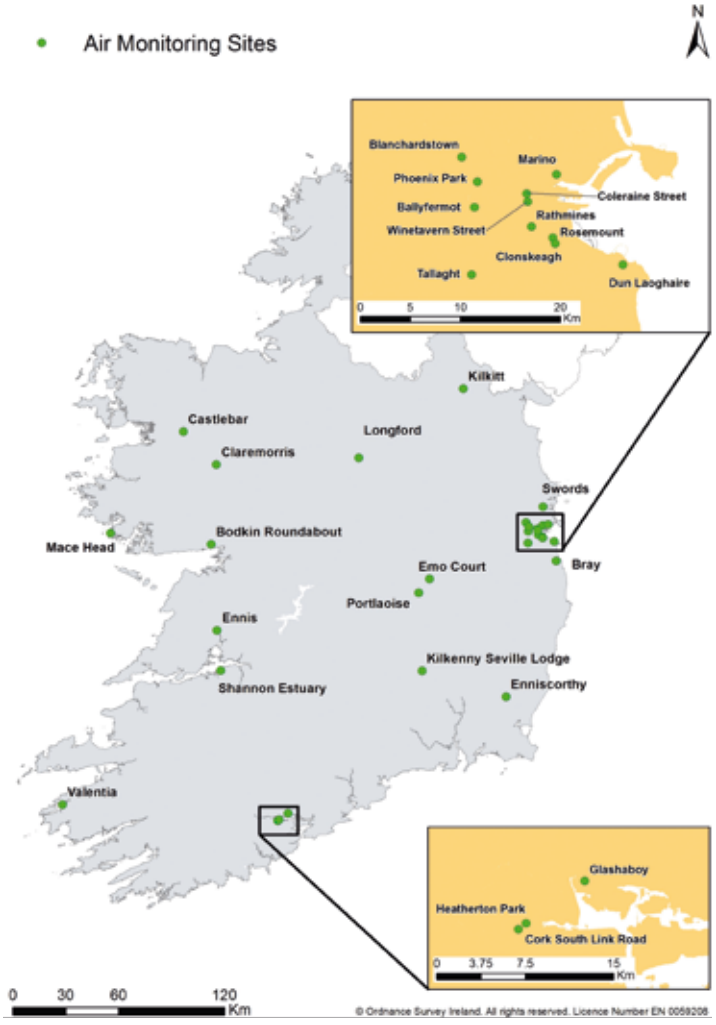
The EPA undertakes air quality monitoring at a network of sites (Figure 2) around Ireland and reports data in compliance with the requirements of the Clean Air for Europe Directive and 4th Daughter Directive.

The 2015 Air Quality Report, published in November 2016, presented air monitoring data from 31 stations in the National Ambient Air Quality Monitoring Network. In general, air quality in Ireland is good and compares favourably with other EU member states largely as a result of our relative absence of large cities, weather and access to predominantly clean air masses from the south-west. However, Ireland continues to face challenges in reducing the levels of particulate matter (both PM_{10} and $PM_{2.5}$), ozone and Polycyclic Aromatic Hydrocarbons (PAHs) to below those recommended by the World Health Organisation (WHO) Air Quality Guidelines.

Particulate matter and PAHs represent the greatest threat to good air quality in Ireland and are predominantly sourced from the burning of solid fuel. With the improvement in its economy Ireland will also face challenges to comply with EU legislation for pollutants emitted from car exhausts with increases in NO_x emissions likely, particularly in urban areas. City centre and urban monitoring sites in Ireland are approaching EU limit values for NO_2 and there is potential that limit value exceedances will be detected in the near future unless mitigation steps are taken.

In response to these challenges, the EPA is developing a five year programme for enhanced air quality monitoring under Section 65 of the EPA Act. Through this programme the EPA will extend the current monitoring network to provide more comprehensive, real-time and localised information to the public. The programme will also see a greater emphasis placed on public engagement and citizen science initiatives. The programme was released for public consultation in late 2016 and was well received by all stakeholders.

Figure 2. Air monitoring sites



Water Quality

Water Framework Directive

The objectives of the Water Framework Directive (WFD) are to protect all high status waters, prevent further deterioration of all waters and restore degraded surface and ground waters to good status. The EPA had been assigned a number of tasks under the European Communities (Water Policy) Regulations 2003, which come under the category of "coordination and oversight" of the Irish WFD monitoring programme. This role was enhanced by the European Union (Water Policy) Regulations 2014 which gave the EPA a wider coordination role of the technical assessments underpinning the actions or programme of measures that will be undertaken under the plan.

To support the delivery of this enhanced role, the EPA in collaboration with local authorities has been working to characterise the water environment of Ireland. Characterisation is the process by which the physical attributes of water bodies and the impacts of pressures from human activities are assessed to assign the level of risk of not meeting WFD objectives to waterbodies. This information will be used to target actions to address water quality issues in the development of new river basin management plans that are to be finalised in 2017.

During 2016 the technical assessments and their processes were developed and all sub-catchments (583) in the country had been characterised at the end of 2016. Work in 2017 will include completion of the characterisation at catchment level (e.g. Liffey, Lee) for all catchments (46) in Ireland. This characterisation will inform the finalisation of the River Basin Management Plan for Ireland by the Minister for Housing, Planning, Community and Local Government. Detailed information at national, regional and local levels originating from this work can be accessed on the new catchments.ie website

Chemical water quality sampling and analysis undertaken in 2016 included the following:

- Surface water physicochemical sampling gave rise to analyses involving 15,138 samples from rivers and lakes, estuaries and coastal waters.
- Three rounds of groundwater samples were taken from 268 wells and springs.

In summary, the EPA undertook ecological surveys at:

- 718 river sites;
- 84 lakes; and
- 121 transitional and coastal water bodies.

Further details on the ecological and water sampling are provided in Table 6.

Table 6. Biological site assessments / samples taken in 2016

Rivers	No.	Lakes	No.	Transitional & Coastal Waters	No.
Invertebrate Survey:	**718**	Temperature / O_2 Profiles:	**73**	Physicochemical samples:	**2,356**
General Survey:	**739**	Macrophyte Transects:	**454**	Phytoplankton samples:	**417**
Macrophyte Survey:	**718**	Macrophyte Transect Positions:	**4,284**	Rocky Shore Macroalgae site assessments:	**12**
Phytobenthos Survey:	**158**	Invertebrate Survey:	**43**	Opportunistic Macroalgae site assessments:	**13**
Hydromorphology Survey:	**131**	Phytobenthos Survey:	**65**	Intertidal Seagrass site assessments:	**12**
Observation Survey:	**725**	Morphological Impact Assessment System (MImAS) Survey:	**66**		

Hydrometric Programme

The EPA continues to monitor the impact of surface water abstractions on river flows and to provide hydrometric data to support national and international reporting obligations, water resource planning and management, flood risk management, infrastructure design and a variety of other activities.

During 2016, the EPA carried out 2,859 assessments of surface water level/flow and groundwater levels around the country. These assessments primarily focus on the existing EPA/Local Authority network of sites, but also include targeted flow measurements, for example to support the establishment of 95 percentile flows for inclusion in waste water treatment plant licences. The frequency of site visits is tailored to the site requirements and natural variability in the river channel. The data are incorporated and processed in a central software system and are available for download via the EPA's HydroNet webpages (http://www.epa.ie/hydronet/).

Also in 2016, the EPA:

- Completed a technical review of the national hydrometric monitoring programme, across all agencies, to inform the EPA's role in future programmes;
- Completed an upgrade of the surface water hydrometric network to telemetry providing more timely information on hydrometric flows; and
- Provided updated estimates of flow statistics to facilitate assimilative flow calculations to inform licensing decisions.

Groundwater

The EPA completed reports on the hydrogeological aspects of groundwater dependent terrestrial ecosystems and groundwater body characterisation to inform characterisation risk assessments being carried out by the EPA. The EPA also completed an update of groundwater WFD status and completed work on Tier 1 groundwater body characterisation to support WFD characterisation. Groundwater quality monitoring was undertaken for three sampling rounds at the WFD groundwater network of 268 sites in 2016. The generation and processing of data from the groundwater level and spring flow network was undertaken. The groundwater quality and quantitative data is used in the WFD status and trends assessments, and for the Nitrates Derogation and other reports.

Bathing Water Quality

The results of the 2016 bathing season were assessed by the EPA and will be formally released in May 2017 along with the bathing water report for 2016. Details of the 2016 water quality assessments are shown in Figure 3. The year on year changes since 2014 to the number of bathing waters in the quality categories is shown in Figure 4.

Management plans for the remediation of waters classified in 2015 as "Poor" were reviewed and discussions held with the relevant local authorities regarding their implementation. Guidance to the general public on the identification of new bathing waters, and for local authorities on assessing such submissions was issued in July and is available on our website. The EPA successfully delivered all required information and bathing water assessments to the European Environment Agency as required.

Figure 3. Bathing water quality, 2016

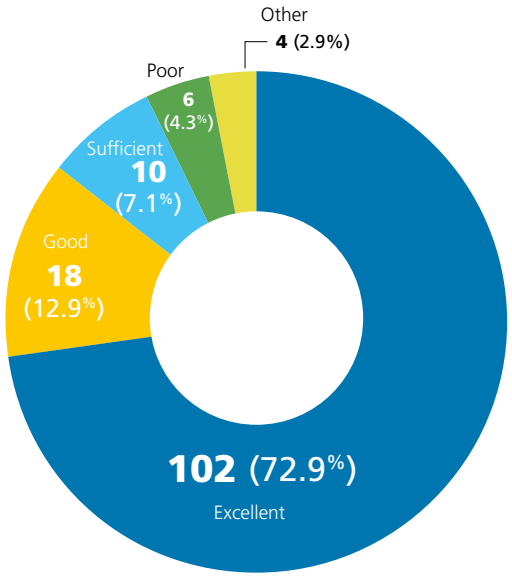
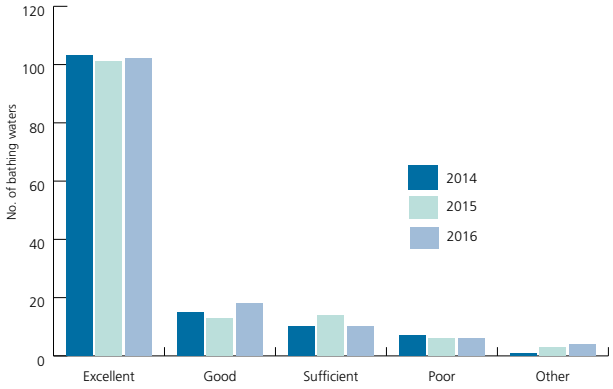


Figure 4. Number of bathing waters in categories of water quality, 2014 to 2016



Environmental Noise Directive

The EPA is responsible for the supervision and co-ordination of the local authorities and noise mapping bodies (e.g. Transport Infrastructure Ireland, Irish Rail, Dublin Airport) in producing the third round of strategic noise maps. The deadline for reporting these maps to the European Environment Agency (EEA) is the end of December 2017. Work on this project started in 2016 in close co-operation with an EPA co-ordinated Environmental Noise Steering Group. At a European level there are increasing links between noise pollution and health

impacts as reported on in the new environmental indicator for noise that was published by the EEA in 2016 (http://www.eea.europa.eu/airs).

Environment Laboratory Services

The EPA laboratory services provide the analytical capability to support the implementation of national monitoring programmes and to support the EPA's core roles on licensing and enforcement.

The laboratories, located in Kilkenny, Monaghan, Castlebar and Dublin, undertake the analysis of the physicochemical parameters for rivers, lakes, ground waters and transitional waters for the Water Framework Directive (WFD) surveillance and other monitoring programmes. Each of the laboratories also provides monitoring and analytical services at licensed facilities and undertakes the auditing of waste water discharge licences.

During 2016, a new collaborative relationship was developed with local authorities in relation to monitoring for WFD purposes. Local authority staff undertook the sampling of rivers and certain lakes and provided those samples to the EPA laboratories for analysis with the results of the monitoring being used for both EPA and local authority purposes. In 2017, all river and lake sampling will be undertaken by local authorities.

A major milestone for the EPA laboratories in 2014 was the awarding of the single multi-site accreditation under ISO 17025. Following a surveillance visit by the Irish National Accreditation Board in 2016, the EPA was successful in retaining its single multi-site accreditation

In addition, during 2016, the water laboratories analysed a total of 17,061 samples for a range of physicochemical analyses – together with a substantial number of samples for other more complex analysis – as part of the WFD monitoring programmes and enforcement support monitoring.

Radiation Monitoring

Radon Measurement Service

The EPA provides a commercial radon testing service to support the implementation of the National Radon Control Strategy. The data gathered also give an important insight into the radon levels in homes throughout Ireland. These data are reported on a county by county basis on the EPA's dedicated web resource: www.radon.ie.

In 2016, the EPA measured radon in 1,315 homes. Of these 151 had radon levels above the level at which remedial action is recommended (National Reference Level of 200 becquerel per cubic metre (Bq/m^3)). The maximum value measured was 3,469 Bq/m^3 in a Co. Cork home. Table 7 below gives a summary of radon measurement results completed by December 2016.

Table 7. Distribution of radon measurements results by county since the early 1990s to December 2016

County	Number of houses measured	Number of houses in categories of radon concentration			Highest concentration of radon found (Bq/m^3)
		0-199 (Bq/m^3)	**200-799 (Bq/m^3)**	**> 800 (Bq/m^3)**	
Carlow	1310	1055	242	13	2300
Cavan	493	476	16	1	900
Clare	4504	3926	479	99	3500
Cork	6257	5478	723	56	4500
Donegal	1728	1640	86	2	3400
Dublin	4297	4057	236	4	1400
Galway	8422	6637	1556	229	5200
Kerry	4462	3718	602	142	49000
Kildare	1523	1458	62	3	1100
Kilkenny	1776	1543	216	17	2400
Laois	643	618	25	0	600
Leitrim	449	417	31	1	1600
Limerick	1579	1462	112	5	1900
Longford	345	304	40	1	900
Louth	1358	1222	133	3	1900
Mayo	4950	4081	794	75	6200
Meath	1185	1098	85	2	900
Monaghan	365	345	20	0	800
Offaly	845	826	19	0	800
Roscommon	794	704	86	4	1400
Sligo	2614	1960	547	107	5600
Tipperary	2840	2500	313	27	3400
Waterford	2762	2216	474	72	9700
Westmeath	877	797	79	1	1100
Wexford	2712	2284	387	41	4100
Wicklow	2401	2013	357	31	16400
Total	**61491**	**52835**	**7720**	**936**	

Instrument Calibration Service

The EPA's Calibration Service supports the monitoring of radiation levels and radiation safety in the workplace by providing an accredited calibration service for a range of radiation protection instruments, including survey meters, contamination meters and electronic personal dosimeters.

In 2016, 518 radiation monitors were tested by the EPA's Calibration Service for customers in the medical, industrial and education sectors.

The EPA's irradiator in use to calibrate a radiation survey meter

Radioanalytical Services

The EPA measures radioactivity in a wide range of foodstuffs and environmental samples. This work is undertaken both in support of the EPA's environmental radioactivity monitoring programme and on a contract basis on behalf of external clients. The contract analytical services provided during 2016 included: testing of Irish produce for compliance with the requirements of importing countries, testing of drinking water for compliance with the requirements of the European Communities Regulations, testing of wipe tests for radioactive sources, testing of dredging samples for compliance with the requirements of the Dumping at Sea Act, and measurement of radon in drinking water. In total, 988 samples were tested during 2016.

The 2016 radiation monitoring programme involved sampling and testing for radioactivity in air, drinking water, seawater, seaweed, sediments, fish, shellfish and other foodstuffs as well as the continuous measurement of ambient gamma dose rate at fixed monitoring stations around the country. The findings of this monitoring programme showed that while the levels of artificial radioactivity in the Irish environment remain detectable, they are low and do not pose a significant risk to human health

The EPA also provides a certification service to exporters of Irish foodstuffs and other produce. The number of product certificates issued in 2016 was 3,788.

National Radiation Monitoring Network

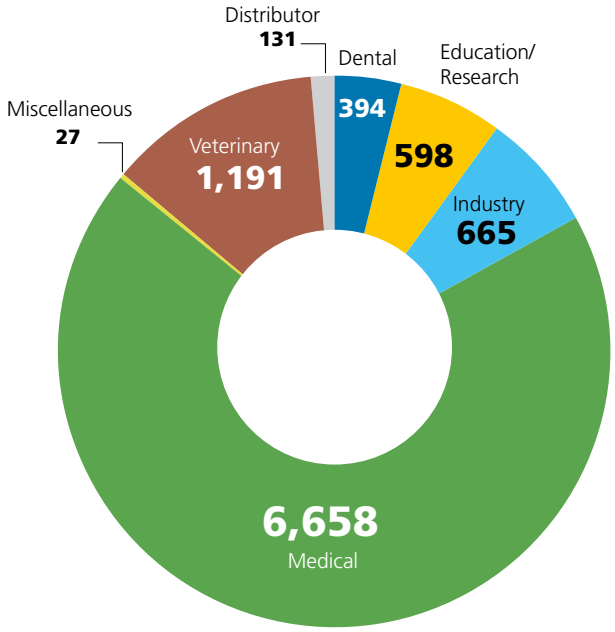
The EPA, with the assistance of Met Éireann, a number of local authorities and the Defence Forces operates the National Radiation Monitoring Network. This network measures ambient gamma dose rate, radioactivity in air and provides for the collection of rainwater samples. During 2016, ambient gamma dose rate was measured at 15 stations and radioactivity in air was measured at 12 stations. No abnormal levels of radioactivity were observed in 2016.

High Volume Air Sampler located at University College Dublin

National Dose Register

Dosimetry services providing a service in Ireland in accordance with S.I. 125 of 2000, as amended by S.I. 152 of 2012, must be approved by the EPA. There are currently six approved dosimetry services measuring radiation doses to workers and students in Ireland. Each year they must submit all radiation dose measurements to the National Dose Register (NDR) which is maintained by the EPA. In 2016, data on the radiation doses received by approximately 9,500 workers in Ireland during the previous year was submitted to the NDR. A breakdown of the number of workers monitored for occupational exposure is given in Figure 5.

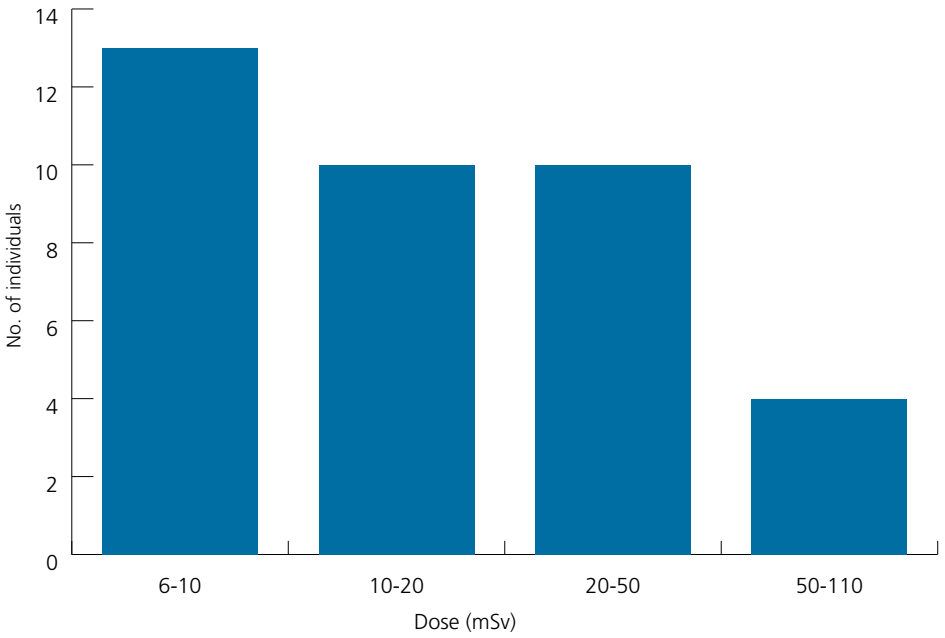
Figure 5. Number of workers by sector monitored for occupational exposure to radiation in Ireland in 2016



Fewer than 5% of workers received radiation doses in excess of the minimum reporting level of 0.1 millisievert (mSv). The highest annual cumulative whole body effective dose recorded in 2015 was 13 mSv to a cardiologist; however this was less than the annual dose limit of 20 mSv for workers.

