Focus on Private Water Supplies 2016

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

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 Radiological 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.

Focus on Private Water Supplies 2016

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The authors would also like to thank National Federation of Group Water Schemes for their assistance.

Published by the Environmental Protection Agency, Ireland

Environmental Protection Agency

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ISBN: 978-1-84095-745-7

Contents

Drinking Water Quality in Private Supplies 2016

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An Ghníomhaireacht um Chaomhnú Comhshaoil

Almost **20%** of Ireland's population is supplied by private water supplies

Water quality in private water supplies is consistently poorer than public water supplies

2016 E. Coli compliance in

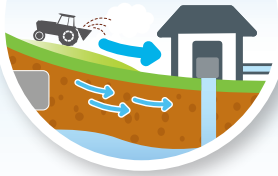
- >99.9% Public water supplies
- 99.8% Public group schemes
- 96.1% Private group schemes
- 94.8% Small private supplies

Protecting private supplies

Step 1 : Check your source

- Is your wellhead sealed?

- Can surface water get into the well?



- Can animals get into the river, stream or spring?

Step 2 : Check for any sources of pollution

1. Septic tanks
2. Slurry landspreading
3. Chemical storage
4. Fuel storage tanks

Step 3: Test the supply annually

ideally following wet weather
(treatment may be necessary if contaminated)

Key Findings for 2016

Private Water Supplies

- Private water supplies serve about 20% of Ireland's population
- Private water supplies include group schemes and small supplies, not served by Irish Water

Quality of Private Water Supplies

- The quality of drinking water in private supplies remains poorer than that in public supplies
- Small private supplies have the poorest quality, with 94.8% free of *E. coli* contamination
- Testing was not carried out on 31% of private supplies

Action Required by Suppliers

- Owners of private supplies need to make sure that their water source is protected from contamination
- Owners of private supplies need to take action where contamination is found

Action Required by Local Authorities

- Local authorities need to make sure that private supplies are all tested
- Local authorities need to make sure action is taken where contamination is found

Section 1: Introduction

Section 1.1: What are private water supplies?

Almost 20% of people in Ireland get their drinking water from private supplies. These are usually people living in rural areas who are not served by a public mains supply by Irish Water. This report deals with the four types of private water supplies in Ireland:

Public Group Schemes are supplies where the abstraction and treatment of the water is managed by Irish Water and the distribution of treated water to the users (that is, members of the public) is managed by a local community group.

Private Group Schemes are supplies where the abstraction, treatment and distribution of treated water are all managed by a local community group.

Small Private Supplies are supplies serving a commercial or public activity, and the abstraction, treatment and distribution of treated water are managed by the commercial or public entity. Examples of commercial or public activities served by small private supplies include pubs and restaurants, crèches and national schools.

Household Wells are supplies that supply a volume of water less than 10 cubic metres (10,000 litres) a day or serve fewer than 50 people, and do not supply a commercial or public activity. Many private homes in rural Ireland are supplied by wells and the responsibility for managing the supply lies with the householder. Household wells are not regulated under Irish legislation.

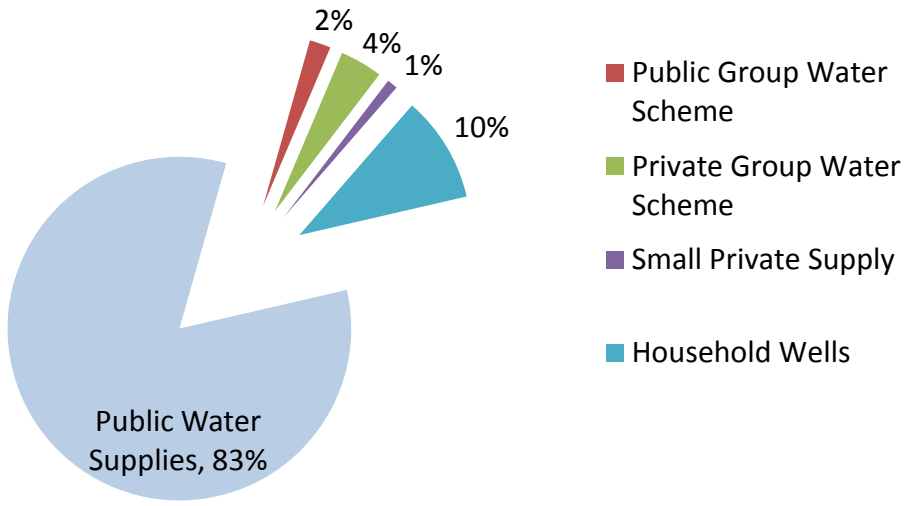


Figure 1: Percentage of Ireland's population served by public and private water supplies

In many parts of rural Ireland, private supplies are the best way to supply drinking water. Finding a good quality source and ensuring the water meets the standards in the Drinking Water Regulations[1] is a challenging task and requires the correct treatment systems, good management, and knowledge of the risks to the supply.

[1] S.I. No. 122 of 2014

Section 1.2: Who is responsible for private water supplies?

Private water suppliers

The person, group or organisation supplying water is always responsible for ensuring it is safe to drink. In the case of public water supplies, Irish Water is responsible and in the case of private water supplies, it is the group water schemes and the owners/managers of commercial or public activities supplying the water.