In the new Euratom Basic Safety Standards (BSS) Directive, which Ireland must transpose by February 2018, the annual dose limit for the lens of the eye will decrease from 150 to 20 mSv. This has implications for interventional cardiologists as they are involved in medical procedures that can result in doses being received by the eye. Since no dosimetry service is currently approved to measure dose to the lens of the eye in Ireland, a review of the doses recorded on dosemeters worn on the neck during 2015 – the closest monitored body location to the eye – was made. The review showed that 37 individuals received annual cumulative doses on their neck dosemeters in excess of 6 mSv (Figure 6) during 2015. The highest cumulative dose was 103 mSv and there were four individuals with annual cumulative neck doses in the range 50-110 mSv. This data is significant because it shows that unless these workers use appropriate eye shielding there is a strong possibility that they will exceed the annual dose limit in the new BSS Directive for the eye lens of 20 mSv which would have implications for them to be permitted to continue carrying out these procedures.

Figure 6. Number of individuals receiving annual cumulative doses to the neck in excess of 6 mSv in 2015



Effective management of the environment is increasingly science-driven. Through our research and development programme, the EPA is generating the knowledge and expertise to identify pressures, inform policy and develop solutions to environmental challenges.

3.2 RESEARCH and EXPERTISE

Research Initiatives Highlights

The EPA has the statutory responsibility for the overall coordination of environmental research in Ireland. This research, conducted in Irish institutions, has greatly assisted Ireland in meeting and addressing international obligations at EU and UN levels – from climate change, to water quality, air quality and biodiversity. In 2016, the EPA committed €7.9 million to fund 45 new projects on the following topics: Water (11), Climate (14), Green Enterprise (10) and Sustainability (10).

In terms of research management, in 2016, there were 244 on-going research projects; and in addition, 25 on-going Small Scale Studies, Research Training and Support Grants (RTSG) and Event Supports.

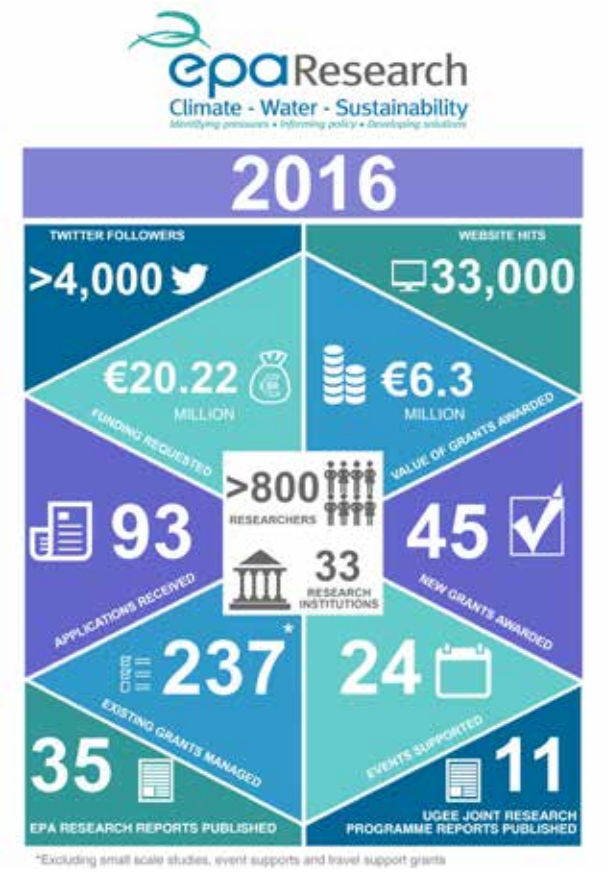
Thirty five research publications were released in 2016 with a further 17 project reports at the proofreading stage at the end of 2016.

In November 2016, the Joint Research Programme on Environmental Impacts of Unconventional Gas Exploration & Extraction (UGEE), commonly known as Fracking, concluded with the publication of 11 reports. The programme was designed to produce outputs to assist regulators – both North and South - in fulfilling their statutory roles regarding impact assessment and regulation of any potential UGEE operations in Ireland.

Communicating Research

During 2016, a total of 35 new Research Reports were published with a further 17 project reports at the proofreading stage by the end of the year. All published reports can be viewed and are available for download from the EPA website www.epa.ie/pubs/reports/research/ . The Research webpages are the principal means of communicating research and attracted about 33,000 unique pageviews during 2016.

The EPA and two universities highlighted research through the print media and Invasive Species and Green Health were both featured on RTÉ's Eco-Eye series during 2016 with on-going liaison with the series producers to identify possible future projects.



Two research newsletters were published in 2016 and circulated to over 2,900 subscribers. In addition, seven Societal Challenge 5 newsletters were published on research opportunities in the European Commission's Horizon 2020 programme and circulated to over 850 researchers and innovators.

The Research team have an active Twitter account (@EPAResearch) which provides timely updates on research calls, publications and research events. By the end of 2016 it had over 4,000 followers.

Climate Science

The EPA through its new Secretariat function supported the establishment and working of the national Climate Change Advisory Council. The Council website www.climatecouncil.ie was launched in August, and the First Report of the Council was launched in November. The EPA Secretariat team has begun work on assisting the Council in producing the first Periodic Review Report and the first Annual Report (to be produced in 2017).

The EPA Secretariat team support international Climate Science engagement including membership of the national delegation to the United Nations Framework Convention on Climate Change (UNFCCC) Conference of Parties meeting in Marrakesh – the first meeting since entry into force of the Paris Agreement in 2015. The Secretariat team represented Ireland at the Intergovernmental Panel on Climate Change (IPCC) plenary meeting in October which agreed the scope of special reports to be produced during the Sixth Assessment Cycle.

National Linkages

Collaboration

The EPA commenced a two-year research programme agreement with Economic and Social Research Institute (ESRI) (€450k). The programme consists of five projects covering the following themes:

- Environmental effects of selected fiscal instruments
- Use of behavioural economics lab experiments to examine environmental influences on consumer behaviour
- Environmental Market Failures – spatial and land use planning
- Health and well-being benefits of a clean and healthy environment and environmental amenities in Ireland
- Behavioural and experimental tests of the long-term benefits of the Green Schools programme

EPA is co-funding environmental and geoscience research in partnership with Science Foundation Ireland (SFI) and the Geological Survey of Ireland (GSI): Dr David Chew from Trinity College Dublin has been awarded almost €650,000 in funding from the Science Foundation Ireland 2015 Investigators Programme. The funding for the award will be provided by SFI, GSI and the EPA.

Under the Irish Research Council – EPA Scholarship 2016 Schemes, five PhD awards were made. A jointly funded PhD between Dublin Institute of Technology and the EPA (Fiosraigh Enterprise Award Scheme) was also awarded. There is currently one on-going research fellowship co-funded with the Marine Institute.

In 2016, co-funding was secured from:

- Department of Agriculture, Food and the Marine in relation to the Water 2016 Joint Programming Transnational Joint Call on Water Quality and Agriculture.
- GSI in relation to the 2016 EPA Water Research Call.

Research Coordination:

In 2016, EPA Research has continued liaising with its three Research Coordination Groups for each of its three Research Pillars, which aim at:

- Increasing awareness, synergies and communication amongst Irish research funders; and
- Coordinating and reducing the fragmentation of environmental research in Ireland.

EPA Research also participated in the Interdepartmental Consultative Committee on Antimicrobial Resistance hosted by the Department of Health and the Department of Agriculture Food & Marine, as well as the National Forum on Research Integrity. Following the launch of the Science Strategy *"Innovation 2020"* in December 2015 there was input throughout 2016 to various sub-actions of the Stragey via direct submissions and at meetings by the EPA Research Team.

International Linkages

EPA Research has supported researchers in the preparation of proposals under the Horizon 2020 SC5 WP 2016. Irish environmental researchers secured over €11 million in funding for environmental research during the first three years of Horizon 2020 Societal Challenge 5. This includes in particular a new 2016, €11 million project called CONNECTING which is coordinated by Trinity College Dublin (Marcus Collier). EPA Research organised the 2016 Annual Information Day on Horizon 2020 Societal Challenge 5 which was a great success with more than 200 registrations.

EPA continues to participate on the Fission Programme Committee overseeing the implementation of EU Fission research activities under Horizon 2020.

EPA Research collaborated with EU research programming through the:

- Chair of the Advisory Group on Societal Challenge 5 'Climate Action, Environment, Resource Efficiency and Raw Materials'
- Water Joint Programming Initiative and associated EC-funded Horizon 2020 projects: WaterWorks2014, WaterWorks2015 and IC4Water;
- Climate Joint Programming Initiative and associated EC-funded Horizon 2020 project ERA4CS;
- BiodivERsA: The EPA became an Observer in the network in late 2016;
- EnvHealth: (network of funders in the area of Environment and Health);

- Share '5 Agencies' Programme;
- EU Raw Materials European Innovation Partnership (EIP): EPA Research maintained its participation in the multi-million cross Directorate EU programme on raw materials (incorporating - research, circular economy, innovation, development). This role is coordinated with the DCCAE.

Radon Research

Under the framework of the National Radon Control Strategy (NRCS) the EPA carries out research to update its knowledge of the behaviour of radon in Ireland and its assessment of the associated health risks. This work is essential in ensuring that advice provided to householders and other agencies remains current. A new study commenced during the year to update the national assessment of the health risk from radon in Ireland. This population weighted radon survey will update the current risk assessment, last determined in 2005, which predicts that 13% (250) of all lung cancers in Ireland are linked to radon. This survey complements the geographic weighted survey completed in 2015 and will act as a baseline metric for the NRCS.

Three EPA radon research projects commenced in 2016. Two are being undertaken in NUI Galway and are looking at the influence of energy retrofitting on radon levels in homes, and the optimal conditions for the effectiveness of radon remediation methods. The third is being undertaken in University College Dublin and is looking into the Development and Application of Monte Carlo models for HPGe gamma spectrometry.

Provide timely and tailored information to meet the specific needs of stakeholder groups

3.3 TIMELY & ACCESSIBLE INFORMATION

State of the Environment Reporting

The EPA launched its four yearly State of the Environment report in November 2016 entitled *Ireland's Environment - An Assessment 2016*. The report provides an integrated assessment of the overall quality of Ireland's environment, the pressures being placed on it and the societal responses to current and emerging environmental issues.

It is a landmark evidence-based report that examines the environment in its totality and offers us the opportunity to reflect and plan for a better future.

The report found that the overall state of the environment is good – but it's a highly qualified good, and the State and all citizens need to act quickly to protect what we now have. The report outlines that transformational change is needed to deal with climate change and other risks to our health and natural environment. Relative to our European neighbours, our water quality is broadly good. So is our air quality. But when you get into the detail, you see that at local level, there are many worrying signals warning us that we are in danger and we need to act with a much greater sense of urgency. In summary, the key environmental actions for Ireland on the state of the environment in 2016 are outlined in Figure 7.

Figure 7. Key environmental actions for Ireland on the state of the environment in 2016

The EPA produced a number of State of Environment products to accompany the report including an e-book version of the report and a short video of the conclusions of the report. The graphs and figures used in the report were also made available online in different formats.

Web Resources

Ireland's Environment

To complement the State of the Environment report the EPA developed the 'Ireland's Environment' section on the EPA website www.epa.ie/irelandsenvironment/. It won the 'General' category at the eGovernment awards in 2016. The resource provides for easier public access to environmental data under eight environmental themes: air, climate, water, waste, nature, land & soil, environment & wellbeing and sustainable economy. Information is available in a variety of formats including videos, charts, infographics and factsheets.

My Local Environment & GeoPortal map resources

My Local Environment is a web mapping resource on the EPA website that allows the public to access environmental information on their local area. Simply enter an address and get a report on all relevant environmental information. Annually there are continual improvements to the presentation of information and environmental information is kept up to date.

In addition to area specific environmental information, the EPA GeoPortal provides the public with access to a more extensive list of environment information, this Open Data that can be viewed, interrogated, downloaded and used as a live mapping service within stakeholder applications. Currently there are over 120 spatial datasets available and new data is continually added to ensure the latest information is available to the public. In 2016 a new development started to improve these mapping services and improve how data is presented.

These mapping services and resource are popular with EPA stakeholders with over 100,000 visitors in 2016 – highlighting the public's requirement for access to environmental information.

Infographics and Factsheets

A series of factsheets and infographics providing summary information and assessment on a range of environmental topics was added to the existing complement during 2016. Graphic visual representations were used to summarise the main information on topics such as air quality, bathing water, waste, radon and an infographic on *'20 years of State of the Environment Reporting: 1996 – 2016'*. These have been used to disseminate scientific information in an easy to understand format.

Open Data Initiative

The EPA has actively participated in the Open Data initiative by the Department of Public Expenditure & Reform, all open EPA spatial data has been registered on data.gov.ie and is available for viewing and download on the EPA GeoPortal. Data highlights for 2016 include the release of the river networks dataset from restricted access to fully open and the integration of the Irish Soils Information System data, produced by Teagasc, within EPA systems.

By the end of 2016 there were 131 EPA datasets published on data.gov.ie. The EPA is a key contributor to Open Data nationally and Ireland is regarded as the third best in the EU for potentially lifesaving open data.

The publication of radiation monitoring and greenhouse gas emissions and projections is being further progressed within the EPA. The EPA is examining how it can best deliver open data in a consistent and standardised manner and is looking at the tools and standards that can help achieve this.

National Emission Inventories

The EPA submitted final 2014 air pollutant emissions to the United Nations Economic Commission for Europe (UNECE) under the Convention of Long Range Transboundary Air Pollution (CLRTAP) and final 2014 Greenhouse Gas emissions, including National Inventory Report (NIR) to the EU and the UN under the Monitoring Mechanism Regulation (MMR) and Framework Convention on Climate Change (UNFCCC), respectively. The Greenhouse gas emission inventories underwent two expert review processes, one under EU regulation and the other under the UN convention. The EPA also participated in a UN centralised review of Portuguese, Spanish and UK inventories and an in-country review of Malta.

Provisional Greenhouse gas emissions were published nationally in November for the period 1990-2015. The figures showed a significant increase in emissions in 2015 due largely to a recovering economy and increased coal use in electricity generation. The 2015 emissions data was widely publicised in the media and presented to the Climate Change Advisory Council in December.

The first stage of a database project for inventories and projections was completed by year end. 2017 will see further work on this project particularly for the projections and the land use sector.

Emissions Projections

The EPA organised a joint seminar to coincide with the publication of a projections update to 2020. The main message in the update was that Ireland is unlikely to meet its 2020 greenhouse gas emission reduction targets under the EU Effort Sharing Decision. This was extensively covered in the media.

The EPA presented emission projections and fielded questions on Climate change generally in the context of new Effort Sharing Regulation proposals to the Oireachtas Joint Committee on Communications, Climate Action and Environment. The EPA also provided input to the DCCAE on the Inventory and Projection numbers to be used in the National Mitigation Plan.

The EPA presented at the European Environment Agency (EEA) EIONET workshop on the evaluation and reporting on Climate Change Mitigation Policies and Measures and contributed to National discussions around the implications of new EU proposals to extent the Effort Sharing Regulation to 2030.

Air Quality

The EPA met all of its targets for delivery of data to the EEA by the deadline of 30th September 2016. Ireland is currently in joint first place based on the EEA's preliminary assessment against the submission of selected core data flows. The EPA continue to provide timely 'Up To Date' real-time data for selected air pollutants to the EEA for display on European air quality maps.

The EPA continue to provide real-time air quality information on our website at www.epa.ie/air/quality in a graphical format and also selected data is used to calculate our Air Quality Index for Health (AQIH) – which displays an air quality index (from 1-10) in a colour coded and map based system. The Twitter feed @EPAAirQuality keeps the public up to date with air quality in their region.

The EPA published 'Air Quality in Ireland 2015 – Key Indicators of Ambient Air Quality' in November 2016 to good media interest and interest from the general public. The report concluded that Ireland did not exceed any legal EU limit values in 2015 for ambient air quality monitored at any of the 31 air quality network monitoring stations; burning of solid fuel and emissions from vehicle exhausts remained the main threats to good air quality in Ireland; particulate matter and ozone levels were above the World Health Organisation (WHO) guideline values; and concentrations of polycyclic aromatic hydrocarbons were above European Environment Agency reference levels.

Water Quality

Water Framework Directive (WFD)

A very substantial development in 2016 was the creation of the www.Catchments.ie website which is a collaborative public information website developed by the EPA on behalf of itself, the Department of Housing, Planning, Community and Local Government (DHPCLG) and the local authority sector (via the Local Authorities Waters and Communities Office). The website has been very well received as an exemplar in the provision of public information and has won four awards in 2016 including:

- Realex Web Award - Most Innovative
- Realex Web Award - Best Science & Technology
- IRLOGI - Excellence in Media based Geospatial Data
- Civil Service Excellence and Innovation Award.

In addition to the website, three Catchment newsletters were published in 2016. These newsletters provide improved public information on work that is being progressed on the implementation of the Directive and on positive community based actions to improve Ireland's Water Environment.

Pictured launching *www.catchments.ie* at the National Water Event, Galway were Paddy Morris, EPA, Cian Ó Lionáin, Department of Housing, Planning and Local Government and Matt Shortt, Local Authority Waters and Communities Office

Drinking Water

During 2016, the EPA published its annual Drinking Water Report for Public Water supplies for the year 2015. The report provides an overview of drinking water quality in Ireland for 2015 based on monitoring data from Irish Water and the regulation of public supplies by the EPA. A separate report, to be published in 2017, will provide information on the quality of drinking water in private water supplies.

The EPA's Remedial Action List (RAL) is a register of public water supplies with the most serious deficiencies and known to be most at risk. It is updated quarterly by the EPA and the location of the supplies including the reason the supply is on the RAL and the anticipated completion date for the remedial works is made available on the EPA website: www.epa.ie/water/dw/quality/.

Water Level, River Flow and Groundwater Level

During 2016, the EPA completed the upgrade of a new and improved EPA HydroNet (www.epa.ie/hydronet) web portal. The new web portal contains water level, river flow and groundwater level data collected by the EPA and local authorities, and links to data collected by other organisations in Ireland. This is the first time that hydrometric stations operated by various organisations including the EPA, local authroities, Office of Public Works, Electricity Supply Board, Waterways Ireland and the Marine Institute can be viewed and queried side-by-side through a single web portal. All groundwater level data collected by the EPA was also made available through HydroNet for the first time. The entire EPA hydrometric data archive for both historic and active stations is also now available through this portal on an Open Data basis.

Bathing Water Quality

Throughout the bathing season results of the latest bathing water quality – provided by local authorities – are made available to the public on the EPA's online bathing water system "Splash". Details of pollution incidents and remedial actions were also made available on the Twitter feed @EPABathingWater. Development of a mobile friendly beach advisory service (beaches.ie) will be launched prior to the 2017 bathing season.

National Waste Reporting

The EPA published five "data releases" in 2016: End of Life Vehicles, Waste Electrical and Electronic Equipment (WEEE), Waste Packaging, Hazardous Waste and Composting & Anaerobic Digestion. This represented a shift away from focussing solely on large annual or biennial wide-ranging reports to sectoral data releases that make sectoral data available as it is ready.

- National statistics on household waste paper/plastic/glass/metal recycling for 2013 and 2014 reference years were submitted to the European Commission.
- National statistics on reuse & recycling and reuse & recovery of end-of-life vehicles (ELVs) for the 2014 reference year were submitted to the European Commission via DCCAE. Ireland met the ELV Directive targets.
- National statistics on the recovery of WEEE for the 2014 reference year were submitted to the European Commission via DCCAE. Ireland met the WEEE Directive targets.
- National statistics on waste finally treated in Ireland for the 2014 reference year (Waste Statistics Regulation set 2) were finalised and forwarded to the European Commission.
- The EPA assisted the DCCAE to complete the Waste Framework Directive and Landfill Directive Implementation Reports for the European Commission for reference years 2013-2015. Engagement with DCCAE on Circular Economy Package legislative proposals also continued as did engagement on draft ELV Amending Regulations.
- A four year framework agreement for municipal waste characterisation was awarded to RPS Group Ltd. The first contract commenced in December for the characterisation of household and non-household municipal waste collected at kerbside.
- The EPA launched a re-branded twitter feed @EPAWasteRes, which had approx. 240 followers by the end of 2016, to publicise information regarding waste and resource efficiency.

European Pollutant Release and Transfer Register

The European Pollutant Release and Transfer Register (E-PRTR) data for Ireland for 2014 was uploaded to the EPAs PRTR website in April 2016. The 2014 E-PRTR data was submitted to the European Commission in March 2016.

The EPA provided input to DCCAE in response to a submission on the draft National Report on the implementation of the UNECE PRTR Protocol in Ireland that was subject to public consultation as well as contributing to the European Environment Agency (EEA) on an Industrial Pollution country profile of Ireland, subsequently published in December 2016

Comments were also submitted to the EEA in relation to a project concerning the streamlining of reporting components of the Industrial Emissions Directive (IED), Large Combustion Plant (LCP) and E-PRTR reporting. The EPA participated in an EEA Industrial Pollution workshop in June and a Commission workshop in March on the planned integration of LCP and E-PRTR reporting.

Work continued on the Common View Project which aims to bring together licensee data collection (including PRTR licensees) into a single system.

Persistent Organic Pollutants Reporting under EU Regulations:

Persistent organic pollutants (POPs) are chemical substances that persist in the environment, bioaccumulate through the food web, and pose a risk of causing adverse effects to human health and the environment. This group of priority pollutants consists of pesticides (such as DDT), industrial chemicals (such as polychlorinated biphenyls (PCBs)) and unintentional by-products of industrial processes (such as dioxins and furans).

EU legislation in this area is designed to ensure EU and member state commitments under international agreements such as the Stockholm Convention are met. EPA is the competent body for compiling the data required for reports under the EU Regulations. Ireland met the reporting deadlines on time in 2016:

- The Article 12(2) Regulation (EC) 850/2004 annual report on the control and placing on the market of POPs listed under Annexes I and II of the same Regulation was submitted to DCCAE on May 21, 2016.
- The Article 13(1) and 12(3) Regulation (EC) 850/2004 triennial report was submitted to DCCAE for transmission to the European Commission on June 29, 2016. The report covered activities relating to stockpiles of POPs, measures taken regarding the reduction of releases of certain POPs, POPs monitoring and enforcement and awareness activities over the period 2013-2015.

Enforcement Information and Public Access

In 2016, the EPA further enhanced public access to enforcement information by the publication on-line of key enforcement documents (Table 8) for licensed sites such as EPA site inspection and monitoring reports and licensee monitoring reports. The full enforcement record for a licensed site can be viewed at EPA offices.

Table 8. Enforcement documents published to the EPA website in 2016

Document Type	Web Published, 2016
Licensee Self-Monitoring Reports	2834
EPA Site Visit Reports	1813
Licensee Public Response to EPA Site Visit Reports	79

"Work with others to advocate for a clean, healthy and well protected environment and sustainable environmental behaviour."

In order to deliver on our strategic objectives we will continue to work with and through others to effect positive outcomes for the environment.

4. ADVOCACY

4.1 PARTNERING and NETWORKING

Oireachtas Committees

The EPA welcomes every opportunity to inform Joint and Select committees of the Oireachtas in their legislative and administrative oversight functions with regard to environmental protection. In October 2016, the EPA briefed the Joint Oireachtas Committee on Communications, Climate Action and Environment on EU legislative proposals on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry into the 2030 climate and energy framework and on binding annual greenhouse gas emission reductions to meet commitments under the Paris Agreement.

Service Level Agreement

The EPA has now in place a Service Level Agreement with the Department of Communications, Climate Action and Environment and the Department of Housing, Planning, Community and Local Government. This Service Level Agreement ensures for clear service ownership, accountability, roles and responsibilities for the three organisations. The Agreement identifies the distinctive roles of each organisation, their mutual commitments and expectations, and provides the basis for ongoing engagement between them.

The Service Level Agreement is an integral part of the strategic and operational framework for the EPA. It is fully integrated with the strategic planning cycle, work-force planning, annual work plans and financial allocations. The key reporting tool for the outputs and outcomes to be delivered is the EPA Annual Report.

Memoranda of Understanding

The EPA has adopted Memorandum of Understanding (MOU) agreements with various organisations that have an involvement in, or who contribute to, matters relating to the environment. The EPA currently has MoUs with the following:

- An Bord Pleanala
- Central Statistics Office
- Climate Change Advisory Council
- Commission for Energy Regulation
- Department of Agriculture, Food & the Marine
- Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (National Parks and Wildlife Service)
- Department of Communications, Climate Action and Environment, Kilkenny Co Co & Galmoy Mines Ltd.
- Food Safety Authority of Ireland
- Health and Safety Authority
- Health Service Executive
- Marine Institute
- Met Éireann
- Office for Nuclear Regulation of Great Britain
- UK Drinking water Regulators

During 2016, the EPA signed two new Memoranda of Understanding with the Climate Change Advisory Council and the National Parks & Wildlife Service of the Department of Arts, Heritage and the Gaeltacht. MOUs are published on the EPA website where agreed with the other party.

European Environment Agency (EEA)

The EPA continued to coordinate the flow of environmental data and information to the European Environment Agency during 2016. This data is used by the EEA in its assessments of the European environment. The EPA plays an active and supportive role in the work of the EEA and is a member of the EEA Management Board. The EPA has continued to maintain and develop Ireland's National Reference Centre Network, and in its role as National Focal Point for Ireland, the EPA facilitates and co-ordinate contacts, requests and deliveries of environmental data between national and EU level.

Climate Change

The EPA represented Ireland at key meetings of the Intergovernmental Panel on Climate Change in 2016. This included IPCC Plenary meeting which agreed to produce three Special Reports, including one promoted by Ireland and a number of international partners which will address climate change, land and food issues. In order to facilitate this, the EPA has worked with the Food and Agriculture Organisation and the IPCC to hold a meeting on these issues and Ireland has offered to host the scoping meeting for the IPCC Special Report on Land and Food issues in February 2017.

The EPA continued to support the DCCAE work on international climate change including representing Ireland at Expert Meetings under the EU Presidencies. The EPA provided scientific support at national and EU levels during meetings of the UN Framework Convention on Climate Change, including at the COP22 meeting in Marrakesh which followed the entry into force of the 2015 Paris Agreement on future actions to address climate change. EPA roles included chairing of UN meeting, leading and advising on negotiations and working closely with experts from other member states and the Commission.

The EPA also supported and participated in Centralised Review process and In-Country review processes as part of the international reporting of greenhouse inventories under the UNFCCC and Kyoto Protocol. The EPA also supported various government departments for national engagement with EU Climate Change Committee Working Groups including on land-use, land-use change and adaptation.

European Network of the Heads of Environment Protection Agencies (NHEPA)

The EPA Network is an informal grouping bringing together the heads and directors of environment protection agencies and similar bodies across Europe. The Network exchanges views and experiences on issues of common interest to organisations involved in the practical day-to-day implementation of environmental policy.

The EPA is Co-Chair of the Better Regulation Interest Group of NHEPA, alongside Scotland. At the plenary meeting in Vilnius, Lithuania in May 2016, the principal topic was the EU Circular Economy Package. In addition, the current environmental policy priorities and activities of the European Commission and the European Environment Agency were discussed. At the plenary meeting in Portugal in October, discussions centred on the Commission's Environmental Implementation Review and the Fitness check of EU environmental monitoring and reporting.

Strategic Environmental Assessment

As a statutory environmental authority designated under the regulations implementing the Strategic Environmental Assessment Directive (SEA), the EPA continued to make submissions during 2016 on key national and regional plans/programmes/strategies. These submissions included the National Wastewater Sludge Management Plan (Irish Water), Lead in Drinking Water Mitigation Plan (Irish Water) and the National Policy Framework for Alternative Fuels Infrastructure for the Transport Sector (DTTAS). During 2016, the EPA made submissions on 49 draft plans/programmes and associated SEA environmental reports and 11 submissions on amendments to plans/programmes. Fifty three screening notifications were received and 66 screening submissions were issued with 32 scoping notifications received and 42 scoping submissions issued.

In addition, the SEA spatial information sources continued to be updated in association with NUI Maynooth. This environmental spatial data inventory provides a useful resource to inform the preparation of SEA Environmental Reports and the associated environmental assessments. Data sources/links include air quality, climate, biodiversity, flora, fauna, geology, soils, hydrology and water quality. The dataset is updated biannually.

NIECE

The EPA continues to coordinate a Network for Ireland's Environmental Compliance and Enforcement (NIECE). Participants of the Network include all local authorities, government departments, An Garda Síochána, the National Bureau for Criminal Investigations, the Northern Ireland Environment and Heritage Service, the Police Service of Northern Ireland, the Fisheries Boards, the Health Service Executive, the Revenue Commissioners, and the Director of Public Prosecutions.

The Network harnesses the collective resources and expertise available nationally to co-ordinate a consistent and more effective approach to the enforcement of environmental legislation in Ireland.

During 2016, NIECE facilitated a series of events and workshops including a two-day workshop to improve local authority awareness of air quality and air quality related issues (including Radon), the annual meeting of RMCEI Coordinators and the National Inspectors (septic tanks). Furthermore, activities across the Working Groups and Networks supported by the NIECE online portal included work in the areas of WEEE and Batteries, Waste, Wastewater and Water Framework Directive in particular.

Water Framework Directive

The EPA has been assigned a number of tasks under the European Communities (Water Policy) Regulations 2003 and 2014. A key part of the Water Framework Directive is Article 14, which requires all member states to engage with the people who interact with water resources in their locality to involve them in management and decision making related to protecting and, where necessary, improving their water resources. EPA worked very closely with the DHPCLG in 2016 to develop the information on water quality for inclusion in the draft River Basin Management Plan. Moreover, the EPA undertook a substantial body of work, in conjunction with all county and city councils and Inland Fisheries Ireland, to assess the impacts of human activities on the water environment (characterisation). This work on characterisation will extend into 2017.

Environment Pillar

The Environmental Pillar is comprised of 26 national environmental non-governmental organisations, who work together to represent the views of the Irish environmental sector. The EPA has a formal agreement to meet the network at least once per year to give a briefing and to exchange perspectives on Irish environmental issues. Two such meetings were held between EPA and Irish Environmental Network, in March and October 2016.

Nuclear Safety

To allow the EPA fulfil its responsibility to monitor developments abroad in relation to nuclear installations and radiological safety and to advise Government on their implications for Ireland, the EPA takes an active role in national and international committees in the nuclear safety field.

The EPA meets regularly with its counterparts in the UK, including the Environment Agency and the Office for Nuclear Regulation, to discuss radiological and nuclear issues. In 2016, these discussions centred on Sellafield, new nuclear build in the UK, international developments in nuclear and radiation safety, and nuclear emergency planning. During the year, an agreement was signed between the EPA and the UK's Office for Nuclear Regulation to facilitate communication on nuclear issues.

HERCA

HERCA is a voluntary association in which the Heads of Radiation Protection Authorities work together in order to identify common issues and propose practical solutions for these issues. HERCA is working on topics generally covered by provisions of the EURATOM Treaty. The programme of work of HERCA is based on common interest in significant regulatory issues.

At the plenary meetings in Den Haag, the Netherlands in April 2016 and in Dublin in November 2016 (which was hosted by the EPA), a key topic was the work of HERCA to support the transposition and implementation of the Euratom BSS Directive. In addition, the current radiation protection priorities and activities of the European Commission were discussed at both plenary meetings. Both meetings also included updates from a number of the HERCA working groups, including on veterinary applications, medical applications, non-medical sources & practices and on emergency planning.

European Nuclear Safety Regulators Group (ENSREG)

The EPA represents Ireland on European and international forums on issues relating to nuclear safety. In particular, the EPA continues to be actively involved in the work of the European Nuclear Safety Regulators Group (ENSREG) and its work on nuclear safety (including legislation in this area) and initiatives to improve transparency arrangements.

The Convention on Nuclear Safety Review Process

The Convention on Nuclear Safety (CNS) is an international convention which obliges all signatory countries to maintain a high level of safety in nuclear power reactors, maintain emergency planning arrangements and to report on measures taken in this respect. Every three years, all contracting parties to the CNS, including Ireland, must demonstrate compliance with the convention and undergo a peer review by the other contracting parties. As part of this process the EPA assisted the DCCAE in preparing Ireland's national report which was submitted to the IAEA in August 2016. This report gives an outline of the national policy, State institutional framework and general legislation governing nuclear matters and emergency planning in Ireland. The EPA has reviewed the national reports from other countries and will provide a response to any questions posed on Ireland's report. The EPA will present the national report at the seventh review meeting of the CNS in March 2017.

National Radon Control Strategy (NRCS)

The NRCS is a cross government strategy which aims to reduce the incidence of radon related lung cancer deaths in Ireland. Priority actions delivered during 2016 included:

- A dedicated website www.radon.ie.
- Agreement with the Law Society of Ireland regarding the inclusions of three questions relating to radon in the conveyancing process.
- Development of a training course in radon preventive measures with the Construction Industry Federation.
- Development and rollout of a training course for radon remediators with DHPCLG, the radon industry and the Local Authority National Training Services Group (LANTSG).
- The start of research to refresh the estimate of radon risk in Ireland as a baseline metric for the future performance of the strategy. This work will be completed in 2017.

The training course in radon remediation was delivered at four LANTSG training centres and attended by 80 staff from local authorities, the Office of Public Works, the Department of Education as well as private remediation contractors. Success in the course is now a requirement to be listed on the register of EPA approved radon remediation contractors published on radon.ie.

Published research during the year shows that implementation of the Building Regulations since 1998 has resulted in a 13% reduction in the average level of exposure to the Irish population.

EPA also hosted the 13th Annual National Radon Forum which was attended by national and international representatives working in the radon area. A recent EPA funded study on the

psychological barriers to behavioural change in relation to radon was presented by Prof. David Hevey (TCD) and received much interest from the delegates.

The radon programme in Ireland is recognised as among the most advanced in Europe and the EPA continues to work closely with international partners to share experience and to ensure best practice. In January the EPA hosted a visit of the European Radon Association (ERA) and began to work with members of the ERA on an international project to develop protocols to measure radon in large buildings. This project aims to provide guidance for member states implementing the EU Basic Safety Standards Directive (BSS).

Emergency Planning

As a member of the Government Taskforce on Emergency Planning, the EPA contributed to the preparation of a new National Framework for Emergency Management and the update of the National Risk Assessment. The EPA also supported DHPCLG in a review of the National Emergency Plan for Nuclear Accidents (NEPNA) in 2016. The revised plan is due to be published in 2017.

The largest national-level nuclear emergency exercise in Ireland since 2007 was initiated by an international exercise organised by the Nuclear Energy Agency of the OECD. It involved over 70 participants from 25 government departments/agencies as well as observers from the food/feed industry. The EPA supported DHPCLG in organising this table top exercise to test Ireland's capability to respond to a nuclear accident in Europe and in particular Ireland's communication, information exchange and decision making processes. The exercise scenario involved an accident at a nuclear power plant in the UK which coincided with severe weather and easterly winds carrying the radioactive plume across Ireland.

In 2016, the EPA published a report on the potential radiological impact on Ireland of a severe accident at Sellafield. This research considered a number of accident scenarios that could lead to a release of radioactive material to the environment.

EPA also undertook an emergency exercise using samples collected nationwide by the Civil Defence to test its laboratory's capacity to respond to a radiation emergency. The EPA provided training to Fire Officers attending a hazardous materials training course in Cork. This training included an exercise involving a traffic accident where one of the vehicles contained radioactive sources.

The EPA runs an annual programme of emergency exercises to maintain and develop staff expertise. In 2016, the EPA participated in ten international emergency exercises organised by the European Commission, the International Atomic Energy Agency, the UK and the OECD Nuclear Energy Agency (NEA).

Air Quality

The EPA continued to chair and facilitate the Air Quality Health Information working group. This group provides a forum for environmental and health governmental stakeholders, including the HSE, to discuss air quality related health topics.

Providing timely and easily accessible information to all our stakeholders contributes to public participation in environmental decision-making and gives people the information they need to make environmentally informed choices.

4.2 AWARENESS RAISING

Communicating our Key Messages

The EPA Media Relations Office provides a 24 hour service to the media. In 2016 the Office handled 547 media queries and issued 41 press releases, which resulted in over 17,000 newspaper articles in which the EPA was mentioned.

The Director General's end of year statement was published, capturing the highlights of the EPA's main activities and achievements in 2015. Four editions of EPANews, the corporate electronic newsletter, were disseminated to over 5,000 subscribers during the year, including issues dedicated to the launch of the state of the Environment report – *Ireland's Environment – An Assessment 2016* and the launch of the *EPA Strategic Plan 2016-2020*.

The EPA continued to build on its use of social media as a way to communicate its messages. By the end of the year the EPA had over 22,000 followers on Twitter, across ten accounts catering for specific interests including how to live green, climate news, research news, air quality, bathing water information, radon news and waste and water resources.

At the end of 2016, EPA videos on YouTube received almost 250,000 views. Videos added in 2016 included topics such as greenhouse gas emissions, climate change and reducing food waste.

The EPA again provided support funding for the thirteenth series of the Eco Eye TV programme, which was broadcast on RTE1 early in the year. Viewing figures averaged almost 500,000 viewers per programme. This series continues to raise environmental awareness and provide the public with comprehensive information about environmental issues.

Website

The EPA's website is our main communication tool for disseminating information to the public, with in excess of 800,000 visits in 2016.

Two large development projects were undertaken in 2016 on the website with the development of livegreen.ie, an online resource for householders and the National Radon Control Strategy web resource, radon.ie.

Livegreen.ie

The 'Live Green' web resource (www.livegreen.ie) was launched to provide easier public access to information which promotes sustainable living at home and in the community. The website covers household themes of Water Conservation, Waste Prevention, Energy Efficiency, My Home My Community & Your Home Your Health. The website is supported by Irish Water, Sustainable Energy Authority Ireland & Healthy Ireland. The web resource is supported by social media, launched in

July 2016. The '@EPALiveGreen' facebook page attracted 1000 followers and the '@EPA_LiveGreen' twitter page attracted 197 followers by year end. There have been over 11,464 visits to Livegreen.ie website since its launch.

Radon.ie

EPA is the main provider of information and guidance to stakeholders in the area of radon gas. 2016 saw the launch of Radon.ie (www.radon.ie), a one-stop-shop of radon advice and information tailored for different audiences, including householders, businesses, and building professionals. The website, established under the National Radon Control Strategy, offers helpful and practical advice on radon testing and remediation. Following its launch a number of promotional activities were undertaken to bring it to the attention of the public and other stakeholders.

Conferences and Exhibitions

EPA staff engaged with stakeholders at a range of national and local events during 2016 including the BT Young Scientist & Technology Exhibition (where the EPA also presented a Special Environmental Award) and the National Ploughing Championships. These events provide an ideal opportunity to engage with our stakeholders and to help raise awareness of the environment and what people can do to improve it. Materials and support were also provided to 44 other events throughout the year.

The 12th *Environment Ireland conference* took place in September. This is Ireland's major annual conference on environmental policy and management and is organised in association with the EPA and DCCAE. Key themes for the 2016 event included environmental policy; sustainable water; planning and community engagement; climate change; waste and resource efficiency and natural capital and ecosystem management.

Some other key conferences and events held during the year included:

- *The National Water Event, June 2016:* "Working together from source to sea - science in action". This annual event in Galway is a key forum for Local Authorities, other public bodies, members of non-governmental bodies, and water professionals to learn about current changes in Ireland's water policy and practices.
- *Air Quality two day workshop*, took place in Tullamore, Offaly and was a great success with great participation from within the EPA, Local Authorities, Health Service Executive and third-level research groups.
- *National Radon Forum*: In 2016 the Forum brought together an international audience with an interest in radon control and a role to play in reducing the risk from radon in Ireland. The Forum agenda included a detailed update on the important achievements of Year Two of the Government's Four Year National Radon Control Strategy for Ireland. In addition, a number of research projects being carried out to underpin the Strategy were presented.

Dr Micheál Lehane, EPA Director with Professor David Hevey of Trinity College Dublin, who presented his research findings on radon public awareness programmes

- *Health and Environment Conference*: In November, 2016, the EPA jointly hosted the inaugural EPA-HSE Health and Environment Conference with an international panel of speakers in Dublin. The conference was the first jointly held conference with the HSE and aimed to promote a greater awareness of the impact of environmental quality on human health, and foster collaboration with health agencies and other bodies to realise the benefits of a good environment for health and wellbeing. The very informative speakers presentations are available to view on www.youtube.com/user/EPAIreland.

Radon Awareness

The final in a 12 county series of radon awareness campaigns was held in Co Wicklow in November. Local support from Wicklow County Council, and in particular from the local Environmental Awareness Officer, made this a successful campaign with good public engagement. An active media campaign generated a strong response from the public and an art competition targeting primary schools generated much enthusiasm with the winner receiving a prize of sports equipment for her school. While there is a relatively high level of public awareness of radon this does not translate into individual action on radon. The National Radon Control Strategy has identified this gap as a priority area of action.

Education

The EPA sponsored a lesson on resource efficiency in Science and Technology in Action – a multimedia resource for second level schools. In 2016 the EPA continued to promote its education materials and other online resources via targeted placements of articles in environmental and educational magazines and through outreach initiatives.

Junior Achievement Programme

During 2016, the EPA was involved in delivering the Junior Achievement Ireland programme in local schools in Castlebar and Wexford. A variety of 29 programmes were delivered in 12 primary and secondary schools. EPA staff engaged with over 1,000 school children delivering programmes featuring enterprise education; financial literacy; STEM skills and business & life skills. The aims of Junior Achievement Ireland are to encourage students to stay in school and to maximise the opportunities that their education provides. A highlight for almost 300 of these students was a visit to the EPA offices in Castlebar and Wexford, where they were given demonstrations of the EPA drone and hovercraft, and learned about measuring radiation using a Geiger counter.