Local Authorities

Local authorities are responsible for ensuring private water supplies meet the requirements of the drinking water regulations by:

- Sampling private water supplies to check the water quality;
- Investigating where water quality standards are not met;
- Assisting private supply owners with advice and guidance to improve their water quality;
- Taking enforcement action if private water suppliers are not taking steps to improve water quality in supplies that fail to meet the standards.

Department of Housing, Planning and Local Government

The Department of Housing, Planning and Local Government makes funding available to group water schemes and household well owners for improvements to their supplies. The funding is administered and distributed by the Local Authorities through the Rural Water Programme. The funding provided includes:

- Annual subsidies and capital grants to group water schemes
- Household well grants to householders who have their own wells.

Environmental Protection Agency (EPA)

The EPA supports the private water supply sector by**:**

- Providing advice and training to local authorities on investigating water quality failures;
- Publishing drinking water treatment advice and guidance;
- Auditing local authority monitoring programmes;
- Reporting annually on water quality in private water supplies.

Health Service Executive (HSE)

The HSE provides advice to the local authorities if a failure to meet a water quality standard is thought to pose a risk to the health of private water supply users, that is, members of the public.

Section 2: Water quality in private supplies

Section 2.1: Testing of private supplies

All water supplies should be tested to check the quality of the drinking water that is being delivered to users of the supply, that is, members of the public. Private water supplies serving 50 or more people (or supplying a volume of more than 10 cubic metres per day) must be tested a minimum of twice per year. This is the responsibility of the local authority. The EPA recommends that all other small water supplies are monitored at least once a year for *E. coli*, regardless of size. This is the responsibility of the water supplier.

E. coli

E. coli is a bug which can cause illness. If it is found in water, this is an indication that the water supply has become contaminated with human or animal waste.

This can happen because of poor management of septic tanks, slurry spreading close to surface waters or wells, and animals being allowed to roam too close to surface waters or wells.

The contamination can enter the supply if the supply is not properly protected or is in an area that is vulnerable to contamination. If *E. coli* gets into a supply, it can make people ill.

Test results for 2016 were submitted to the EPA for assessment by 28 local authorities. Three[2] local authorities did not report having any private supplies operating in their areas. The EPA found that, of the 2,768 private water supplies registered in Ireland, 31% were not monitored at all for *E. coli.* This corresponds to 37 public group water schemes, 20 private group water schemes and 809 small private supplies. While this is an improvement compared to 2015 (37% of supplies not monitored), it remains worrying as, without regular testing of a supply, the users of the supply may be unknowingly drinking water that could make them ill. Of the small private supplies that were not monitored, 130 are hotels, B&Bs, restaurants or cafés, 73 serve national schools or childcare centres, and 19 serve nursing homes. Other premises not monitored include pubs, food businesses, golf clubs, caravan parks, and shops which may serve food.

More extensive testing is carried out on some supplies. Results for 2016 are provided in Appendices 1, 2 and 3 (at the back of this report) and at this link: http://erc.epa.ie/safer/resourcelisting.jsp?oID=10206&username=EPA%20Drinking%20Water.

[2] Galway City Council, Dublin City Council and South Dublin City Council

Section 2.2: Water quality is consistently poorer in private supplies

The quality of drinking water in private water supplies has consistently been poorer than that of public water supplies. The graph below highlights the difference in water quality between public and private water supplies.