We strive to influence positive behavioural change by supporting businesses, communities and householders to be more resource efficient.

4.3 PROMOTING SUSTAINABLE BEHAVIOUR

National Waste Prevention Programme

The EPA-led National Waste Prevention Programme (NWPP) provides leadership and financing for projects to support moves towards sustainability by householders, businesses and the public sector. The key aspects of the works are:

- Supporting resource efficiency and waste prevention by providing expertise and financial backing for projects/ initiatives;
- Measuring progress through waste reporting and statistics;
- Implementing statutory obligations in relation to hazardous waste management.

The approach of the NWPP is based on a partnering model that encourages sustainability in other organisations by working with them directly, and by providing self-help tools. The 2016 activities of a number of the NWPP projects are reviewed below to illustrate the work underway. A dedicated annual report for the NWPP is published each year and is available from the EPA website.

Greenbusiness.ie

Greenbusiness.ie is a significant programme that works to assist Irish businesses in improving their environmental performance. The programme offers direct interventions to companies based around a site visit that will identify efficiency actions that can be enacted at low – no cost and will generate reductions in environmental impact and in operating costs.

In 2016 Green Business visited a range of companies including the following sectors: food processing, retail, hospitality, finance, office and engineering. €1.2 million worth of cost savings opportunities were identified in 40 companies. This includes €98,000 identified through a Green Retail pilot programme in 12 retailers, under a new approach which is being developed cooperatively between EPA and SEAI.

The Green Business programme is also keen to facilitate businesses to conduct self-assessments of their environmental performance. The recently launched TREE tool is an online resource that brings a business owner through a straightforward set of questions to determine their level of resource efficiency. On completing the test, the owner receives a resource efficiency score and a set of recommendations tailored to any weakness areas identified through the survey. Since the tool was launched in October, approximately 100 companies from a wide variety of sectors and sizes have completed the questionnaire and received a Resource Efficiency score. Data collected to date indicates that companies are reasonably progressive in Waste Management and Energy Efficiency, but weaker on Water Management and implementing formal Environmental Management Systems.

In 2016, Green Business prepared a suite of Green Office Guides. These include a Green Your Office Wallchart with 50 Top Tips for Staff; a general information booklet; and a handbook designed for management with 60 actions for greening office-based workplaces.

Green Healthcare

The Green Healthcare programme is co-funded with the HSE and addresses the following areas:

- Water
- Awareness Raising
- Nursing Homes
- Waste Benchmarking
- Continued support for existing facilities.

The Green Healthcare programme has produced best practice guidelines for efficient water use in the healthcare sector. The guide provides benchmarks for water use in both acute and community hospitals, as well as recommended best practices for achieving water efficiency through the use of appropriate fixtures and fittings. This area offers great potential for resource and cost efficiencies, with annual savings in one hospital estimated at €24,000 through managing flow rates.

Green Healthcare also continued its roadshow of awareness days around Irish hospitals, with 10 awareness days hosted in 2016. These include talks to staff on food waste, on water conservation and on increasing recycling and minimising healthcare risk waste.

In a new development for the programme, six nursing homes were assessed and reports were prepared for the owners on the potential measures that could be taken by each to reduce their resource use and save money. This included

recommended measures in the areas of energy, water, waste and food waste. This work has been facilitated and promoted through Nursing Homes Ireland.

SMILE Resource Exchange

SMILE Resource Exchange is Ireland's industrial symbiosis platform which provides a free service for businesses to connect and identify industrial synergies where unwanted materials from one business can be employed as a resource for another. Throughout 2016 SMILE continued to work with a small team of technical consultants who actively worked with companies to identify and support symbiosis opportunities. SMILE recorded 75 successful synergies in 2016. This equates to approximately 11,740 tonnes of material diverted from landfill, diverted to recovery/recycling or diverted from recycling/recovery to reuse or remanufacturing. These 75 synergies combined represent costs saving for businesses of approximately €2m. A highlight of 2016 for SMILE was winning the 2016 Pakman Waste Prevention Business Award in October.

Freetrade Ireland

FreeTradeIreland.ie is a free online reuse service which allows its users to pass on unwanted items for free, from beds and furniture to electronic goods and garden equipment and more. The service is free to use and delivers real financial savings to all its users, as well as being good for the environment.

The membership base continued to grow in 2016 with 2,796 new members signing up to use the service. The overall number of members now using the service stands at over 57,700. The website remains a hub of activity with 460,000 visits to the website in 2016 from over 167,000 unique visitors. During 2016, FreeTrade Ireland took over the running of the Upcycle Challenge; a competition challenging people to take old, unwanted items and upcycle them to give them a new lease of life. The challenge ran from May to September with a total of 100 entries.

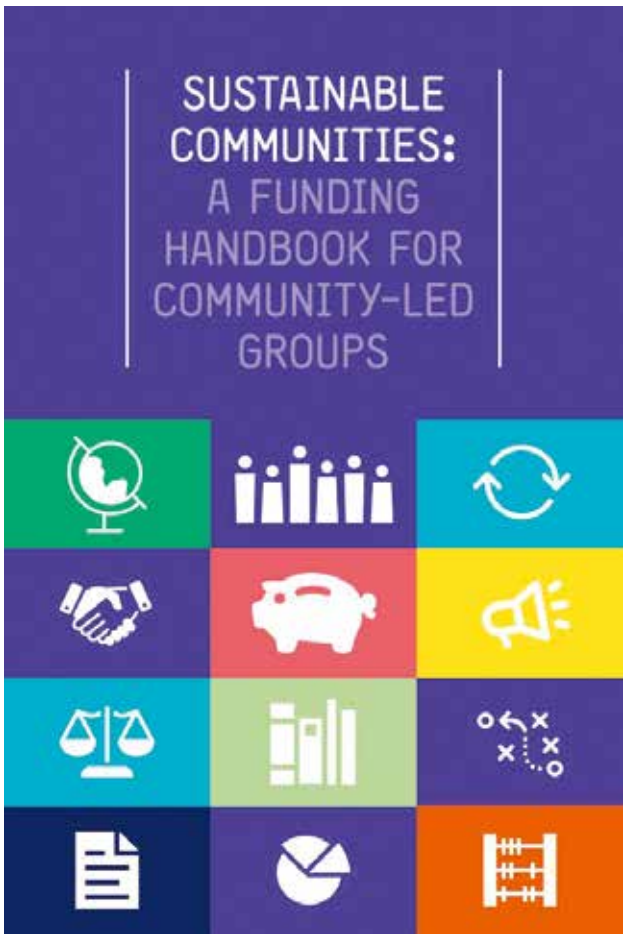
Green Enterprise

Green Enterprise challenges organisations & companies to produce goods and provide services in more environmentally friendly ways and to minimise emissions through cleaner production methods, and to raise awareness via social enterprises in relation to societal consumption challenges. The long-term aim of Green Enterprise is to normalise sustainable consumption and production behaviours and activities, particularly within the context of the Circular Economy.

For 2016, EPA invited proposals that were relevant to the EU Circular Economy Package and projects were particularly encouraged on marine plastics; construction & demolition; and the integration of environmental, economic and social benefits. Twenty three proposals were received in the 2016 call and 10 projects were grant-aided to a maximum amount of €60,000 at a 75% funding rate. The budget for this programme comes jointly from the NWPP and the EPA Research programme.

During 2016, the Green Enterprise-funded Heads-Up project was launched. This remarkable work was carried out by ReCreate - a national social enterprise that takes end of line and surplus stock from businesses and reuses them as arts materials. The project used an 'artist in residence' model to demonstrate the benefits of creativity through the reuse of materials in inclusive educational settings - with a particular focus on those catering for special needs children, youths or adults.

Sustainable Communities Handbooks



During 2016, the EPA partnered with The Wheel to produce a pair of guidebooks to provide up to date advice on funding and governance for community-led groups working on 'sustainability' projects. One book is focussed on approaches and sources for obtaining funding for local sustainability projects, and the other guide looks at the governance issues and requirements that are associated with small community and voluntary organisations. Although primarily focussed on the environmental/sustainability area, it is envisaged that these guides will have value for all community groups operating in Ireland. The two handbooks are available to download

at http://www.wheel.ie/about/publications and a large number of print copies were also distributed by The Wheel through their networks.

Community Reuse Network Ireland

Community Reuse Network Ireland (CRNI) is an umbrella body that represents community-based organisations involved in reuse. Most network members are social enterprises providing substantial benefits in socio-economic terms along with the direct environmental benefits of their work.

The promotion of reuse is a core function of the network and opportunities to present and/or exhibit were availed of at events such as Bloom in the Park, Electric Picnic, Department of Jobs Enterprise and Innovation's Corporate Social Responsibility Forum and the National Waste Summit. Events such as these give CRNI the chance to deliver the message about reuse and recycling to different audience types. The first Reuse Month (led by the three regional waste authorities) took place in October and saw strong involvement by both CRNI and its members in events, such as upcycling workshops, fashion shows, and library talks.

CRNI also held their biennial conference during the year. The event was held in Farmleigh with 100 delegates in attendance and the conference programme included speakers from various reuse organisations, a keynote address by MEP Lynn Boylan, the premiere of a short film focusing on employees of CRNI member organisations and a lively discussion forum.

Farm Hazardous Waste Bring Centres

The farm hazardous waste collections have been successfully in operation now for four years, and in that time a collection centre has been operated in every county in Ireland at least once. The cross agency and inter-government departmental collaboration allows a reach and engagement with the farming sector beyond what could be achieved by a single organisation. The campaign has developed strong working relationships between EPA and a diverse and wide-ranging group of partners – including: DCCAE, Teagasc, DAFM, local authorities, WEEE Ireland, ERP, Irish Farmers Association, and farmers.

In 2016, the 10 collection centres were used by 2,000 farmers who brought 128 tonnes of hazardous wastes and 67 tonnes of batteries and WEEE. The hazardous wastes collected can be broken down as follows: 83 tonnes of waste oil; 9 tonnes of pesticides; 9 tonnes of veterinary medicines waste; 10 tonnes of paints, 7 tonnes of empty contaminated containers; 5 tonnes of oil filters; along with other hazardous wastes presented in smaller quantities such as corrosives, antifreeze, and brake fluid.

There was a strong media interest in the campaign during 2016 which helped to highlight the overall issue of hazardous wastes on farms and the need for a long-term sustainable solution. A short video on the collection campaign was produced and uploaded to YouTube to bolster this interest.

Hazardous Waste Prevention and Management

Implementation of the revised National Hazardous Waste Management Plan (NHWMP) (2014-2020) continued throughout 2016. A key objective of the Plan is to prevent and reduce the generation of hazardous waste by industry and society generally. An interim review of the NHWMP will be prepared in 2017.

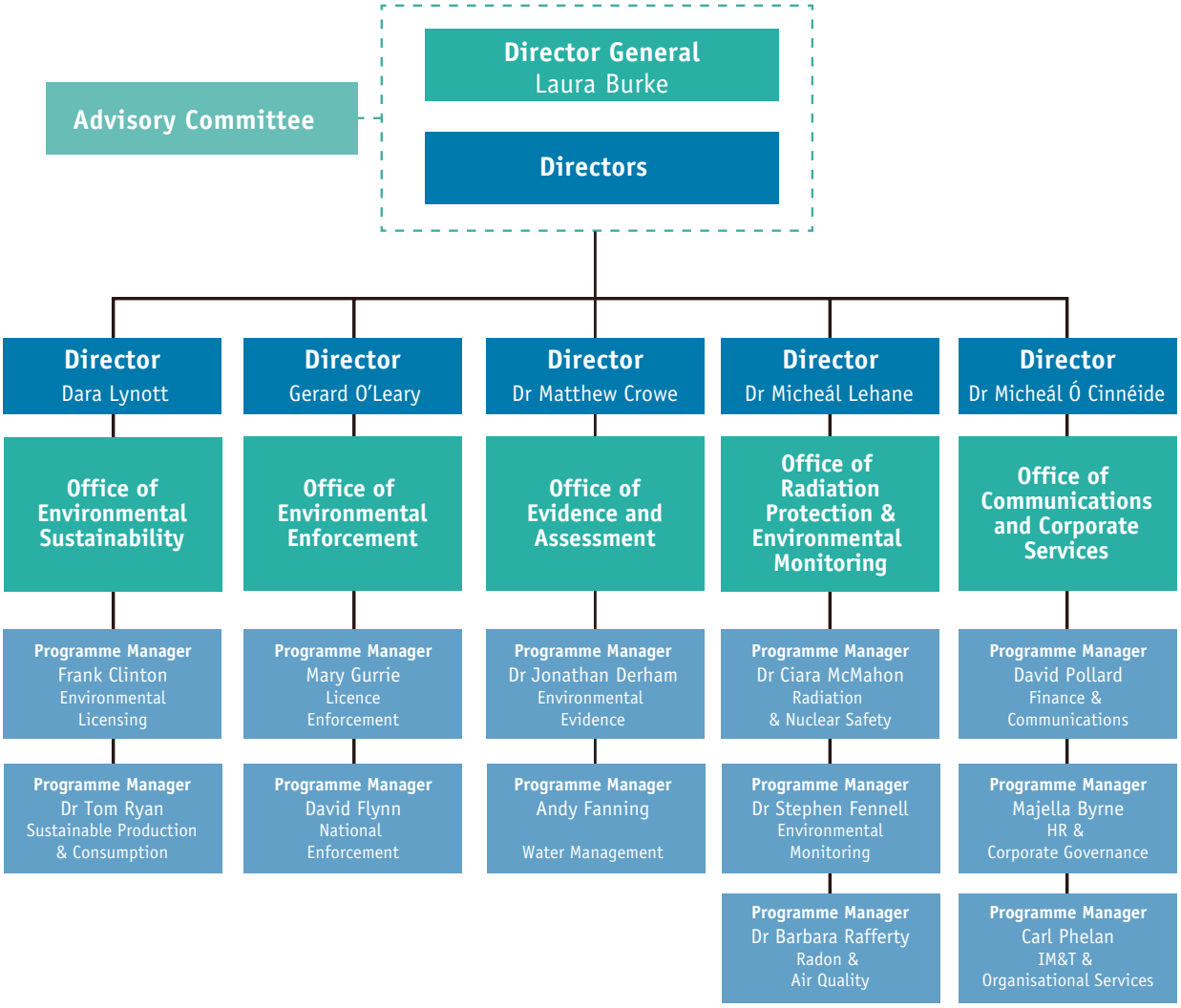
A sub-group under the National Waste Prevention Committee was formed to drive specific recommendations of the Plan on the prevention of Hazardous Waste. This group included representatives from HSE, Southern Regional Waste Authority, Biopharma Ireland, Engineers Ireland and the DCCAE and was co-ordinated and chaired by EPA.

A study to establish an inventory of Ireland's current capacity for hazardous waste treatment (recovery & disposal) in order to track progress towards greater self-sufficiency was commenced in 2016. The project is expected to be completed in February 2017.

"We will develop our staff and align our organisation to deliver best environmental outcomes by focussing on the development and promotion of organisational health, wellbeing, safety at work and promoting a culture of leadership, reform and innovation."

5. ORGANISATIONALLY EXCELLENT

5.1 ORGANISATION STRUCTURE



*Following the publication of the EPA's Strategy 2016-2020, there was a reorganisation of functions within the Agency: the Office of Climate, Licensing, Research and Resource Use (OCLRR) was renamed Office of Environmental Sustainability (OES) , the Office of Environmental Assessment (OEA) was renamed Office of Evidence and Assessment (OEA) and the Office of Radiological Protection (ORP) was renamed Office of Radiation Protection and Environmental Monitoring (ORM).

5.2 EPA BOARD OF DIRECTORS

(Left to Right): Mr Gerard O'Leary (Director Office of Environmental Enforcement). Dr Matthew Crowe (Director, Office of Evidence and Assessment). Ms Laura Burke (Director General). Mr Dara Lynott (Deputy Director General; Director, Office of Environmental Sustainability). Dr Micheál O Cinnéide (Director, Office of Communications and Corporate Services) and *Dr Micheál Lehane (Office of Radiation Protection and Environmental Monitoring)

*Dr Micheál Lehane was appointed by Government as a Director of the Environmental Protection Agency on 1 May, 2016 following Dr Ann McGarry's departure in April having served as Director of the new Office of Radiological Protection since mid-2014.

Dr Ann McGarry

Board Meetings

The EPA Board comprises six full-time Executive Directors. A total of 54 Board meetings were held in 2016, this included 13 general meetings, at which corporate policy, strategy, finance and planning issues were dealt with, and 41 technical meetings, at which licence applications, prosecutions and operational issues were dealt with.

5.3 EPA ADVISORY COMMITTEE

The Executive Board of the Environmental Protection Agency (EPA) is assisted by an Advisory Committee of twelve members, nominated by prescribed organisations and appointed by the Minister for Communications, Climate Action and Environment. The Director General of the EPA, is ex officio, a member and Chairperson of the Committee. The term of office of the Committee is three years.

The Advisory Committee has a wide range of advisory functions under the EPA Act, including making recommendations to the EPA, or the Minister, relating to the functions of the EPA.

The 7th EPA Advisory Committee was appointed by Mr. Denis Naughten, TD, Minister for Communications, Climate Action and Environment on 5 December 2016.

Pictured (left to right) Mr. Harold Kingston, Dr. Áine Ryall, Dr. Cara Augustenborg, Ms Laura Burke, Mr. Sean Finlay, Ms. Collette Byrne, Mr Dara Lynott (EPA), Ms. Elaine Nevin, Mr. Frank Conlon, Mr. Sean Finan and Dr. Ina Kelly. Absent from the photograph are: Dr Rónán Kennedy and Prof Fiona Lyng.

Appointees from Prescribed Bodies

Ms. Collette Byrne (nominated by the County and City Managers Association)
Dr. Ina Kelly (nominated by the Directors of Public Health of the HSE)
Dr. Cara Augustenborg (nominated by the Irish Environmental Network)
Dr. Rónán Kennedy (nominated by the Irish Environmental Law Association)
Mr. Harold Kingston (nominated by the Irish Farmers Association)
Ms. Elaine Nevin (nominated by the National Youth Council of Ireland)
Prof. Fiona Lyng (nominated by the Irish Radiation Research Society)

Ministerial Appointees

Dr. Áine Ryall
Mr. Sean Finlay
Mr. Frank Conlon
Mr. Sean Finan

Chairperson

Ms. Laura Burke, Director General, EPA

Meetings

The term of office of the 6th EPA Advisory Committee ended in February 2016. During the Committee's three-year term they considered a wide range of issues and their report to the Minister for Environment, Community and Local Government is available on the EPA Website: http://www.epa.ie/about/org/ac/.

On 5th December 2016 the 7th EPA Advisory Committee was appointed by Mr Denis Naughten, TD, Minister for Communications, Climate Action and Environment.

5.4 OTHER ADVISORY COMMITTEES

Dumping at Sea Advisory Committee

Two meetings of the Dumping at Sea Advisory Committee (DAS AC) were held in 2016. A new committee was established in October 2016 with a term of office of three years. The EPA provided the committee with an overview of the dumping at sea related workload completed during 2016 and discussed: marine litter; a review of historical sediment chemistry data in Ireland; better regulation and turbidity and suspended solids monitoring. Further interactions between the Agency and the DAS AC were conducted over the period, via electronic communications.

GMO Advisory Committee

One meeting of the Genetically Modified Organisms Advisory Committee (GMO AC) was held in 2016 during which the Agency provided an overview of the GMO related workload completed during the period 2015-2016. Other topics considered by the Committee included New Breeding Techniques, Gene Drives and an overview of the results of the AMIGA (Assessing and Monitoring the Impacts of Genetically modified plants on Agro-ecosystems) project with particular reference to the GM potato field trial carried out in Teagasc, Oakpark, Co Carlow. Further interactions between the AC were conducted over the period, via electronic communications.

Health Advisory Committee

The Health Advisory Committee was formed in 2011 and its purpose is to assist and advise the EPA in relation to the public health implications of matters pertaining to environmental protection. The committee comprises representatives from public bodies working on environment & health issues and includes the Health Service Executive; Health & Safety Authority; and the City & County Managers Association. The committee met three times during 2016 and topics examined by the committee included End of Waste & the use of Rubber Crumb; Pesticides in Water; Ireland's National Air Quality Monitoring Programme; and EPA reports on Waste Enforcement and Air Emissions.