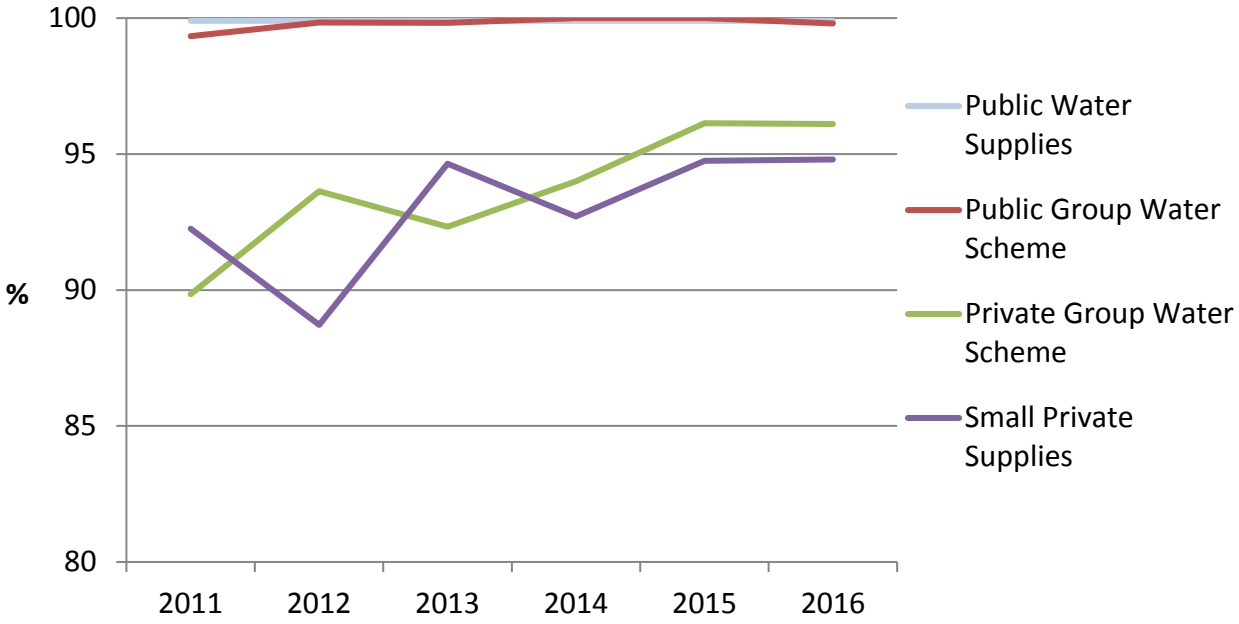


Figure 2: *E. coli* compliance per water supply type, from 2011 to 2016

The table below shows total *E. coli* compliance in public group schemes, private group schemes and small private supplies. Public group water schemes (serving 2% of the population) have the best water quality as the water comes from the public water supply provider, Irish Water. Small private supplies (serving 1% of the population) have the poorest water quality.

E. coli			
96.2%	99.8%	96.1%	94.8%
Of all private supplies met the *E. coli* standard.	Of public group water supplies met the *E. coli* standard.	Of private group water supplies met the *E. coli* standard.	Of small private supplies met *E. coli* standard.
The figures in this table are based on the number of private water supplies tested in 2016.			

Figure 3: *E. coli* compliance per private water supply type, 2016

Section 2.3: Household wells are high risk water supplies

Household wells are not covered by the Drinking Water Regulations. Responsibility for looking after these wells rests with the householder. It is estimated that there are 170,000 household wells in Ireland which supply water to individual private households and that up to 30% of these are contaminated by *E. coli* arising from animal or human waste[3]. The HSE's Health Protection Surveillance Centre has reported[4] a growing number of cases of VTEC[5] - a very dangerous form of *E. coli*. Analysis of cases shows that patients suffering from VTEC are up to four times more likely to have consumed untreated water from household wells.

Ireland has the highest incidence of VTEC in Europe. Animals, particularly cattle, are the main source of VTEC and infection is spread either from direct animal contact or through contaminated food and water. Person to person spread is also common. In other countries, the most common source of infection is through food outbreaks.

In Ireland, rural families are most commonly affected and much of this is because of contamination of household wells. Consumers of water from household wells are at a much greater risk of VTEC than those who drink water from either public or private mains supplies.

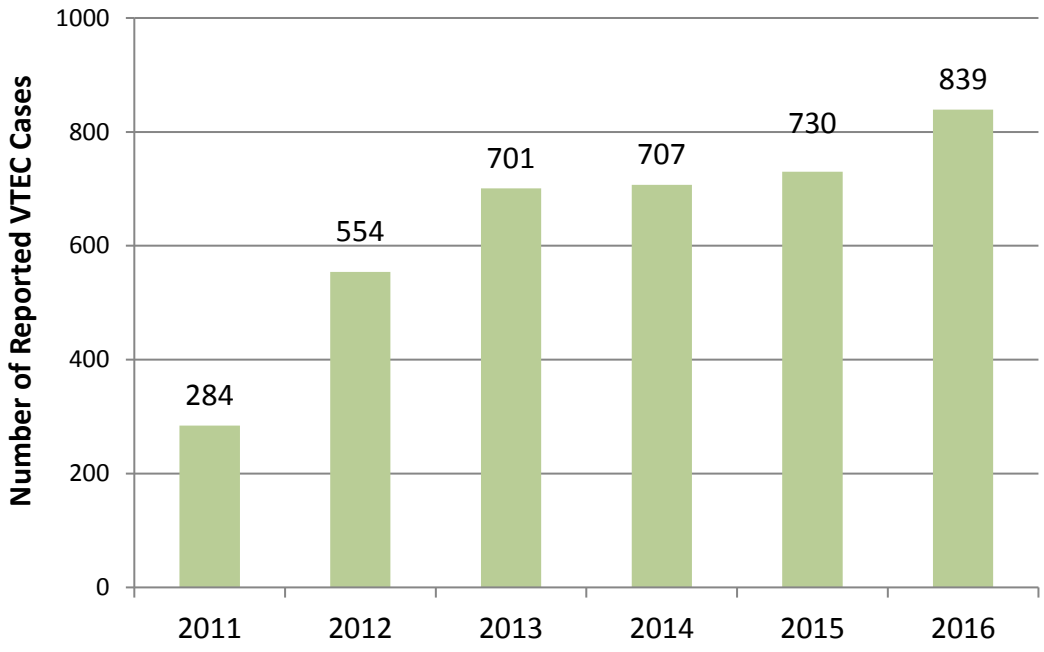


Figure 4: Number of VTEC cases reported by the HPSC

[3] 'Water Quality in Ireland 2007-2009', EPA 2010.
[4] https://www.hpsc.ie/notifiablediseases/annualidstatistics/Annual_ID_Summary_Report_for_HPSC_Web_v5.0-19042017.pdf
[5] Verocytotoxigenic *E. coli*

Section 3: Protecting your private supply

This report shows that the quality of drinking water in private supplies is not as good as the water from public supplies. It is important to protect a water supply to make sure that it doesn't get contaminated and make people ill from drinking it.

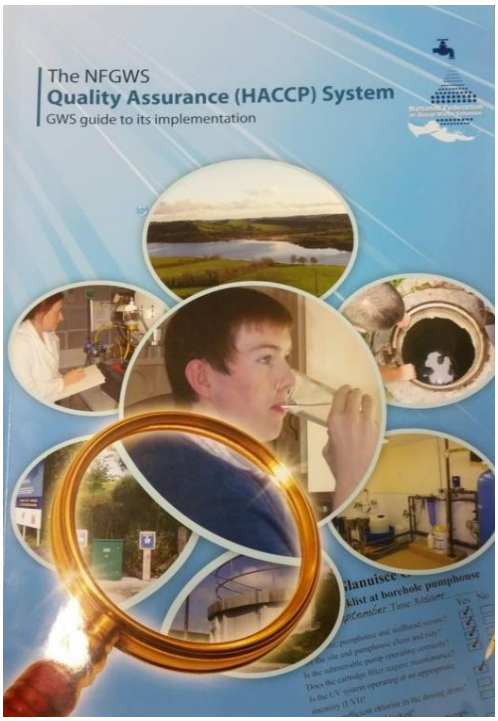
Section 3.1: Improving water quality: Group water schemes

Management Committee

Group water schemes typically have a management committee of volunteers who look after the supply. The committee is responsible for delivering good quality water to the users. The management committee ensures that the supply is operated and maintained correctly. This includes inspecting the raw water source and making sure that treatment is working correctly. Group water scheme management committees are greatly assisted in their roles by the National Federation of Group Water Schemes (NFGWS).

National Federation of Group Water Schemes

The NFGWS represents and negotiates on behalf of group water schemes. It has driven improvements in the group water sector through initiatives such as: Design-Build-Operate bundling projects; the NFGWS Quality Assurance system; sourcing on-going training for members; holding conferences; and publishing a quarterly newsletter to support and educate their members. The NFGWS has also recently published a guide on disinfection: 'Chlorination: Information for Group Water Schemes'[6].




RURAL WATER NEWS
Magazine of the Group Water Scheme Sector
Autumn 2016 Volume 18 Issue 3

Expert Panel recommends RWP investment priorities

An Expert Panel chaired by former Cavan County Manager, Jack Keyes, has recommended that more than €10.4 million be allocated towards 85 GWS projects under the Rural Water Programme (RWP) in the period 2016-18.

The panel was tasked with examining a wide range of proposals submitted by local authorities under 10 headings [see page 4] and to make recommendations for funding.

The funding priorities in respect of a further 6 headings (under measures 1 and 2) remain within the remit of the Department of Housing, Planning, Community and Local Government and the Minister, Simon Coveney, T.D.

Transparent

In a 53-page document released in mid September – and available on the website of the National Federation of Group Water Schemes (www.nfgws.ie) – the Expert Panel provides a transparent account of its deliberations.

Besides listing the projects recommended for funding, they include all projects for which applications were made, explaining the rationale for their decisions.

Some recommended projects are given a high priority status, largely depending on the potential risk to human health should the project be delayed. The panel recommends that available funds be channelled towards such schemes in the first instance.

Further projects

As this is the first step in what is to be a rolling multi-annual funding programme, further projects under these headings will be considered by the Expert Panel for the period 2017-19, as they arise.

Schemes that feel that they have an appropriate project should contact their local authority without delay.

See page 8

Water Quality

In this issue:

Jean Rooney and Joe Gallagher staffing the NFGWS stand at the National Ploughing Championships in September.

[6] http://www.nfgws.ie/f//GWS%20chlorination%20guidance%20web%20booklet.pdf

Quality assurance system

The NFGWS Quality Assurance system is an assessment tool that schemes can use to identify water quality risks in their supply and take actions to protect against those risks. The NFGWS has published an implementation guide for the quality assurance system. You must have a quality assurance system in place for your group water scheme to be eligible for the annual scheme subsidy from the Department of Housing, Planning and Local Government.

The NFGWS quarterly newsletter shares information and innovations among group schemes and is a forum for the NFGWS to highlight water quality issues. Group schemes can also learn about new technologies and developments in the sector through the newsletter.

Both the NFGWS Quality Assurance System implementation guide and the newsletter can be found on the NFGWS website www.nfgws.ie.

Source protection

The first step in making sure that a water supply will be safe to drink, is to protect the water source from contamination. The NFGWS launched a programme in 2013 to assess drinking water sources and identify protection measures that could be put in place at those sources. The programme will run until 2018 and will cover almost 300 group water schemes.