Radiological Protection Advisory Committee

Two meetings of the Radiological Protection Advisory Committee to the Board were held in 2016. Topics considered by the committee included the 2015 findings of the IAEA Integrated Regulatory Review Service mission to Ireland, the implementation of the revised EU Basic Safety Standards Directive, the potential impact on Ireland of postulated severe accidents at Sellafield and the journey to graded authorisation of the regulatory process.

5.5 HUMAN RESOURCES

We have long recognised that the staff of the EPA is our greatest resource. The development of a Human Resource Development (HRD) Strategy was identified as a key action in the EPA Corporate Strategy "Our Environment Our Wellbeing". An extensive engagement and collaborative process took place with our staff throughout 2016 to provide input to the development of the EPA HRD Strategy. This strategy will be finalised early in 2017 with implementation commencing immediately afterwards. The HRD Strategy will set out how we intend to become a role model for the stewardship and development of our people and organisational resources in delivering on our mandate and our mission to protect and improve our environment as a valuable asset for the people of Ireland.

The EPA's approved staff complement at December 31, 2016 was 392. A total of 149 of the EPA's staff are located at its Headquarters in Wexford and the remaining staff are strategically located in the five Regional Inspectorates and two Hydrometric Offices throughout the country.

EPA Staff at Agency Day, 2016

During 2016 a number of organisational changes were made to address emerging priorities and challenges.

A number of developments took place with the ongoing implementation of an integrated Human Resource Information Management System. These developments and efficiencies will enhance the role of Line Managers and staff and provide an improved reporting capability for staff management. The implementation of this system was on-going during 2016 with the aim of introducing the Time and Attendance and Superannuation modules early in 2017.

The EPA continued to offer a limited number of Student Internships in collaboration with third level educational institutions. The Summer Student Placement programme is aimed at third level students to provide them with an opportunity to put into practice and enhance the theory and skills they have learned during their course in a relevant workplace setting while adding value to the organisation.

Skills and Capabilities

The EPA offers an extensive range of supports to all staff that assist them to perform and develop in their current role, prepare for future roles and improve the depth of skills and knowledge across the organisation. This commitment is reflected in an expenditure for Learning & Development which represents approximately 3.2% of payroll spend. During 2016, staff participated in over 377 learning events including training courses, workshops, conferences and seminars. Included in these events are also informal learning opportunities which the EPA sees as a significant forum for learning. This amounted to a total of 1600 training days – an average of 4.16 days training per person.

An annual Learning & Development Plan is aligned to support the achievement of EPA goals, whilst also supporting team and individual development needs.

Strong Leadership

A number of initiatives are available to leaders in the EPA, including the continued roll-out of an Essential Skills of Management & Leadership programme. The programme was initially designed to provide management training to anyone moving from a position of non-people manager to people-manager. It has since evolved to a wider audience, namely managers at all levels, who wish to refresh and refocus their leadership capabilities.

The programme incorporates and reflects the core values of the EPA, and also reflects and drives a focus on active learning. This equips managers in the EPA with the knowledge, skills and behaviours to effectively deliver their work programme and ultimately the EPA Strategy.

Partnership

The EPA's Partnership Committee – Meitheal – has been in place since 1999. The work of Meitheal is assisted through liaison with Cross Office groups. During 2016, Meitheal continued to play a role in the development of Green Team activities and staff consultation in relation to the ongoing development of the HRD Strategy. Meitheal rolled out EPA participation in the Junior Achievement Ireland and Grow It Yourself initiatives, and also managed EPA participation in National Workplace Wellbeing Day in 2016.

Workplace Wellbeing at the EPA

With research showing that healthier staff is more engaged and productive in their work, the EPA is proud to continue its support for activities to enhance workplace wellbeing. An ongoing programme of activities led by the Meitheal staff committee and EPA Human Resources promotes healthier lifestyle choices – both from a physical health point of view and also with regard to positive mental health. 2016 was the second year that EPA participated in National Workplace Wellbeing Day. Activities included a co-ordinated 'Lunchtime Mile' walk which was conducted across the EPA regional offices; and coordinated with many other companies and organisations across the country. The EPA is committed to providing a high quality work environment, which is consistent with our ambitions to be a high performance organisation.

Safety, Health and Welfare at Work

The EPA is committed to ensuring the safety, health and welfare of its staff through the provision of appropriate training, audit, risk assessment and safety awareness programmes. The commitment was strengthened through the appointment of a dedicated Health & Safety Officer in September and by the continued development of a new Safety Management System aligned to OHSAS 18001.The EPA's good safety record was maintained, with no serious accidents or injuries occurring at work during 2016.

Customer Service

The EPA Customer Charter was reviewed and updated in 2016 in light of the change in reporting structures and some new initiatives in accessing information on the environment.

Environmental Queries

The Environmental Queries Unit provides a co-ordinated approach to logging, tracking and responding to general environmental queries received from the public and plays a pivotal role in the delivery of our commitments set out in the EPA Customer Charter. In 2016 approximately 2,500 queries received via telephone, email and internet were processed. Subjects of particular interest to the public included issues relating to domestic waste water treatment systems, radon, noise pollution, ambient air quality, drinking water quality (private wells and public water supplies) and local authority issues including backyard burning and illegal dumping.

5.6 INFORMATION COMMUNICATIONS TECHNOLOGY

EPA's corporate strategy sets out the ambition to enhance capacity in the area of organisational change and in the use of ICT to support reform and innovation.The EPA has a Board sub-committee to oversee the governance and strategic direction of information technology enabled change. The key priorities for ICT investment are in such areas as information provision, data management, on-line and shared services, leading edge technologies and building internal ICT capabilities.

LEMA - EPA's Regulatory System

The EPA's integrated regulatory system (LEMA) continued to grow in 2016, bringing our business online and automating processes. The system brings together licensing activities alongside compliance status and enforcement activities. The LEMA system was recently highlighted as a "successful practice" by a recent EU Commission Environmental Implementation Review.

Over 4,000 licensees now have electronic access via the EDEN portal and the system also serves the public via the EPA website for complaints and submissions. This integration improves communication and reduces the administrative burden for both licensees and EPA staff. In 2016, the Licensees online portal was upgraded to provide a modernised and more customer centric service. Licensees can now make fee payments online and a new element of EU reporting was automated for the first time (WISE for UWW).

EDEN (Environmental Data Exchange Network)

EDEN is shared service, hosted by the EPA that enables Local and Public Authorities and Private Organisations to exchange environmental information with each other and access services and applications provided on a centralised infrastructure.

There were enhancements to the EDEN portal with a new "contact us" form to create efficiencies by routing support calls directly to the relevant support person, the notification system was improved to allow users specify notification preferences, the portal was mobile enabled, and there were user interface enhancements and system upgrades to the Bathing Water Information System and Domestic Waste Water Application.

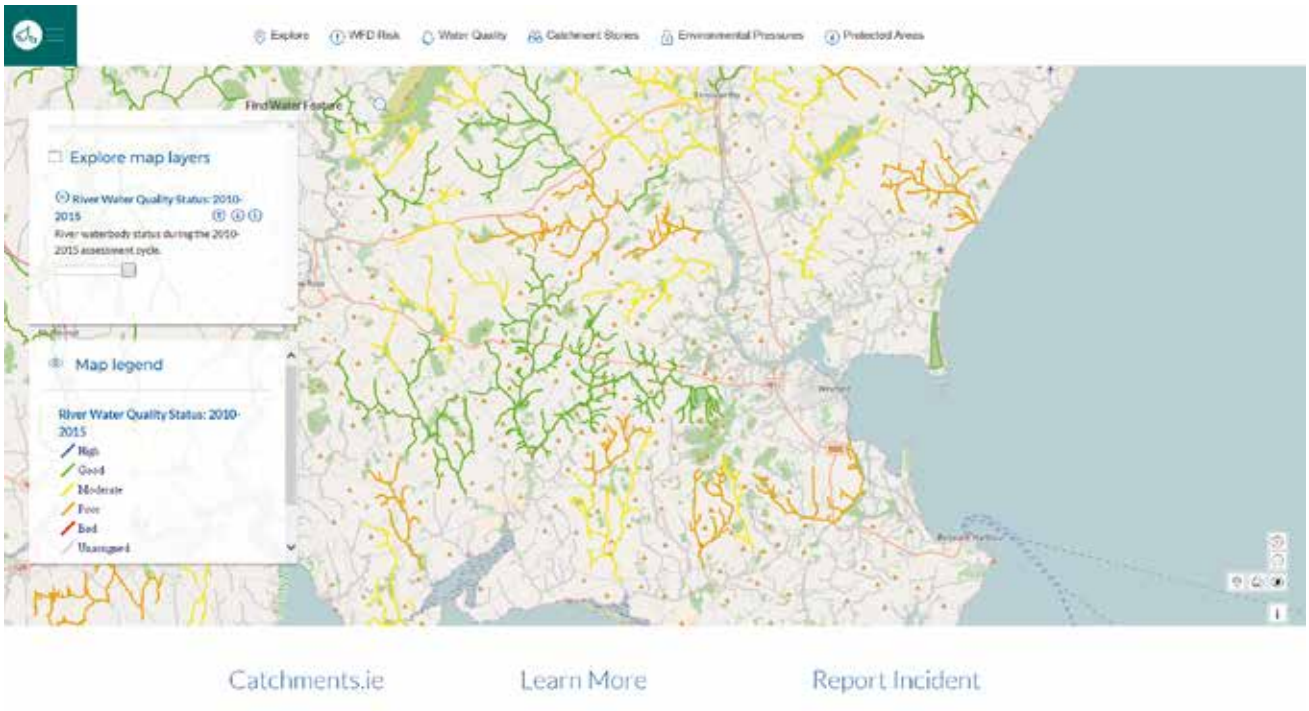
Enhancements to the EDEN MDS application to reflect that the EPA is now responsible for all analytical elements of the WFD Monitoring Programme have now been completed.

Water Framework Directive

The Water Framework Directive is aimed at ensuring 'Good Status' is achieved for all water bodies in both Ireland and Europe. In Ireland the EPA is responsible for co-ordinating the implementation of the Directive with other public sector agencies. To support the Directive's implementation an IT application is being developed through a phased approach to meet all the different requirements in terms of data capture, decision support tools and reporting of structured data.

The application is being developed to provide the building blocks and outputs necessary to support River Basin Management Planning, Programmes of Measures and the design of the national Monitoring Programmes. In 2016, this development included further developments to support the characterisation of Irish Waters and to capture the significant pressures on water bodies and sub catchments.

Figure 7. Example of New Web Mapping Design within the Multi Award Winning Catchments.ie



Maps

In 2016 the EPA began the redesign of its mapping systems, the aim of this was to standardise and upgrade the technologies to the latest industry standards. Significant development work has been completed with plans to do full roll-out of these systems in 2017. All EPA mapping applications will be of a similar design (Figure 7) providing a consistent user experience across different technology platforms, an emphasis has been placed on making applications mobile enabled and as close to the "Google Maps" experience to ensure they are intuitive to users.

Information Systems Enhancements

There was significant work carried out providing enhancements to a number of existing systems to add new features leading to increased efficiencies in internal EPA processes. These included process improvements for the management of WEEE, Emissions Registry, GMO, Laboratories, Hydometics, and Licencing Web access.

Corporate Systems

The EPA, working with the Local Government Management Agency and Core HR are using technology to streamline back office processes and simplify employee self-service support procedures.

Work continued in 2016 on the implementation of a new financial management system, Integra, which began in 2015.

Information Technology infrastructure

The EPA's internal Information Technology Infrastructure was strengthened to deal with national cyber security threats; avail of the latest Internet Explorer browser; cater for expanding data storage requirements; provide more effective print facilities; and to enhance the quality of applications being delivered.

5.7 ENVIRONMENTAL MANAGEMENT SYSTEM

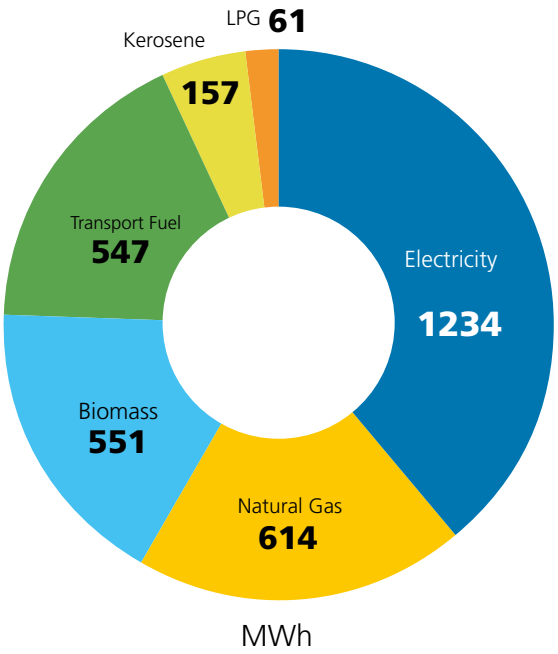
The EPA is committed to reducing the environmental impacts of its own operations. The EPA's Environmental Management System (EMS) is audited twice a year by an external accredited body to ensure that the requirements of the internationally recognised ISO 14001 standard are met. During 2016 the EPA's Green Team made significant progress towards transitioning to the revised ISO14001:2015 standard.

Overview of Energy Usage in 2016

The main energy consumption at EPA offices and laboratories is related to space heating, lighting, power, hot water and transport fuel. In 2016 the EPA's total energy consumption amounted to 3161MWh which represents a 7% decrease on the previous year. The breakdown of our energy usage, including energy usage for transport, is shown below in Figure 8.

The EPA has achieved significant success in relation to meeting the public sector energy efficiency savings as set out in the National Energy Efficiency Action Plan and continues on track to meet its 2020 energy reduction target.

Figure 8. Breakdown of energy usage in mega Watt hours (MWh)



5.8 GOVERNANCE

Corporate Governance

It is the policy of the EPA to support the progressive development and strengthening of an effective control environment, risk management systems and audit function. The Code of Practice for the Governance of State Bodies 2016 (CoPSB 2016) came into effect on 1 September 2016 and all State Bodies are required to comply with the CoPSB 2016 in their governance practices and procedures. The EPA has a Corporate Governance Unit in place with responsibility for overseeing and reporting on the implementation of and compliance with the CoPSB 2016. The CoPSB 2016 was adopted by the Board in December 2016 and the EPA has commenced compliance with the Code with a full review of compliance scheduled to take place in early 2017.

A new Director of the Environmental Protection Agency, Micheál Lehane, was appointed by Government in May 2016 and in line with best practice, an induction programme was implemented.

Internal Audit

An Internal Audit Committee (IAC) is in place to review the effectiveness of the EPA's system of control. The IAC commenced a new three-year term in February 2016. The IAC comprises an external Chairperson and other external expertise in lieu of non-executive Director input, together with a senior representative from the EPA.

During 2016, the audit programme was progressively implemented and outstanding work from previous year's audits continued ensuring that the recommendations from previous audits were implemented. Two audits were completed in 2016 in the areas of Internal Financial Controls and Management of Fixed Assets.

An Efficiency and Effectiveness review was completed in the area of Learning & Development and one commenced in the area of IM&T Support and Maintenance during 2016.

Risk Management

The EPA complies with the provisions of the Code of Practice for the Governance of State Bodies (2009) and has a risk management framework in place. A Chief Risk Officer and a Risk Committee are in place.

The Risk Committee met four times in 2016. The Risk Committee ensures that a system to monitor risk and provide for mitigating actions is in place and kept up-to-date. The Committee reviews risks identified and the Corporate Risk Register is updated to reflect changes that occurred in relation to principal risks and mitigations which is then reported to the Internal Audit Committee and to the EPA Board.

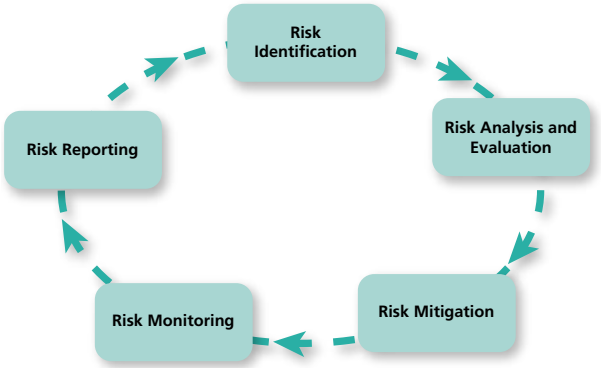
The Corporate Risk Register sets out key risks under the following nine categories:

- Reputation
- Operational & Business Controls
- Personnel
- Legal and Regulatory
- Information Management and Technology
- Fraud and Corruption
- Budgetary/Financial
- Health & Safety
- Inter-Agency

The EPA confirms that it has carried out an assessment of the EPA's risks and the following principal risks were identified:

Risk	Mitigations
Insufficient staff resources and loss of specialist knowledge and skills through retirements and resignations to carry out work and maintain high quality standards and deliver on strategy.	Development and implementation of a strategic approach to human resource management.
The closure/liquidation of large licensed facilities with associated environmental liability legacies and costs and the management of on-going financial provisions.	Implementation of the EPA strategy on Environmental Liability and Financial provision.
Maintain the trust and confidence of the EPA's sponsoring department, DCCAE and also the DHPCLG, politicians, citizens, communities and businesses.	Implementation of the EPA's new corporate strategy for 2016-2020 Our Environment Our Wellbeing. Maintaining good working relationships with both DCCAE and DHPCLG and other stakeholders. Acting as a champion for a clean and well-protected environment and openness and transparency in dealing with the public.
Adequate security controls and procedures in place to protect against cyber-attacks and loss of functionality.	Implementation of ICT Security Policy and Procedures and continued liaison with the National Cyber Security Centre in DCCAE.

Figure 9. Risk management process



Strategic Plan

A new EPA Strategic Plan 2016-2020 was launched in January 2016 entitled 'Our Environment, Our Wellbeing,' highlighting the importance of a clean, protected environment for our health, our wellbeing and our quality of life. The development of the Strategic Plan involved extensive consultation with many people and organisations, including the public.

The EPA identified five strategic goals for this new strategic plan namely:

- Trusted Environmental Regulator,
- Leader in Environmental Evidence & Knowledge,
- Effective Advocate and Partner,
- Responding to Key Environmental Challenges and
- Organisationally Excellent.

As set out in the Plan, the EPA intends to further strengthen its core functions of regulation, enforcement and assessment, prioritising air and water quality, climate change, and enhancing the radiation protection framework. The EPA is also seeking to engage more closely with citizens, communities, and businesses, to mobilise sustainable behaviours.

Throughout 2016, work commenced on implementing the strategic actions and progress on these actions will continue to be reported on in the EPA Annual Report.

Access to Information

The EPA is committed to being an open and accessible organisation. The Freedom of Information (FOI) Act and the Access to Information (AIE) Regulations are two methods of accessing information for those members of the public that have not been able to access the information they require under alternative routes.

During 2016, the EPA received 44 FOI requests. Of these, 24 requests were granted or part-granted, 11 were refused, 3 were withdrawn and handled outside FOI, 3 were withdrawn and 3 remained live at year end. Under the AIE Regulations, the EPA received 45 requests. Of these, 22 were granted in full or in part, 16 were refused and 3 were withdrawn, handled outside AIE and 4 cases remained live at year end. Of the requests that were refused, 22 were technical refusals i.e. the EPA did not hold the information, the information was already available on the public file or on our website, or the information requested was not deemed to be environmental information under the Regulations. The remaining five refusals were based on the exemption provisions in the FOI Act and the mandatory and discretionary grounds for refusal as outlined in the AIE Regulations.

The EPA processed eight Internal Reviews and the original decision was affirmed in six cases with varied decisions or further access provided in the remaining two. There were three appeals to the Commissioner for Environmental Information. The Commissioner varied the EPA decision in two cases and one case remained live at the year-end.

6. APPENDICES

6.1 PROMPT PAYMENT OF ACCOUNTS ACT 1997

The Environmental Protection Agency comes under the remit of the Prompt Payment of Accounts Act, 1997, which came into effect on 2nd January 1998, and the European Communities (Late Payment in Commercial Transactions) Regulations 2002 which came into effect on 7th August 2002.

It is the policy of the EPA to ensure that all invoices are paid promptly. Specific systems and procedures have been put in place to enable invoices to be tracked and to ensure that payments are made before their due date. Purchase invoices are logged on a daily basis in Accounts Section, and are followed up systematically to ensure that they are certified for payment without delay. Payments are issued as required to ensure prompt payment.

These controls are designed to provide reasonable, but not absolute, assurance against material non-compliance with the Act and Regulations.

There was 1 late payment with a value in excess of €317 during 2016 and this exceeded the due payment date by 62 days. The value of this late payment was €519.53.

Overall, late payments represented 0.003% of the total value of payments covered by the Act, with total associated penalty interest of €10.71.