DHPLG Remedial Action List for Group Water Schemes

The Department of Housing, Planning and Local Government has developed a Remedial Action List for Group Water Schemes (RAL_GWS). The list, which is modelled on the EPA's Remedial Action List for public water supplies, will identify group water schemes that are at risk of supplying poor quality drinking water because their water treatment systems are inadequate. Group water schemes on the list will be prioritised for grants to improve their treatment systems. The list was started in 2016, and is available at:
http://www.housing.gov.ie/sites/default/files/publications/files/circular_l2-17_-_appendix_a_-_remedial_action_list_2017_for_group_water_schemes.pdf

Section 3.2: Improving water quality: Small private supplies and household wells

Many rural public establishments such as hotels, schools and nursing homes use small private supplies. If these supplies are contaminated, they have the potential to cause serious and widespread illness. Over 90% of small private supplies have a groundwater well as their source and so, well owners must take action to protect and maintain their well. This applies to householders with household wells too.

'Protect Your Well' application

The EPA has developed a 'Protect Your Well' web application that provides a step-by-step guide to inspecting your well for contamination or the risk of contamination. The application provides a number of recommendations to help improve your well protection. These include advice for properly sealing the wellhead, ensuring septic tank effluent or slurry does not enter the well, and

disinfecting the well if necessary. The 'Protect Your Well' application can be found on the EPA website at http://erc.epa.ie/water/wells/#.WFqgLapprq5.

In addition, a brief animated video providing a summary of the main risks to your well is available at https://www.youtube.com/watch?v=Vm7R1MMz1D8.

The EPA website also contains a section on Household Information on Private (household) Wells (http://www.epa.ie/water/dw/hhinfo/). This gives advice on protecting your well, and testing and treatment of your well water. It also has a list of frequently asked questions.

Annual *E. coli* testing

To make sure your well is not contaminated, it is important to regularly test the water for contamination, and *E. coli* in particular. For small private supplies serving 50 or more people (or producing a volume of water greater than 10 cubic metres per day), the water must be tested at least twice a year for *E. coli*. The local authority must ensure that this testing is carried out. For household wells and small private supplies serving less than 50 people (or producing less than 10 cubic metres per day), the responsibility for testing the well lies with the owners. In this case, the EPA recommends that the water is tested at least once a year for *E. coli,* preferably following heavy rain when the supply is most at risk from contamination.

Household well grant

For householders that own their own well, a grant is available to help with the cost of protecting and maintaining the household well or installing basic treatment like disinfection or filtration systems. The grant can cover up to 75% of the costs (subject to a maximum of €2,031.58) and is funded by the Department of Housing, Planning and Local Government. Householders whose properties are more than seven years old are eligible for the grant and the proposed work must cost more than €635. Householders can apply for the grant through their local authority. The grant may be referred to as a private well grant or domestic well grant by different local authorities. More information on the household well grant is available at http://www.housing.gov.ie/water/water-services/rural-water-programme/private-wells or your local authority website.

Connecting to a public water supply

Where a small private supply or household well owner finds that the quality of their drinking water is consistently poor and the work or financial cost of cleaning and maintaining their well is too onerous, the supply owners may consider connecting to the public water supply. Connecting to the public water supply removes the responsibility from the supply owners of ensuring that the public, their customers or their families are drinking good quality water, which will not cause any health impacts. Details of how to connect to the public water supply are on the Irish Water website (https://www.water.ie/connections/).

Section 3.3: Local authority monitoring and enforcement

The local authorities are the water quality regulators for public group schemes, private group schemes, and small private supplies. They are responsible for ensuring that the water quality of these supplies meets the standards set out in the 2014 drinking water regulations. Local authorities carry out annual testing of supplies and have enforcement powers available to them if private suppliers fail to take action on poor water quality results. Household wells are not regulated by local authorities.

Annual monitoring programmes

At the beginning of each year, local authorities prepare an annual monitoring programme which should ensure that every private supply serving a population greater than 50 people or supplying a volume of water greater than 10 cubic metres per day is monitored at least twice a year. The local authority should choose sample locations and times, and ensure that sampling is spread out across the distribution network. Local authorities should liaise with group water scheme committees to be sure that the properties chosen are served by the group water scheme being targeted. If testing shows a failure in water quality, the supply owners should be notified immediately so they can address the cause of the failure.

In November 2016, the EPA carried out audits of the monitoring programme in two local authorities. The main recommendations were as follows:

- The local authority should liaise with the private supplier (e.g. a GWS) when compiling the sampling plan for the upcoming year to ensure that the sample locations are representative of the water being supplied.
- The local authority should ensure that all private schemes of commercial and public activity with less than 50 persons or 10 cubic metres per day are risk assessed to determine what monitoring is required.
- The local authority should ensure that the spread of sample days, times and locations within a monitoring programme is as wide as possible. This is to ensure that compliance samples are representative of water quality consumed throughout the year.

Boil Water Notices

A water restriction notice and/or a boil notice may be issued by the local authority where they consider that drinking water from a supply might cause illness. This could happen where *E. coli* is found in a supply. If this is the case, consumers must be informed promptly. When the problem is fixed by the water supplier, the notice is removed. Based on the information supplied by some local authorities to the EPA, 126 supplies had boil water notices issued in 2016, affecting over 7,000 people.

Local authority audits

It is useful to audit water supplies to investigate the reasons for poor water quality results or to identify risks with the supply that could lead to future water quality failures. Auditors can inspect areas like the protection of the source, the type of treatment in place on the supply, and the control and management of the treatment systems. The auditor then can make recommendations to the water supplier on improvements that need to be made to better protect the quality of the water being produced.