Laura Burke
Director General EPA
27 June 2017

6.2 CONSULTANTS & ADVISERS ENGAGED

Achilles Procurement Services	Cue Vision
Acustica Ltd	DWTI-SIST
ALTEMAR Ltd.	Goldsmith Consulting
APEM Ltd.	Grant Thornton
Aqua Fact International Ltd.	Harvest Resources Ltd.
AquaTT uetp Ltd.	Institute of Public Administration
ASM	Integrated Risk Solutions
Barry Doyle & Company	Mason, Hayes & Curran
Bowburn Consultancy	Mentoring Connection
Camp Dresser & McKee (Ireland) Ltd.	RPS Group
Carr Communications Ltd.	Walsh PR
Casey McGrath & Associates	Willis Towers Watson
Clean Technology Centre	

6.3 EPA PUBLICATIONS, 2016

The majority of EPA publications are available to download for free from the EPA website http://www.epa.ie/pubs/reports/.

Air

The following air reports can be found on the EPA website at http://www.epa.ie/pubs/reports/air/

- Air Quality in Ireland 2015
- Ireland's Final Greenhouse Gas Emissions in 2014
- Ireland's Greenhouse Gas Emissions to 2020- an update
- Ireland's Provisional Greenhouse Gas Emissions in 2015
- Second Interim Report: Monitoring of Ambient Air Quality adjacent to ENVA Portlaoise

Corporate

The following corporate reports can be found on the EPA website at http://www.epa.ie/pubs/reports/other/

- A Year in Review- Highlights of 2015
- EPA Annual Report and Accounts 2015
- EPA Internal Environmental Policy Statement
- EPA Customer Charter
- EPA Licensing Plan 2016
- EPA Strategic Plan 2016- 2020 Our Environment, Our Wellbeing

Radiation

The following radiation reports can be found one the EPA website at http://www.epa.ie/pubs/reports/radiation/

- Radioactivity Monitoring of the Irish Environment 2012-2013
- ORP Inspection and Licensing Activities and Annual Inspection Programme for 2015
- Research 170 - Review of Public Information Programmes to Enhance Home Radon Screening Uptake and Home Remediation
- Draft Radioactivity in Seawater 2014-2015
- Potential radiological impact on Ireland of postulated severe accidents at Sellafield

Waste

The following waste reports can be found on the EPA website at http://www.epa.ie/pubs/reports/waste/

- Composting and Anaerobic Digestion in Ireland in 2015
- Hazardous Waste Data 2014

Water

The following water reports can be found on the EPA website at http://www.epa.ie/pubs/reports/water/

- Drinking Water Report for Public Water Supplies 2015
- Bathing Water Quality in Ireland: A Report for 2015
- Public Advice on the Identification of New Bathing Waters
- Urban Waste Water Treatment in 2015

Guidance Notes

The following guidance notes can be found on the EPA website at http://www.epa.ie/pubs/advice/

- Guidance on Fire Risk Assessment for Non-Hazardous Waste Facilities
- What to Expect from an EPA Inspection - A Guide for Contractors
- Guidance for Farmers on Refrigerant Gas Use in Milk Coolers
- Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)
- EPA Drinking Water Advice Note - Advice Note No. 16: Guidance on the Enforcement of the EU Radioactive Substances in Drinking Water Regulations 2016
- National Inspection Plan – 2015
- EPA Guidance for Irish Water on Requests for Alterations to a Waste Water Discharge Licence or a Certificate of Authorisation
- Guidance on the Preparation and Submission of the Annual Environmental Report (AER) for Waste Water Discharge Licences 2016
- GISEA Manual 2015
- SEA Spatial Information Sources - June 2016
- EPA Guidance Note for Strategic Noise Mapping for the Environmental Noise Regulations 2006 (Version 2 – August 2011)
- Guidance Notes on Radiation Risk Assessment
- Guidance notes for the compilation of a radiation safety manual
- Protocol for the Measurement of Radon in Homes
- List of Source Transporters in Ireland
- The Office of Radiological Protection and EDEN

Environmental Research Reports

Air Quality

The following air quality research reports can be found on the EPA website at http://www.epa.ie/pubs/reports/research/air/

- Research 192- Connecting Data and Environmental Research at the Environmental Protection Agency

Climate Change

The following climate change research reports can be found on the EPA website at http://www.epa.ie/pubs/reports/research/climate/

- Research Report 164 - Local Authority Adaptation Strategy Development Guideline
- Research 196- Climate Technology - Realising the Potential

Environment and Health

The following environment and health research reports can be found on the EPA website at http://www.epa.ie/pubs/reports/research/health/

- Research 162 - Hospital effluent: impact on the microbial environment and risk to human health
- Research 170 - Review of Public Information Programmes to Enhance Home Radon Screening Uptake and Home Remediation
- Research 195- Health Benefits from Biodiversity and Green Infrastructure

Biodiversity

The following biodiversity research reports can be found on the EPA website at http://www.epa.ie/pubs/reports/research/biodiversity/

- Research 182 - Green Infrastructure: A 'How To' Guide for Disseminating and Integrating the Concept into Spatial Planning Practice
- Research 188- Integrating Ecosystem Approaches, Green Infrastructure and Spatial Planning

Water

The following water research reports can be found on the EPA website at http://www.epa.ie/pubs/reports/research/water/

- Research 161 - Assessment of disposal options for treated waste water from single houses in low permeability subsoils
- Research 165 - Contaminant Movement and Attenuation along Pathways from the Land Surface to Aquatic Receptors: the PATHWAYS Project
- Research 166 - Characterisation of Reference Conditions for Rare River Types
- Research 167 - Guidelines for Effective Risk Communication
- Research 167 - EPA RESOURCE KIT: Bridging the Gap Between Science and Policy
- Research Report 168: Increasing Resource Efficiency in Wastewater Treatment Plants
- Research 169: HYDROFOR: Assessment of the Impacts of Forest Operations on the Ecological Quality of Water
- Research 171: The Effect of Wastewater Treatment Processes, in Particular Ultraviolet Light Treatment, on Pathogenic Virus Removal
- Research 172 - Combining earth observation and geochemical tracing techniques for groundwater detection and evaluation in Ireland
- Research 177 - Economic Assessment of the Waterborne Outbreak of Cryptosporidium hominis in Galway, 2007
- Research 174 - Towards an Integrated Policy Framework for Maritime Spatial Planning in Ireland: Recommendations for Preparing Maritime Spatial Plans in Ireland
- Research 175 - AgImpact Project: Identifying Approaches to Improving Knowledge Exchange (KE) in the Irish AgriFood Sector using Expert Opinion
- Research Report 180: Towards Integrated Water Management (TIMe)
- Research 181: Predicting Ecological Status in Unmonitored Lakes Using Catchment Land Use and Hydromorphological Characteristics
- Research 184: Assessing Recent Trends in Nutrient Inputs to Estuarine Waters and Their Ecological Effect
- Research Report 185: Investigation of the Implications for Ireland of Emerging Standards on Pharmaceuticals in Receiving Waters
- Research 187 - ESManage Literature Review Ecosystem Services in Freshwaters
- Research 189: Identification and evaluation of phosphorus recovery technologies in an Irish context
- Research 191: Delivering Integrated Catchment Management through the Bottom-up Approach: A Critical Analysis
- Research 194: AgImpact Project: A Systematic and Participatory Review of Research on the Impact of Agriculture on Aquatic Ecosystems in Ireland

Waste and Resource Management

The following resource management research reports can be found on the EPA website at http://www.epa.ie/pubs/reports/research/waste/

- Research Report 173 - The Characterisation of Dairy Waste and the Potential of Whey for Industrial Fermentation
- Research Report 186: The Development of a Model to Ascertain Future Levels of Historic WEEE Arising (Historic WEEE)
- Research 190: Biopolymer Production from Irish Dairy Industry Wastewaters

Land Use, Soils and Transport

The following land use, soils and transport research reports can be found on the EPA website at http://www.epa.ie/pubs/reports/research/land/

- Research 178A: Quantitative Evaluation of Settlement Sustainability Policy
- Research 178B: Sustainability Evaluation Metric for Policy Recommendation: Technical Guidance Manual
- Research 179: Soil Status and Protection
- Research 204: Irish Soil Information System: Soil Property Maps

7. FINANCIAL STATEMENTS FOR THE YEAR ENDED 31ST DECEMBER 2016

7.1 STATEMENT OF RESPONSIBILITIES OF THE AGENCY

Section 50(1) of the Environmental Protection Agency Act, 1992, requires the EPA to keep, in such form as may be approved by the Minister for Communications, Climate Action and Environment, with the consent of the Minister for Public Expenditure and Reform, all proper and usual accounts of all moneys received or expended by it.

In preparing those financial statements, the EPA is required to:

- Select suitable accounting policies and apply them consistently;
- Make judgements and estimates that are reasonable and prudent;
- Prepare the financial statements on the going concern basis unless it is inappropriate to presume that the EPA will continue in operation;
- State whether applicable accounting standards have been followed, subject to any material departures disclosed and explained in financial statements.

The EPA is responsible for keeping adequate accounting records which disclose, with reasonable accuracy at any time, the financial position of the EPA and which enable it to ensure that the financial statements comply with Section 50 of the EPA Act. The EPA is also responsible for safeguarding its assets and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

On behalf of the Board of the Environmental Protection Agency:

Laura Burke

Director General
27 June 2017

Dara Lynott

Deputy Director General

7.2 STATEMENT ON INTERNAL FINANCIAL CONTROL 2016

1. On behalf of the Directors of the EPA, I acknowledge our collective responsibility for ensuring that an effective system of internal financial controls is maintained and operated, for preparing the accounts of the EPA and for complying with all statutory obligations applicable to the EPA.

2. The Directors of the EPA acknowledge also that the system of internal financial controls can provide only reasonable and not absolute assurance that assets are safeguarded, transactions are authorised, properly recorded, and that material errors or irregularities are either prevented or would be detected and rectified in a timely period. While the effectiveness of an internal control system can change over time, the EPA reviews and updates such systems as required.

3. Key Procedures to Provide Effective Internal Financial Control

i) The Directors of the EPA have taken steps to ensure an appropriate control environment within the EPA by:

- Publishing the EPA Strategic Plan 2016-2020 – *Our Environment, Our Wellbeing*. This Strategy sets out the EPA's Vision, Mission, Values, Goals and thirteen Strategic Objectives. Implementation of the Strategy is monitored by the Senior Management Network, comprising Directors and Programme Managers, and reported to the Board of the EPA on a periodic basis.
- Agreeing a detailed work programme each year and monitoring and evaluating progress against that work programme on a monthly basis.
- Holding regular Board meetings, including monthly management meetings where the Agenda includes strategic issues such as Corporate Governance, Financial Management, Corporate Strategy and staffing matters.
- Adopting a set of financial policies and procedures to control the significant financial elements of the EPA's business.
- Approving the substantially revised EPA Finance Manual in November 2016.
- Maintaining a comprehensive schedule of insurances to protect the EPA's interests.
- Establishing and maintaining an Internal Audit Committee, as part of the on-going systematic review of the control environment and governance procedures within the EPA, to oversee the Internal Audit function and advise the Board in relation to the operation and development of that function.
- Establishing and operating a Risk Management Policy and Framework, appointing a Risk Committee and a Chief Risk Officer.
- Adopting a Policy for monitoring and assessing compliance with corporate legislation.
- Clearly defining management responsibilities, delegating appropriate functions, and reviewing and approving all EPA policies and procedures.
- Adopting a Code of Business Conduct for Directors and Staff in accordance with the requirements of the Code of Practice for the Governance of State Bodies.
- Ensuring compliance with the Ethics in Public Office Acts requirements and Sections 37 & 38 of the EPA Act 1992, relating to the Declaration and Disclosure of Interests.

ii) The EPA's Risk Management Policy and Structures are in compliance with the Code of Practice for the Governance of State Bodies (2009). The EPA has appointed a Chief Risk Officer and a Risk Committee is in place.

The Risk Committee met on four occasions in 2016. A review of Office level risks was completed in 2016 and the All-Office Risk Register was updated. The Corporate Risk Register was updated to reflect changes that had occurred in relation to principal risks and mitigations and sets out the key risks for the Agency.

Both the Office and Corporate Risk Registers are subject to regular monitoring and are reviewed by the Risk Committee. The Internal Audit Committee and the EPA Board review the Corporate Risk Register on an annual basis. Each Director provides regular assurance statements to the Board acknowledging responsibility for the on-going update, monitoring and review of the Risk Register for their Office and for ensuring the implementation of the Risk Management Policy.

iii) The system of internal financial controls is based on a framework of regular management information, a system of delegation and accountability, a set of financial and administrative procedures including segregation of duties. In particular it includes:

- A comprehensive budgeting system with an annual budget, which is reviewed and approved by the Board of Directors.
- The assignment of budgets and budgetary authority and responsibility for specific functions to selected managers. Policies and procedures are in place in relation to budgetary and financial issues.

- Restricting authority for final approval of all payments of EPA monies, payment of salaries, pensions, creditors, and expenses etc. (whether by cheque or electronic fund transfer) to Directors and two named Programme Managers.
- Segregation of payment transaction processing duties into two steps: (a): confirmation that goods/ services were received and salaries, pensions and expenses were due, by staff responsible for these transactions and (b): calculation of the total monies due by the Finance Unit, prior to seeking authorisation for payment.
- Arrangements for all purchasing to be conducted and controlled through the EPA's financial management system and procedures.
- A system for the control of environmental research expenditure including procedures for the approval and payment of grants and processes to monitor the progress towards achieving the research objectives.
- Regular and on-going review of payments by senior management.
- Regular reviews by the Board of periodic and annual financial information and reports (including key financial management information and purchasing commitments), which indicate financial performance against budgets.
- The application of project management disciplines in respect of building programmes and other major projects.
- A system of control on the overall approval of capital contracts.
- Development of an Asset Management Process and Procedures.
- Adoption and periodic updating of a Corporate Procurement Plan.

iv) The financial implications of business risks have been considered through the formal business risk assessment process and in the preparation of the EPA Internal Audit Plans. These are further assessed and evaluated through the phased implementation of the EPA's Internal Audit Plan. A comprehensive set of Financial Procedures have been put in place to control the significant financial elements of the EPA's business including authorisation limits for purchasing/ expenditure.

v) The EPA's Internal Audit Committee is comprised of an external Chairperson and other external expertise in lieu of non-executive Director input, together with a senior representative from the EPA.

The EPA Internal Audit Plan 2016 – 2017 was progressively implemented during the year with audits completed in the areas of:

- Internal Financial Controls; and
- Management of Fixed Assets.

A Value for Money (VFM) Review on the Learning and Development Programme was presented to the Internal Audit Committee in 2016. The VFM Review was carried out in line with the guidance set out in the Department of Finance VFM Manual.

Implementation Plans to address audit recommendations are approved by the Audit Committee and the Board of the EPA. Progress on the implementation of the actions in each of the Internal Audit Implementation Plans is regularly reviewed and reported to the Audit Committee and the EPA Board.

The Internal Audit Plan for the period 2017 - 2018 was developed during 2016 and reflects the risks identified in the EPA's Corporate Risk Register, the requirements of the Comptroller and Auditor General, and developments and issues in relation to Corporate Governance that have arisen in the Public Sector in general. This Internal Audit Plan was approved by the Internal Audit Committee and by the EPA Board in October 2016.

4. Annual Review of Controls

The Internal Audit of Internal Financial Controls carried out in 2016 concluded that the existing systems in place in relation to Internal Financial Control are basically sound and provide a satisfactory level of assurance in respect of Internal Financial Controls. Implementation of the audit recommendations was substantially completed by the end 2016.

I confirm also that the Directors of the Agency conducted a review of the system of internal controls in the EPA in respect of the period ending 2016.

Signed on behalf of the Board:

Laura Burke
Director General
27 June 2017

7.3 COMPTROLLER AND AUDITOR GENERAL REPORT FOR PRESENTATION TO THE HOUSES OF THE OIREACHTAS

Environmental Protection Agency

I have audited the financial statements of the Environmental Protection Agency for the year ended 31 December 2016 under the Environmental Protection Agency Act 1992. The financial statements comprise the statement of income and expenditure and retained revenue reserves, the statement of comprehensive income, the statement of financial position, the statement of cash flows and the related notes. The financial statements have been prepared in the form prescribed under Section 50 of the Act, and in accordance with generally accepted accounting practice.

Responsibilities of the Agency

The Agency is responsible for the preparation of the financial statements, for ensuring that they give a true and fair view and for ensuring the regularity of transactions.

Responsibilities of the Comptroller and Auditor General

My responsibility is to audit the financial statements and to report on them in accordance with applicable law.

My audit is conducted by reference to the special considerations which attach to State bodies in relation to their management and operation.

My audit is carried out in accordance with the International Standards on Auditing (UK and Ireland) and in compliance with the Auditing Practices Board's Ethical Standards for Auditors.

Scope of Audit of the Financial Statements

An audit involves obtaining evidence about the amounts and disclosures in the financial statements, sufficient to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or error. This includes an assessment of:

- whether the accounting policies are appropriate to the Environmental Protection Agency's circumstances, and have been consistently applied and adequately disclosed
- the reasonableness of significant accounting estimates made in the preparation of the financial statements, and
- the overall presentation of the financial statements.

I also seek to obtain evidence about the regularity of financial transactions in the course of audit.

In addition, I read the Environmental Protection Agency's annual report to identify material inconsistencies with the audited financial statements and to identify any information that is apparently materially incorrect based on, or materially inconsistent with, the knowledge aquired by me in the course of peforming the audit. If I become aware of any apparent material misstatements or inconsistencies, I consider the implications for my report.

Opinion on the Financial Statements

In my opinion, the financial statements:

- give a true and fair view of the assets, liabilities and financial position of the Environmental Protection Agency as at 31 December 2016; and of its income and expenditure for 2016; and
- have been properly prepared in accordance with generally accepted accounting practice.

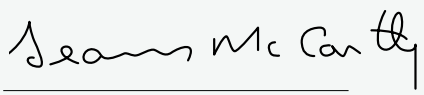
In my opinion, the accounting records of the Environmental Protection Agency were sufficient to permit the financial statements to be readily and properly audited. The financial statements are in agreement with the accounting records.

Matters on which I Report by Exception

I report by exception if I have not received all the information and explanations I required for my audit, or if I find:

- any material instance where money has not been applied for the purposes intended or where the transactions did not conform to the authorities governing them, or
- the information given in the Environmental Protection Agency's annual report is not consistent with the related financial statements or with the knowledge acquired by me in the course of performing the audit, or
- the statement on internal financial control does not reflect the Environmental Protection Agency's compliance with the Code of Practice for the Governance of State Bodies, or
- there are other material matters relating to the manner in which public business has been conducted.

I have nothing to report in regard to those matters upon which reporting is by exception.



Seamus McCarthy
Comptroller and Auditor General
30 June 2017

7.4 STATEMENT OF INCOME AND EXPENDITURE AND RETAINED REVENUE RESERVES FOR THE YEAR ENDED 31 DECEMBER 2016

	Note	2016 €'000	2015 €'000
Income			
Oireachtas Grants	**2(a)**	33,526	26,949
Environment Fund Grants	**2(b)**	12,790	16,130
Emissions Trading Costs Recovered	**3(a)**	1,408	1,210
Other Services		26	39
Income from Regional Laboratories		0	1,073
Income from Radiological Activities	**4**	1,129	1,157
Licencing Activities	**5**	732	2,440
Enforcement Activities	**6**	8,883	8,640
Sundry Receipts	**7**	291	353
Net Deferred Retirement Benefit Funding	**24(c)**	8,039	7,469
Total Income		**66,824**	**65,460**
Expenditure			
Salaries and PRSI	**8**	21,671	21,680
Retirement Benefit Costs	**24(a)**	10,274	9,462
Travelling Expenses	**9**	1,755	1,562
Laboratory and Field Costs	**10**	1,298	1,420
Accommodation Costs	**11**	1,803	1,814
Other Administration Costs	**12**	8,887	6,853
Consultants	**13**	260	26
Contractors, Grants and External Service Providers	**14**	8,602	9,119
Environmental Research Programme Payments	**15**	7,261	6,994
Depreciation	**16**	4,766	4,774
Total Expenditure		**66,577**	**63,704**
Surplus / (Deficit) for the Year before Appropriations		**247**	**1,756**
Transfer from / (to) the Capital Account	**17**	(53)	(918)
Surplus / (Deficit) on Disposals of Fixed Assets		27	(290)
Surplus / (Deficit) for the Year after Appropriations		**221**	**548**
Surplus at 1 January		2,553	2,005
Surplus at 31 December		**2,774**	**2,553**

All income and expenditure for the year relate to continuing activities at the reporting date.

The Statement of Cash Flows and notes 1 to 28 form part of these financial statements.