In 2016, 95 private water supply audits were carried out by nine local authorities (Appendix 4). Nineteen local authorities which have private supplies in their areas, did not carry out any audits. In 2016, the EPA provided training on auditing to local authorities, through the Water Services Training Group, and recommends that more audits should be carried out to identify risks from these supplies.

Directions

Directions are a further enforcement tool available to local authorities. They are legally binding instructions to water suppliers to carry out actions with the aim of correcting a water quality issue. If water suppliers fail to comply with a Direction they can be prosecuted in court. Typically, Directions are issued in cases where a water supplier has failed to act on the local authorities' recommendations. In 2016, five local authorities issued 17 Directions (Appendix 4). No prosecutions were reported to the EPA.

Section 4: Recommendations and Concluding Remarks

Section 4.1 Recommendations

This report highlights that water quality in private water supplies is not as good as in public water supplies. Small private supplies and household wells tend to have poorer water quality than public or private group schemes. There are many actions that water suppliers and local authorities should take to improve water quality and protect public health.

All Water Supplies	• Monitor all supplies serving a population greater than or equal to 50 people or supplying a volume of water greater than or equal to 10m^3/day, at least twice a year – this is the responsibility of the local authority.
	• Monitor all other small supplies for *E. coli* at least once a year, regardless of the size of the supply – this is the responsibility of the owner of the supply.
	• Protect water source by:
	  ○ Constructing wellheads above ground level and sealing and capping the wellhead[7].
	  ○ Fencing off around the well and surface water abstraction points to prevent animal access.
	  ○ Being aware of set-back distances for landspreading close to wells or surface water abstraction points and ensuring that any local landowners are adhering to them.
	  ○ Not using or storing pesticides or other chemicals around a well or surface water abstraction point.
	  ○ Visually inspecting abstraction points for contamination on a regular basis.

Figure 5: Wellhead constructed above ground level and borehole fully capped and sealed

Figure 6: Borehole fully capped and sealed and in a locked chamber

[7] See EPA guidance on borehole construction and wellhead protection – Advice Note 14.

Group water schemes will typically have some form of treatment in place and those treatment systems need to be maintained and correctly managed.

Public and Private Group Water Schemes	• Ensure disinfection is in place at all surface water supplies, especially those influenced by surface water and, where chlorine is used, ensure that a minimum chlorine residual of 0.1 mg/l can be detected at the last customer on the network. • When using chlorine as a primary disinfectant, ensure a minimum contact time of 15 mg.min/l with the treated water before the water reaches the first customer on the network. • Ensure that adequate controls and management tools are in place for treatment systems. Chemicals should be fit for drinking water purposes and in date, and a user guide should be available. • Implement the guidance developed by the National Federation of Group Water Schemes on Quality Assurance System by Group Water Schemes.

Figure 7: Sodium Hypochlorite disinfection system with bunded day tank and duty and standby dosing pumps

Household well owners (both small private supply owners and private householders) should pay particular attention to the protection of their well as the majority of household wells have no form of water treatment in place. If household wells owners notice signs of contamination around their well, they should take action to improve well protection and disinfect their well. For private householders, the household well grant may assist with covering the cost of remedial works.

Household Well Owners	• Monitor all household wells for *E. coli* at least once a year. • Use the EPA 'Protect Your Well' application to assess your well for contamination at least once a year. • Disinfect boreholes and household wells if any microbiological failures, particularly *E. coli* are identified. • Avail of local authority grants if improvements are required to the well.

Local authorities are responsible for ensuring that public and private group schemes and small private supplies are adequately monitored throughout the year. Where monitoring shows poor water quality, local authorities are also responsible for ensuring action is taken to rectify water quality issues. Local authorities should improve their monitoring programmes and carry out more audits to assess potential risk to public health from private water supplies.

Local Authorities	• Ensure that all supplies are identified and monitored. • Inform private supplies of their monitoring results as soon as they become available. • Use the enforcement powers available to local authorities to drive water quality improvements. Prioritise supplies that have serious water quality issues or are slow to implement local authority recommendations. • Investigate all failures to meet water quality standards in private water supplies to ensure the cause of the failure is identified and appropriate corrective action is taken. Particular focus should be given to parameters that can impact human health, such as *E. coli*. • Carry out audits of private water supplies, focusing on those with known water quality problems.

Section 4.2 Concluding Remarks

This report has shown that about 20% of the population is being served by private supplies and that the quality of these supplies is not as good as that in public supplies. This is of great concern as poor drinking water quality can cause illness. Private supplies must be protected, monitored and regulated to ensure that they meet the drinking water standards. It is essential that all water suppliers and local authorities play their part in this work, to protect public health.

Section 5: Appendices

Appendices 1, 2, and 3 list compliance results and percentages for three groups of regulated private drinking water supplies:

- Public Group Schemes
- Private Group Schemes
- Small Private Supplies.

Appendix 4 lists, for each county or area, the number of private water supplies and the populations served by each supply type. It also lists the number of boil notices in place and the population affected and the number of audits and directions taken in 2016.