On behalf of the Board of the Environmental Protection Agency:

Laura Burke
Director General
Date: 27 June 2017

Dara Lynott
Deputy Director General

7.5 STATEMENT OF COMPREHENSIVE INCOME FOR THE YEAR ENDED 31 DECEMBER 2016

	Note	2016 €'000	2015 €'000
Surplus / (Deficit) after appropriations		**221**	**548**
Experience (losses) / gains on retirement benefit obligations.	**24(d)**	(3,092)	3,308
Changes in assumptions underlying the present value of retirement benefit obligations.		(37,620)	(1,672)
Actuarial (Loss) / Gain in the year		**(40,712)**	**1,636**
Adjustment to deferred retirement benefits funding		**40,712**	**(1,636)**
Other Comprehensive Income for the year		**221**	**548**

The Statement of Cash Flows and notes 1 to 28 form part of these financial statements.

On behalf of the Board of the Environmental Protection Agency:

Laura Burke
Director General
Date: 27 June 2017

Dara Lynott
Deputy Director General

7.6 STATEMENT OF FINANCIAL POSITION AS AT 31 DECEMBER 2016

	Note	2016 €'000	2015 €'000
Fixed Assets - Property, Plant & Equipment	**19**	**37,355**	**37,519**
Current Assets			
Receivables	**20**	1,457	1,394
Cash and cash equivalents	**21**	8,342	8,409
		9,799	**9,803**
Current Liabilities (amounts falling due within one year)			
Payables	**22(a)**	**(7,339)**	**(7,468)**
Net Current Assets		**2,460**	**2,335**
Current Liabilities (amounts falling due after one year)			
Payables	**22(b)**	**0**	**(313)**
Total Assets less Current Liabilities before Retirement Benefits		**39,815**	**39,541**
Retirement Benefits			
Retirement benefit obligations	**24(b)**	**(230,831)**	**(182,080)**
Deferred retirement benefit funding asset	**24(c)**	**230,831**	**182,080**
		0	**0**
Total Net Assets		**39,815**	**39,541**
Representing			
Capital account	**17**	**37,041**	**36,988**
Retained revenue reserves		**2,774**	**2,553**
		39,815	**39,541**

The Statement of Cash Flows and notes 1 to 28 form part of these financial statements.

On behalf of the Board of the Environmental Protection Agency:

Laura Burke
Director General
Date: 27 June 2017

Dara Lynott
Deputy Director General

7.7 STATEMENT OF CASH FLOWS FOR THE YEAR ENDED 31 DECEMBER 2016

	2016	2015
	€'000	€'000
Net Cash Flows from Operating Activities		
Excess Income over Expenditure	221	548
Depreciation and Impairment of Fixed Assets	4,766	4,774
(Increase) / Decrease in Receivables	(154)	(416)
(Decrease) / Increase in Payables	(134)	(4,041)
Bank Interest received	(2)	(3)
Interest Paid	18	13
(Surplus) /Deficit on Disposal of Assets	(27)	290
Transfer (from) / to Capital Account	53	918
Net Cash Inflow from Operating Activities	**4,741**	**2,083**
Cash Flows from Investing Activities		
Payments to acquire Property, Plant & Equipment	(4,501)	(5,688)
Proceeds on disposal of fixed assets	17	19
Net Cash Flows from Investing Activities	**(4,484)**	**(5,669)**
Cash Flows from Financing Activities		
Bank Interest Received	2	3
Bank Interest Paid	(18)	(13)
Fixed Asset Loan Repayments	(308)	(313)
Net Cash Flows from Financing Activities	**(324)**	**(323)**
Net (Decrease) / Increase in Cash and Cash Equivalents	**(67)**	**(3,909)**
Cash and Cash equivalents at 1 January	8,409	12,318
Cash and Cash Equivalents at 31 December	**8,342**	**8,409**

7.8 NOTES TO THE FINANCIAL STATEMENTS FOR THE YEAR ENDED 31 DECEMBER 2016

1 Accounting Policies

The basis of accounting and significant accounting policies adopted by the Environmental Protection Agency are set out below. They have all been applied consistently throughout the year and for the preceding year.

a) General Information

The Environmental Protection Agency was set up under the Environmental Protection Agency Act, 1992, with its headquarters at Johnstown Castle Estate, County Wexford.

Primary Objectives - the description of EPA's operations and principal activities is set out in the Annual Report which accompanies these Financial Statements.

The Environmental Protection Agency is a Public Benefit Entity (PBE).

The Radiological Protection (Miscellaneous Provisions) Act 2014 provided for the dissolution of the RPII and the transfer of its staff and functions to the EPA. The EPA and RPII formally merged on 1 August 2014.

b) Statement of Compliance

The financial statements of the Environmental Protection Agency for the year ended 31 December 2016 have been prepared in accordance with FRS 102, the financial reporting standard applicable in the UK and Ireland issued by the Financial Reporting Council (FRC), as promulgated by Chartered Accountants Ireland.

c) Basis of Preparation

The financial statements have been prepared under the historic cost convention and in the form approved by the Minister for Communications, Climate Action and Environment, with the concurrence of the Minister for Public Expenditure and Reform under Section 50 of the Environmental Protection Agency Act, 1992. The following accounting policies have been applied consistently in dealing with items which are considered material.

d) Revenue

State Grants

Revenue is generally recognised on an accruals basis; one exception to this is in the case of State Grants which are recognised on a cash receipts basis.

Licensing Activity Income

Applicants for environmental licences are required to pay the full licence application fee at the time of making the application. The amounts received are apportioned to the Statement of Income and Expenditure and Retained Revenue Reserves on completion of the following stages of the licensing process:

Industrial Emissions Directive, Integrated Pollution Control and Waste Management Licences:

Application	30%
Proposed Determination	50%
Licence Issue	20%

Waste Water Discharge Licences:

Application	10%
Acknowledgement of complete application	40%
Licence Decision Issue	50%

Radiological Protection Licence fees are recognised as income in line with the licence terms. Fees received in advance are shown as income in advance.

Other Revenue

Other revenue is recognised on an accruals basis.

e) Emissions Trading Unit

The Emissions Trading Unit (ETU) was established within the Environmental Protection Agency in 2003. The costs of administering the emissions trading scheme are reimbursed to the EPA by the Department of Communications, Climate Action and Environment, from the proceeds of the sale of allowances, which are paid directly to the Department.

f) Research Grant Payments

The EPA enters into commitments in respect of research projects awarded for funding. Expenditure on these research projects is charged in the financial statements on the basis of the initial payments which are made on signing of the grant award, interim payments which may be made subject to satisfactory performance and further payments which are issued on receipt and verification of claims in respect of work completed. Costs incurred by the EPA in the implementation of the research programmes are charged to the financial statements as they are incurred.

g) Property, Plant and Equipment

Property, Plant and Equipment are stated at cost less accumulated depreciation, adjusted for any provision for impairment. Depreciation is provided on all Property, Plant and Equipment at rates estimated to write off the cost less the estimated residual value of each asset on a straight line basis over their estimated useful lives, as follows:

Buildings	2% per annum
Furniture and Fittings	10% per annum
Laboratory and Field Equipment	15% per annum
Equipment	20% per annum
IT and Computer Equipment	25% per annum
Motor Vehicles	20% per annum

Leasehold improvements are depreciated over the life of the lease.

Residual value represents the estimated amount which would currently be obtained from disposal of an asset, after deducting estimated costs of disposal, if the asset were already of an age and in the condition expected at the end of its useful life.

h) Capitalisation of Internally Developed Software

The external costs of software developed for internal use are capitalised where it can be separately identified as software for use by the Agency and where it is expected to convey business benefits for a number of future years. The salary costs of software development staff are also capitalised.

i) Capital Funding

The fixed assets of the EPA and advances to fund work in progress and asset purchases are met from a combination of capital grants, approved borrowing and allocations from current revenue. Funding sourced from grants (including that used to repay borrowings) is transferred to a capital account which is amortised in line with the depreciation of the related assets.

j) Inventory

All inventory, including consumables are written off in the year of purchase.

k) Receivables

Receivables are recognised at fair value, less a provision for doubtful debts. The provision for doubtful debts is a specific provision, and is established when there is objective evidence that the Environmental Protection Agency will not be able to collect all amounts owed to it. All movements in the provision for doubtful debts are recognised in the Statement of Income and Expenditure and Retained Revenue Reserves.

l) Operating Leases

Rental expenditure under operating leases is recognised in the Statement of Income and Expenditure and Retained Reserves over the life of the lease. Expenditure is recognised on a straight-line basis over the lease period, except where there are rental increases linked to the expected rate of inflation, in which case these increases are recognised when incurred. Any lease incentives received are recognised over the life of the lease.

m) Employee Benefits

Short - term Benefits

Short term benefits such as holiday pay are recognised in the year, and benefits that are accrued at year end are included in the Payables figure in the Statement of Financial Position.

Retirement Benefits

The Environmental Protection Agency previously established its own defined benefit pension schemes, which are funded annually on a pay -as- you- go basis from monies available to it, including monies provided by the Department of Communications, Climate Action and Environment and from contributions deducted from staff and members' salaries. The Environmental Protection Agency also operates the Single Public Services Pension Scheme ("Single Scheme"), which is a defined benefit scheme for pensionable public servants appointed on or after 1 January 2013. Single Scheme members' contributions are paid over to the Department of Public Expenditure and Reform (DPER).

Pension costs reflect pension benefits earned by employees and are shown net of staff pension contributions from employees where contributions are retained by the Agency. An amount corresponding to the pension charge is recognised as income to the extent that it is recoverable, and offset by grants received in the year to discharge pension payments.

Actuarial gains or losses arising on scheme liabilities are reflected in the Statement of Comprehensive Income, and a corresponding adjustment is recognised in the amount recoverable from the Department of Communications, Climate Action and Environment.

The financial statements reflect, at fair value, the assets and liabilities arising from the Environmental Protection Agency's pension obligations and any related funding, and recognises the costs of providing pension benefits in the accounting periods in which they are earned by employees. Retirement benefit scheme liabilities are measured on an actuarial basis using the projected unit credit method.

Pension liabilities represent the present value of future pension payments earned by staff to date. Deferred pension funding represents the corresponding asset to be recovered in future periods from the Department of Communications, Climate Action and Environment.

n) Loans

Loans are recognised initially at the transaction price (present value of cash payable, including transaction costs). Loans are subsequently stated at amortised cost. Interest expense is recognised on the basis of the effective interest method and is included in finance costs.

Loans are classified as current liabilities unless there is a right to defer settlement of the loan for at least 12 months from the reporting date.

o) Critical Accounting Judgements and Estimates

The preparation of the financial statements requires management to make judgements, estimates and assumptions that affect the amounts reported for assets and liabilities as at the date of the Statement of Financial Position and the amounts reported for revenues and expenses during the year. However, the nature of estimation means that the actual outcomes could differ from those estimates. The following judgements have had the most significant effect on amounts recognised in the financial statements.

Retirement Benefit Obligation

The assumptions underlying the actuarial valuations for which the amounts recognised in the financial statements are determined (including discount rates, rates of increase in the future of compensation levels, mortality rates and healthcare cost trend rates) are updated annually based on current economic conditions, and for any relevant changes to the terms and conditions of the pension and post retirement plans.

The assumptions can be affected by:

(i) the discount rate, changes in the rate of return on high - quality corporate bonds.

(ii) future compensation levels, future labour market conditions.

2 State Grants			**2016** **€'000**	**2015** **€'000**
Grants from the Department of Communications, Climate Action and Environment:				
(a) Oireachtas Grant – Grants from the Department's Vote				
	Current	Subhead C.3	17,809	16,506
	Capital	Subheads C.3 and C.6	2,967	3,715
	Research Capital	Subhead C.7	4,866	0
	Other Programmes	Subhead B.3	7,884	6,728
	Total Oireachtas Grants		33,526	26,949
(b) Environment Fund Grants				
	Non-Pay		4,938	4,900
	Research		3,602	7,000
	Other Programmes		4,250	4,230
			12,790	**16,130**
Total State Grants			**46,316**	**43,079**

Research Funding of €8.468M provided by the Department (Exchequer €4.866M, Environment Fund €3.602M) are specific allocations to meet the cost of Environmental Research. €9.208M was expended on these research activities in 2016 (2015 €7.458M). See Note 15.

3 Emissions Trading Unit (ETU) Activities	2016 €'000	2015 €'000
(a) Cost of Emissions Trading Unit		
Emissions Trading Operator Registration Fees, etc.	0	4
Costs recovered from Auction Funds, etc.	1,408	1,206
Total Funding of ETU Costs	**1,408**	**1,210**

4 Income from Radiological Activities	€'000	€'000
Calibration Service	43	49
Radon Measurement Service	81	83
Radiation Monitoring Service	279	280
Licence Fees	716	721
Miscellaneous / Contract Income	10	24
Total Income from Radiological Services	**1,129**	**1,157**

5 Licensing Activities - IED & IPC, Waste and WWD	€'000	€'000
Licence Fees prepaid at 1 January	1,038	2,798
Fees Received	595	680
Licence Fees prepaid at 31 December (see Note 22 (a))	(901)	(1,038)
Amount credited to the Statement of Income and Expenditure and Retained Revenue Reserves	732	2,440

Licensing: Industrial Emissions Directive (IED), Integrated Pollution Control (IPC) and Waste

Under Section 83 of the Environmental Protection Agency Act, 1992 the EPA is responsible for the licensing of large/ complex industrial and other processes with significant polluting potential. Under Section 40 of the Waste Management Act, 1996 the EPA is responsible for the licensing of all significant waste recovery & disposal activities operated by local authorities and private enterprise.

Licensing: Waste Water Discharges (WWD)

The Waste Water Discharge (Authorisation) Regulations 2007 provide for the licensing of local authority waste water discharges. Discharges from areas that serve over 500 population equivalent require a licence from the EPA. Areas that serve less than 500 population equivalent are required to be certified by the EPA. The EPA's licensing income arises from fees charged in respect of processing such licensing applications.

6 Enforcement Activities - IED & IPC, Waste, WWD and Drinking Water	2016 €'000	2015 €'000
Enforcement Charges Invoiced	8,704	8,452
Enforcement Income from Prosecutions	179	188
Total Income from Enforcement Activities	**8,883**	**8,640**

Under Section 96 of the Environmental Protection Agency Act, 1992 the EPA is responsible for the regulation of large/ complex industrial and other processes with significant polluting potential. Under Section 15 of the Waste Management Act, 1996 the EPA is responsible for the regulation of all significant waste recovery and disposal activities operated by local authorities and private enterprise. Under the Waste Water Discharge (Authorisation) Regulations 2007 the EPA is responsible for the regulation of waste water discharges. Under the European Union (Drinking Water) Regulations 2014 the EPA may charge for monitoring the quality of water supplies intended for human consumption. The EPA's enforcement income arises from fees charged in respect of this enforcement work.

7 Sundry Receipts	2016 €'000	2015 €'000
Sales of publications	0	1
Bank deposit interest	2	3
Sundry	289	349
	291	**353**

8 Salaries and PRSI of Staff	2016 €'000	2015 €'000
Salaries	20,009	20,082
Employers' PRSI	1,731	1,703
Total Salary Costs	**21,740**	**21,785**
IT Development Salary costs capitalised	(69)	(105)
Salary Costs charged to the Statement of Income and Expenditure and Retained Revenue Reserves	**21,671**	**21,680**

The total Salary cost of €21.74M includes an accrual of €748,000 (2015 €690,000) in respect of accumulated staff annual leave entitlements.

	2016	2015
(a) Analysis of staff by location:		
Headquarters	149	144
Regional Inspectorate Castlebar	28	25
Regional Inspectorate Cork	48	43
Regional Inspectorate Dublin	127	122
Regional Inspectorate Kilkenny	17	18
Regional Inspectorate Monaghan	11	12
Regional Offices	4	4
	384	368

(b) Analysis of staff salary costs in excess of €60,000:

The number of employees whose employee benefits fell within each band of €10,000 from €60,000 upwards is as follows:	2016	2015
€60,000 to €70,000	118	119
€70,000 to €80,000	20	19
€80,000 to €90,000	21	23
€90,000 to €100,000	7	7
€100,000 to €110,000	0	0
€110,000 to €120,000	0	2
€120,000 to €130,000	4	2
€130,000 to €140,000	1	1
€140,000 to €150,000	0	0
€150,000 to €160,000	1	1

Board Members Emoluments	Board	Vouched	Meetings
Board Member:	**Fees**	**Expenses**	**attended**
Laura Burke (Director General)	0	336	13
Dara Lynott (Deputy Director General)	0	195	12
Ann McGarry (Ceased 30 April 2016)	0	128	4
Gerard O'Leary	0	0	13
Matthew Crowe	0	154	12
Micheál O Cinnéide	0	159	13
Micheál Lehane (Appointed as director - 1 May 2016)	0	0	8
	0	972	

During 2016, thirteen general Board meetings were held.

Board Members Expenses

Travel and Subsistence expenses incurred in attending Board meetings are reimbursed at the rates applicable for the Civil Service.

Expenses paid to Directors in relation to attendance at Board meetings in 2016 amounted to €972 broken down: €658 mileage, €299 subsistence and €15 other costs. The 2015 total was €5,461 (€3,732 mileage, €1,632 subsistence and €97 other expenses).

The Directors of the Environmental Protection Agency are full time executive Directors. They are paid an inclusive salary and consequently no Directors or Board fees are paid. Key management personnel in the EPA consist of the Director General and the five members of the Board of Directors. Total compensation paid to key management personnel, including Directors salaries, vouched expenses and the Director General's remuneration amounted to €857K (2015 €869K).

The Director General received a salary of €153,162 in 2016 (2015 - €153,162) and is also entitled to pension benefits in line with the standard entitlements of the Environmental Protection Agency (Director General and Directors) Staff Superannuation Scheme, 1996.

9 Travelling Expenses	**2016** **€'000**	**2015** **€'000**
Travel and Subsistence	1,645	1,424
Motor Vehicle Expenses	123	148
Travel Refunds	(13)	(10)
	1,755	**1,562**

Staff Development & Training Costs

A sum of €130,417 (2015 €129,114) in respect of travelling expenses is included under staff development and training costs at Note 12.

10 Laboratory and Field Costs	**2016** **€'000**	**2015** **€'000**
Laboratory and Field Expenses	759	974
Equipment Repairs and Maintenance	492	421
Protective Clothing	47	25
	1,298	**1,420**

11 Accommodation Costs	**€'000**	**€'000**
Rent and Rates	735	613
Power, Light and Heat, Cleaning	635	650
Repairs, Maintenance, Security	433	551
	1,803	**1,814**

12 Other Administration Costs	2016 €'000	2015 €'000
Telephone and Postage	459	339
Printing of Publications and Stationery Supplies	470	243
Insurance	179	167
Computer and Data Processing Charges	4,161	3,290
Audit Fees	19	22
Corporate Governance and Internal Audit Costs	17	24
Legal Fees	1,510	1,130
Staff Appointment and other related costs	114	80
Bank Interest and Charges	18	11
Books, Periodicals, and Library	54	62
Staff Development and Training Costs	697	672
Advertising	82	68
Communications	1,023	557
Loan Interest	18	13
Sundries	66	175
	8,887	**6,853**

13 Consultancy Costs	€'000	€'000
Consultants	260	26
	260	**26**

The EPA Offices which made use of these consultancies were:	€'000	€'000
Office of Communications and Corporate Services	164	26
Office of Climate, Licensing and Resource Use	9	0
Office of Environmental Assessment	6	0
Office of Radiological Protection	28	0
Office of the Director General / Cross Office	53	0
	260	**26**

14 Grants, Contractors and External Service Providers	€'000	€'000
Contractors and External Service Providers	7,288	6,881
Grants	1,314	2,238
	8,602	**9,119**

The EPA Offices which incurred costs under this heading were:	€'000	€'000
Office of Communications and Corporate Services	362	448
Office of Climate, Licensing and Resource Use	2,711	2,889
Office of Environmental Assessment	3,972	3,411
Office of Environmental Enforcement	1,442	2,163
Office of Radiological Protection	115	208
	8,602	**9,119**

15 Environmental Research	2016 €'000	2015 €'000
EPA Research Programme	8,168	7,458
Co-Funding Research Income	(907)	(464)
Research Programme Payments	**7,261**	**6,994**

The current EPA environmental research programme was launched in 2014. It is being funded through a combination of Exchequer, Environment Fund and other Co-Funding sources. The research programme aims to fund research that will address key environmental management issues, which will ultimately protect and improve the natural environment.