Appendix 1: Public Group Water Schemes – Zones Monitored and Samples Analysed in 2016

Parameter	No. of Zones Monitored	No of Zones with Exceedances	% of Zones Complying	No. of Samples Analysed	No. of Samples Exceeding	% of Samples Complying
Microbiological						
E. coli	419	1	99.8	1004	1	99.9
Enterococci	47	1	97.9	48	1	97.9
Chemical						
1,2-dichloroethane	114	0	100.0	134	0	100.0
Antimony	57	0	100.0	58	0	100.0
Arsenic	58	0	100.0	59	0	100.0
Benzene	115	0	100.0	136	0	100.0
Benzo(a)pyrene	57	0	100.0	58	0	100.0
Boron	57	0	100.0	58	0	100.0
Bromate	58	0	100.0	59	0	100.0
Cadmium	57	0	100.0	58	0	100.0
Chromium	57	0	100.0	58	0	100.0
Copper	57	1	98.2	59	1	98.3
Cyanide	49	0	100.0	49	0	100.0
Fluoride	92	2	97.8	153	2	98.7
Lead	57	0	100.0	58	0	100.0
Mercury	57	0	100.0	58	0	100.0
Nickel	57	0	100.0	58	0	100.0
Nitrate	139	0	100.0	263	0	100.0
Nitrite (at tap)	225	0	100.0	463	0	100.0
PAH	57	0	100.0	58	0	100.0
Pesticides - Total	57	0	100.0	58	0	100.0
Selenium	57	0	100.0	58	0	100.0
Tetrachloroethene & Trichloroethene	114	0	100.0	134	0	100.0
Total Trihalomethanes	115	6	94.8	138	6	95.7
Indicator						
Aluminium	344	6	98.3	755	7	99.1
Ammonium	419	0	100.0	1002	0	100.0
Chloride	61	0	100.0	62	0	100.0
Clostridium perfringens	383	0	100.0	918	0	100.0
Coliform Bacteria	419	13	96.9	1004	15	98.5
Colony Count @ 22°C	60	0	100.0	62	0	100.0
Colour	234	2	99.1	534	4	99.3
Conductivity	419	0	100.0	1006	0	100.0
Iron	345	5	98.6	717	8	98.9
Manganese	149	5	96.6	293	8	97.3
Odour	400	9	97.8	962	10	99.0
pH	419	17	95.9	1007	19	98.1
Sodium	61	0	100.0	62	0	100.0
Sulphate	61	0	100.0	62	0	100.0
Taste	397	0	100.0	943	0	100.0
Total Organic Carbon	56	1	98.2	57	1	98.2
Turbidity (at tap)	419	4	99.0	1001	4	99.6

Appendix 2: Private Group Water Schemes – Zones Monitored and Samples Analysed in 2016

Parameter	No. of Zones Monitored	No of Zones with Exceedances	% of Zones Complying	No. of Samples Analysed	No. of Samples Exceeding	% of Samples Complying
Microbiological						
E. coli	389	15	96.1	1387	22	98.4
Enterococci	194	1	99.5	219	1	99.5
Chemical						
1,2-dichloroethane	255	0	100.0	336	0	100.0
Antimony	236	0	100.0	246	0	100.0
Arsenic	237	0	100.0	247	0	100.0
Benzene	255	0	100.0	336	0	100.0
Benzo(a)pyrene	236	0	100.0	245	0	100.0
Boron	236	0	100.0	246	0	100.0
Bromate	237	2	99.2	247	2	99.2
Cadmium	236	0	100.0	246	0	100.0
Chromium	236	0	100.0	246	0	100.0
Copper	236	0	100.0	251	0	100.0
Cyanide	234	0	100.0	243	0	100.0
Fluoride	238	0	100.0	271	0	100.0
Lead	237	1	99.6	279	1	99.6
Mercury	236	0	100.0	246	0	100.0
Nickel	236	0	100.0	246	0	100.0
Nitrate	291	4	98.6	517	6	98.8
Nitrite (at tap)	308	0	100.0	768	0	100.0
PAH	236	0	100.0	245	0	100.0
Pesticides - Total	237	2	99.2	246	2	99.2
Selenium	236	0	100.0	246	0	100.0
Tetrachloroethene & Trichloroethene	255	0	100.0	336	0	100.0
Total Trihalomethanes	255	22	91.4	340	31	90.9
Indicator						
Aluminium	321	10	96.9	949	14	98.5
Ammonium	389	2	99.5	1384	3	99.8
Chloride	237	1	99.6	252	6	97.6
Clostridium perfringens	317	7	97.8	1029	10	99.0
Coliform Bacteria	389	46	88.2	1387	67	95.2
Colony Count @ 22°C	237	12	94.9	247	12	95.1
Colour	276	6	97.8	949	7	99.3
Conductivity	389	0	100.0	1388	0	100.0
Iron	336	14	95.8	1015	16	98.4
Manganese	273	9	96.7	526	9	98.3
Odour	376	3	99.2	1346	3	99.8
pH	389	24	93.8	1384	43	96.9
Sodium	237	1	99.6	252	1	99.6
Sulphate	237	1	99.6	252	1	99.6
Taste	366	2	99.5	1313	2	99.8
Total Organic Carbon	236	1	99.6	246	1	99.6
Turbidity (at tap)	389	4	99.0	1367	4	99.7