Research Co - Funding	2016 €'000	2015 €'000
In addition to the funding provided by DCCAE, the following research co-funding was received:		
Inter - Departmental Climate Change Group - Technical Research & Modelling Project	320	0
DCENR (UGEE Joint Research Programme)	316	202
Northern Ireland Environment Agency (UGEE Joint Research Programme)	130	136
WEEE Ireland	84	84
Geological Survey of Ireland	13	20
ERA Net - Circle 2	20	15
HSE	24	0
Sundry / Other	0	7
Total Co - Funding received	**907**	**464**

In 2016 EPA Research Programme expenditure was €9.208M including Grant Payments of €8.168M as shown above and implementation and activity costs of €1,040K which are reported under the Travel, Lab and Field, Administration and Contractors cost headings.

In 2015 EPA Research Programme expenditure was €7.458M including Grant Payments of €6.552M and implementation and activity costs of €906K, all of which were reported in the €7.458M shown above for 2015.

A further €257K of grant payments (2015 €251K) to research projects is included in the Grants figure at Note 14.

At 31 December 2016 commitments entered into but not yet charged to the financial statements in respect of Research projects amounted to €21.774M (2015 - €21.380M) with the following breakdown:

	2016 €'000	2015 €'000
Outstanding Grant Commitments at 1 January	21,380	17,445
Grants Approved during the year	10,166	11,254
Grants Decommitted during the year	(1,347)	(516)
Grant Payments made in the year	(8,425)	(6,803)
Outstanding Commitments at 31 December	**21,774**	**21,380**

These figures exclude EPA implementation costs in respect of Research programmes.

16 Depreciation of Fixed Assets	€'000	€'000
Depreciation of Property, Plant and Equipment (Note 19)	**4,766**	**4,774**
	4,766	**4,774**

17 Capital Account		2016 €'000	2015 €'000
At 1 January 2016			**36,988**
Transfer from Income and Expenditure Account :			
Income Allocated for Capital purposes	- Fixed Asset Additions	4,501	
	- Repayment of Loans	308	
		4,809	
Less:			
Disposals		414	
Less prior depreciation on disposals		(424)	
		(10)	
Depreciation charge for year		4,766	
Net Transfer from Income and Expenditure Account			53
At 31 December 2016			**37,041**

At 31 December 2016 the Capital Account balance includes €15,662 (2015 - €107,000) in respect of prepayments for fixed assets (see Note 20 - Receivables).

18 Taxation

The EPA is specifically exempted under the provisions of Section 32, and Schedule 2, of Finance Act, 1994. Accordingly no taxation charges have been included in the accounts.

19 Fixed Assets - Property, Plant & Equipment

Cost	Total €'000	Buildings €'000	Furniture & Fittings €'000	IT & IS Equipment €'000	Lab & Field Equipment €'000	Motor Vehicles €'000
At 1 January 2016	73,971	41,027	3,798	16,575	11,359	1,212
Additions	4,501	226	446	2,825	861	143
Transfer from Prepayments	91	0	91	0	0	0
Disposals	(414)	0	0	(50)	(242)	(122)
At 31 December 2016	**78,149**	**41,253**	**4,335**	**19,350**	**11,978**	**1,233**
Depreciation						
At 1 January 2016	36,452	11,085	3,383	11,417	9,606	961
Charge for Year	4,766	815	218	3,045	571	117
On Disposals	(424)	(36)	0	(54)	(212)	(122)
At 31 December 2016	**40,794**	**11,864**	**3,601**	**14,408**	**9,965**	**956**
Net Book Value						
At 31 December 2016	**37,355**	**29,389**	**734**	**4,942**	**2,013**	**277**
At 31 December 2015	**37,519**	**29,942**	**415**	**5,158**	**1,753**	**251**

The EPA headquarters building was constructed by the Office of Public Works (OPW) who financed the construction by means of a commercial loan. The EPA funds the annual repayments made by the OPW. The interest element of the repayments met by the EPA is accounted for in the year it arises. Both the asset and the associated funding arrangements have been recorded in the books of the EPA to reflect the substance of the underlying transactions.

The EPA regional inspectorate building at Seville Lodge, Kilkenny was constructed by the Office of Public Works on a site acquired for EPA. The legal transfer of the site to the EPA is being processed by the OPW through the Chief State Solicitors Office.

The transfer from prepayments under Furniture and Fittings is in respect of blinds fitted in EPA headquarters. The underlying transactions are described in more detail in the Advances to OPW section of Note 20 below.

In 2016 the EPA capitalised €2.085M (2015 - €2.925M) in respect of the external cost and €68K (2015 - €105K) in respect of the internal salary cost of software development for internal use. This is in line with our Accounting Policy for Capitalisation of Internally Developed Software.

20 Receivables	**2016 €'000**	**2015 €'000**
Debtors	1,441	1,287
Prepayments for Fixed Assets	16	107
	1,457	**1,394**

Prepayments for Fixed Assets:

At 31 December 2016 prepayments totalling €15,662 (2015 - €107,000) had been made as set out hereunder. These prepayments have been included in the amounts transferred from the Statement of Income and Expenditure and Retained Revenue Reserves to the Capital Account.

Advances to the Office of Public Works (OPW)

In December 2014 an advance payment of €40,000 was made to the OPW for window blinds. A further advance payment of €50,000 was made to OPW in respect of blinds in 2015. The blinds were supplied and fitted in 2016 and €91,338 has been transferred from Prepayments to Fixed Assets in 2016. At the end of 2016 the OPW held advance payments of €15,662 in respect of minor capital works and furniture.

All debtors fall due within one year.

21 Cash and cash equivalents	**2016 €'000**	**2015 €'000**
Cash and Bank Balances	**8,342**	**8,409**

22 Payables		**2016**	**2015**
(a)	**Amounts falling due within one year :**	**€'000**	**€'000**
	Licence Fees Pre-Paid	901	1,038
	Radiological Protection Licence Fees Prepaid	810	635
	Other Deferred Income	201	0
	ETU Funds on Hands (see Note 3 (b))	0	269
	Trade and Other Expenses	5,096	5,200
	Amounts due to OPW in relation to loan repayments.	331	326
		7,339	**7,468**
Included in Trade and Other Expense above are the following amounts due to the Revenue Commissioners:			
	Professional Service Witholding Tax	287	486
	PAYE/PRSI/USC	585	610
	VAT	191	271
	Relevant Contract Tax	0	24
		1,063	**1,391**
(b)	**Amounts falling due after one year :**		
	Amounts due to OPW in relation to loan repayments.	**0**	**313**

23 Borrowings

The EPA headquarters building in Wexford was constructed by the Office of Public Works (OPW) who financed the construction by means of a 20 year commercial loan. The EPA funds the annual repayments made by the OPW. Both the asset and the associated borrowings are recorded in the books of the EPA to reflect the substance of the underlying transactions.

Repayable within one year	331	326
Repayable between one and two years	0	313

24 Retirement Benefit Costs

(a) Analysis of total retirement benefit costs charged to the Statement of Income and Expenditure and Retained Revenue Reserves	**2016** **€'000**	**2015** **€'000**
Current Service Cost	6,664	6,650
Interest on retirement benefit scheme liabilities	4,607	3,847
Employee Contributions	(997)	(1,035)
	10,274	**9,462**

(b) Movement in net retirement benefit obligations during the financial year	**€'000**	**€'000**
Net retirement benefit obligation at 1 January	182,080	176,246
Current service costs	6,664	6,650
Interest costs	4,607	3,847
Actuarial loss/(gain)	40,712	(1,635)
Pensions paid in the year	(3,232)	(3,028)
Net retirement benefit obligation at 31 December	**230,831**	**182,080**

(c) Deferred Funding for Retirement Benefits

The EPA recognises these amounts as an asset corresponding to the unfunded deferred liability for retirement benefits on the basis of the set of assumptions described below and a number of past events. These events include the statutory basis for the establishment of the retirement benefit schemes, and the policy and practice currently in place in relation to funding public service pensions including contributions by employees and the annual estimates process. The EPA has no evidence that this funding policy will not continue to meet such sums in accordance with current practice.

The net deferred funding for retirement benefits recognised in the Statement of Income and Expenditure and Retained Revenue Reserves was as follows:

	€'000	**€'000**
Funding recoverable in respect of current year retirement benefit costs	11,271	10,497
State grant applied to pay retirement benefits	(3,232)	(3,028)
	8,039	**7,469**

The deferred funding asset for retirement benefits at 31 December 2016 amounted to €230.831M (2015 €182.080M).

(d) History of defined benefit obligations

	2016 **€ M**	**2015** **€ M**	**2014** **€ M**	**2013** **€ M**	**2012** **€ M**
Defined benefit obligations	231	182	176	123	123
Experience gains / (losses) on defined benefit scheme liabilities:					
Amount (€ M)	-3.092	3.308	0.427	6.5	-0.1
Percentage of Scheme Liabilities	-1.3%	1.8%	0.2%	5.3%	-0.1%

The cumulative actuarial loss recognised in the Statement of Total Recognised Gains and Losses amounts to **€97.052M (2015 €56.34M).**

(e) General Description of the Schemes

The schemes are defined benefit final salary pension arrangements with benefits and contributions defined by reference to current "model" public sector scheme regulations. The schemes provide staff members with a pension (being 1/80 per year of service), a gratuity or lump sum (being 3/80 per year of service) and spouse's and children's pensions. Normal Retirement Age is a member's 65th birthday, and pre 2004 members have an entitlement to retire without actuarial reduction from age 60. The schemes provide Board members with a pension (being 1/48 per year of service), a gratuity or lump sum (being 1/32 per year of service) and spouse's and children's pensions.

Board members are entitled to retire when their contract ends. Pensions in payment (and deferment) normally increase in line with general public sector salary inflation.

The valuation used for FRS 102 disclosures has been based on a full actuarial valuation performed on 1 March 2017 by a qualified independent actuary, taking account of the requirements of the FRS in order to assess the scheme liabilities at 31 December 2016.

The principal actuarial assumptions were as follows:	2016	2015
Future salary increases	2.85%	2.65%
Future retirement benefit increases	2.35%	2.15%
Future state pension increases	1.85%	1.65%
Discount rate	1.90%	2.55%
Future inflation	1.85%	1.65%
Revaluation in deferment	2.35%	2.15%

Mortality

Mortality Pre Retirement - Male: 62% of PNML00, Female 70% of PNFL00.

Mortality Post Retirement - Male: 58% of ILT15, Female 62% of ILT15.

The mortality basis adopted explicitly allows for improvements in life expectancy over time, so that life expectancy at retirement will depend on the year in which a member attains retirement age. The table below shows the life expectancy for members attaining age 65 in 2016 and 2036.

Year of attaining age 65	**2016**	**2015**
Life expectancy - male	**86.1**	**88.6**
Life expectancy - female	**88.6**	**90.7**

25 Emergency Response

Kerdiffstown:

In 2011, the Environmental Protection Agency took the lead in co-ordinating the emergency response to an underground landfill fire at Kerdiffstown, Naas and took charge of the subsequent management of the site. The ongoinging involvement of EPA in the management of the Kerdiffstown site ceased on 12 June 2015, when Kildare County Council assumed the lead in the management of the site. EPA has incurred no further emergency response costs on this site since it ceased its involvement in the management of the Kerdiffstown site.

East Galway Landfill:

Since 2013, the EPA in conjunction with Galway County Council have managed the East Galway Landfill site, following the liquidation of the Greenstar operating company. Grant payments of €544K (2015 €1,026K) made to Galway County Council to fund this activity are included in the Office of Environmental Enforcement figures under note 14 - Grants, Contractors and External Service Providers.

EPA's involvement in the East Galway Landfill ceased in July 2016 when the site formally transferred to Galway County Council.

26 Lease Commitments

At 31 December 2016 the Environmental Protection Agency had the following future minimum lease payments under non - cancellable operating leases for each of the following periods:

	2016	2015
	€'000	**€'000**
Payable within one year	**702**	**676**
Payable within two to five years	**1,377**	**1,321**
Payable after five years	**2,452**	**1,617**

Operating lease payments recognised as an expense were €703K, (2015 €583K).

27 Related Party Disclosures

The EPA has adopted procedures to govern its decision making in accordance with the Environmental Protection Agency Act, 1992 and the Ethics in Public Office Act, 1995 and regulations made thereunder. These procedures have been adhered to by the EPA during the year.

Key management personnel in the EPA consist of the Director General and the members of the Board of Directors. Total compensation paid to key management personnel, including Directors salaries, vouched expenses and the Director General's remuneration amounted to €857K (2015 €869K). For a breakdown of the remuneration and benefits paid to key management personnel, please refer to Note 8.

28 Approval of Financial Statements

The Financial Statements were approved by the Board of Directors on 27 June 2017.

AN GHNÍOMHAIREACHT UM CHAOMHNÚ COMHSHAOIL

Tá an Ghníomhaireacht um Chaomhnú Comhshaoil (GCC) freagrach as an gcomhshaol a chaomhnú agus a fheabhsú mar shócmhainn luachmhar do mhuintir na hÉireann. Táimid tiomanta do dhaoine agus don chomhshaol a chosaint ó éifeachtaí díobhálacha na radaíochta agus an truaillithe.

Is féidir obair na Gníomhaireachta a roinnt ina trí phríomhréimse:

Rialú: *Déanaimid córais éifeachtacha rialaithe agus comhlíonta comhshaoil a chur i bhfeidhm chun torthaí maithe comhshaoil a sholáthar agus chun díriú orthu siúd nach gcloíonn leis na córais sin.*

Eolas: *Soláthraímid sonraí, faisnéis agus measúnú comhshaoil atá ar ardchaighdeán, spriocdhírithe agus tráthúil chun bonn eolais a chur faoin gcinnteoireacht ar gach leibhéal.*

Tacaíocht: Bímid ag saothrú i gcomhar le grúpaí eile chun tacú le comhshaol atá glan, táirgiúil agus cosanta go maith, agus le hiompar a chuirfidh le comhshaol inbhuanaithe.

Ár bhFreagrachtaí

Ceadúnú

- Déanaimid na gníomhaíochtaí seo a leanas a rialú ionas nach ndéanann siad dochar do shláinte an phobail ná don chomhshaol:
- saoráidí dramhaíola (*m.sh. láithreáin líonta talún, loisceoirí, stáisiúin aistrithe dramhaíola*);
- gníomhaíochtaí tionsclaíocha ar scála mór (*m.sh. déantúsaíocht cógaisíochta, déantúsaíocht stroighne, stáisiúin chumhachta*);
- an diantalmhaíocht (*m.sh. muca, éanlaith*);
- úsáid shrianta agus scaoileadh rialaithe Orgánach Géinmhodhnaithe (*OGM*);
- foinsí radaíochta ianúcháin (*m.sh. trealamh x-gha agus radaiteiripe, foinsí tionsclaíocha*);
- áiseanna móra stórála peitril;
- scardadh dramhuisce;
- gníomhaíochtaí dumpála ar farraige.

Forfheidhmiú Náisiúnta i leith Cúrsaí Comhshaoil

- Clár náisiúnta iniúchtaí agus cigireachtaí a dhéanamh gach bliain ar shaoráidí a bhfuil ceadúnas ón nGníomhaireacht acu.
- Maoirseacht a dhéanamh ar fhreagrachtaí cosanta comhshaoil na n-údarás áitiúil.
- Caighdeán an uisce óil, arna sholáthar ag soláthraithe uisce phoiblí, a mhaoirsiú.
- Obair le húdaráis áitiúla agus le gníomhaireachtaí eile chun dul i ngleic le coireanna comhshaoil trí chomhordú a dhéanamh ar líonra forfheidhmiúcháin náisiúnta, trí dhíriú ar chiontóirí, agus trí mhaoirsiú a dhéanamh ar leasúchán.
- Cur i bhfeidhm rialachán ar nós na Rialachán um Dhramhthrealamh Leictreach agus Leictreonach (DTLL), um Shrian ar Shubstaintí Guaiseacha agus na Rialachán um rialú ar shubstaintí a ídíonn an ciseal ózóin.
- An dlí a chur orthu siúd a bhriseann dlí an chomhshaoil agus a dhéanann dochar don chomhshaol.

Bainistíocht Uisce

- Monatóireacht agus tuairisciú a dhéanamh ar cháilíocht aibhneacha, lochanna, uiscí idirchriosacha agus cósta na hÉireann, agus screamhuiscí; leibhéil uisce agus sruthanna aibhneacha a thomhas.
- Comhordú náisiúnta agus maoirsiú a dhéanamh ar an gCreat-Treoir Uisce.
- Monatóireacht agus tuairisciú a dhéanamh ar Cháilíocht an Uisce Snámha.

Monatóireacht, Anailís agus Tuairisciú ar an gComhshaol

- Monatóireacht a dhéanamh ar cháilíocht an aeir agus Treoir an AE maidir le hAer Glan don Eoraip (CAFÉ) a chur chun feidhme.
- Tuairisciú neamhspleách le cabhrú le cinnteoireacht an rialtais náisiúnta agus na n-údarás áitiúil (*m.sh. tuairisciú tréimhsiúil ar staid Chomhshaol na hÉireann agus Tuarascálacha ar Tháscairí*).

Rialú Astaíochtaí na nGás Ceaptha Teasa in Éirinn

- Fardail agus réamh-mheastacháin na hÉireann maidir le gáis cheaptha teasa a ullmhú.
- An Treoir maidir le Trádáil Astaíochtaí a chur chun feidhme i gcomhair breis agus 100 de na táirgeoirí dé-ocsaíde carbóin is mó in Éirinn

Taighde agus Forbairt Comhshaoil

- Taighde comhshaoil a chistiú chun brúnna a shainaithint, bonn eolais a chur faoi bheartais, agus réitigh a sholáthar i réimsí na haeráide, an uisce agus na hinbhuanaitheachta.

Measúnacht Straitéiseach Timpeallachta

- Measúnacht a dhéanamh ar thionchar pleananna agus clár beartaithe ar an gcomhshaol in Éirinn (*m.sh. mórphleananna forbartha*).

Cosaint Raideolaíoch

- Monatóireacht a dhéanamh ar leibhéil radaíochta, measúnacht a dhéanamh ar nochtadh mhuintir na hÉireann don radaíocht ianúcháin.
- Cabhrú le pleananna náisiúnta a fhorbairt le haghaidh éigeandálaí ag eascairt as taismí núicléacha.
- Monatóireacht a dhéanamh ar fhorbairtí thar lear a bhaineann le saoráidí núicléacha agus leis an tsábháilteacht raideolaíochta.
- Sainseirbhísí cosanta ar an radaíocht a sholáthar, nó maoirsiú a dhéanamh ar sholáthar na seirbhísí sin.

Treoir, Faisnéis Inrochtana agus Oideachas

- Comhairle agus treoir a chur ar fáil d'earnáil na tionsclaíochta agus don phobal maidir le hábhair a bhaineann le caomhnú an chomhshaoil agus leis an gcosaint raideolaíoch.
- Faisnéis thráthúil ar an gcomhshaol ar a bhfuil fáil éasca a chur ar fáil chun rannpháirtíocht an phobail a spreagadh sa chinnteoireacht i ndáil leis an gcomhshaol (*m.sh. Timpeall an Tí, léarscáileanna radóin*).
- Comhairle a chur ar fáil don Rialtas maidir le hábhair a bhaineann leis an tsábháilteacht raideolaíoch agus le cúrsaí práinnfhreagartha.
- Plean Náisiúnta Bainistíochta Dramhaíola Guaisí a fhorbairt chun dramhaíl ghuaiseach a chosc agus a bhainistiú.

Múscailt Feasachta agus Athrú Iompraíochta

- Feasacht chomhshaoil níos fearr a ghiniúint agus dul i bhfeidhm ar athrú iompraíochta dearfach trí thacú le gnóthais, le pobail agus le teaghlaigh a bheith níos éifeachtúla ar acmhainní.
- Tástáil le haghaidh radóin a chur chun cinn i dtithe agus in ionaid oibre, agus gníomhartha leasúcháin a spreagadh nuair is gá.

Bainistíocht agus struchtúr na Gníomhaireachta um Chaomhnú Comhshaoil

Tá an ghníomhaíocht á bainistiú ag Bord lánaimseartha, ar a bhfuil Ard-Stiúrthóir agus cúigear Stiúrthóirí. Déantar an obair ar fud cúig cinn d'Oifigí:

- An Oifig um Inmharthanacht Comhshaoil
- An Oifig Forfheidhmithe i leith cúrsaí Comhshaoil
- An Oifig um Fianaise is Measúnú
- Oifig um Chosaint Radaíochta agus Monatóireachta Comhshaoil
- An Oifig Cumarsáide agus Seirbhísí Corparáideacha

Tá Coiste Comhairleach ag an nGníomhaireacht le cabhrú léi. Tá dáréag comhaltaí air agus tagann siad le chéile go rialta le plé a dhéanamh ar ábhair imní agus le comhairle a chur ar an mBord.

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An Ghníomhaireacht um Chaomhnú Comhshaoil

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