Appendix 3: Small Private Supplies – Zones Monitored and Samples Analysed in 2016

Parameter	No. of Zones Monitored	No of Zones with Exceedances	% of Zones Complying	No. of Samples Analysed	No. of Samples Exceeding	% of Samples Complying
Microbiological						
E. coli	1097	57	94.8	1809	69	96.2
Enterococci	196	16	91.8	344	19	94.5
Chemical						
1,2-dichloroethane	18	0	100.0	20	0	100.0
Antimony	77	0	100.0	87	0	100.0
Arsenic	86	3	96.5	98	5	94.9
Benzene	20	0	100.0	23	0	100.0
Benzo(a)pyrene	19	0	100.0	22	0	100.0
Boron	77	0	100.0	87	0	100.0
Bromate	18	0	100.0	21	0	100.0
Cadmium	76	0	100.0	86	0	100.0
Chromium	77	0	100.0	87	0	100.0
Copper	126	3	97.6	177	3	98.3
Cyanide	17	0	100.0	19	0	100.0
Fluoride	32	0	100.0	43	0	100.0
Lead	211	3	98.6	358	3	99.2
Mercury	17	0	100.0	19	0	100.0
Nickel	76	1	98.7	86	1	98.8
Nitrate	460	6	98.7	715	7	99.0
Nitrite (at tap)	423	0	100.0	766	0	100.0
PAH	27	0	100.0	29	0	100.0
Pesticides - Total	77	0	100.0	87	0	100.0
Selenium	18	0	100.0	20	0	100.0
Tetrachloroethene & Trichloroethene	18	0	100.0	20	0	100.0
Total Trihalomethanes	18	0	100.0	20	0	100.0
Indicator						
Aluminium	483	8	98.3	880	13	98.5
Ammonium	1097	12	98.9	1794	13	99.3
Chloride	161	1	99.4	223	1	99.6
Clostridium perfringens	330	21	93.6	626	23	96.3
Coliform Bacteria	1098	192	82.5	1812	234	87.1
Colony Count @ 22°C	20	1	95.0	22	1	95.5
Colour	524	14	97.3	916	16	98.3
Conductivity	1097	1	99.9	1794	1	99.9
Iron	724	53	92.7	1286	67	94.8
Manganese	257	34	86.8	351	37	89.5
Odour	1007	5	99.5	1671	6	99.6
pH	1098	254	76.9	1796	387	78.5
Sodium	164	9	94.5	194	9	95.4
Sulphate	114	0	100.0	135	0	100.0
Taste	705	1	99.9	1092	2	99.8
Total Organic Carbon	17	0	100.0	19	0	100.0
Turbidity (at tap)	1098	28	97.4	1796	35	98.1

Appendix 4: Water Quality and Enforcement Information for Private Water Supplies by County/Area in 2016[1]

	Public Group Schemes[2]		Private Group Schemes[2]		Small Private Supplies[2]		Boil Notices		Directions	Audits
County/ Area[3]	Number	Population	Number	Population	Number	Population	Number	Population Affected	Number Issued	Number
Carlow	0	0	4	1851	6	72	0	0	0	1
Cavan	1	90	24	26076	75	3675	1	2500	0	3
Clare	93	19339	14	14235	22	1550	9	NC[5]	0	0
Cork	0	0	24	2134	417	1315	18	82	0	11
Cork City	0	0	0	0	1	50	-	-	-	-
Dun Laoghaire-Rathdown	0	0	0	0	1	400	-	-	-	-
Donegal	7	3140	6	754	30	1462	-	-	-	-
Dublin City[4]	0	0	0	0	0	0	-	-	-	-
Fingal	0	0	0	0	1	300	1	0	6	8
Galway	69	11880	74	29263	139	0	-	-	-	-
Galway City[4]	0	0	0	0	0	0	-	-	-	-
Kerry	39	9599	10	1775	82	3981	-	-	-	-
Kildare	0	0	5	2110	20	1835	0	0	0	6
Kilkenny	25	2166	25	3497	162	3019	-	-	-	-
Laois	31	1523	17	5001	151	2716	-	-	-	-
Leitrim	32	3392	5	1581	0	0	1	89	0	0
Limerick	35	6709	24	7280	19	120	-	-	-	-
Longford	0	0	3	350	15	80	7	NC[5]	4	0
Louth	0	0	7	3376	9	970	0	0	0	0
Mayo	66	12486	53	28567	27	140	-	-	-	-
Meath	0	0	3	947	166	351	5	200	1	5
Monaghan	0	0	13	25443	0	0	0	0	0	3
Offaly	11	1035	16	10068	28	1647	3	100	1	0
Roscommon	21	4464	10	5460	15	15	0	0	0	0
Sligo	8	644	[13]	5973	6	900	1	40	0	0
South Dublin[4]	0	0	0	0	0	0	0	0	0	0
Tipperary	0	0	39	8439	122	3490	4	588	0	39
Waterford	0	0	2	130	17	605	-	-	-	-
Westmeath	18	2173	3	900	60	112	0	0	0	0
Wexford	0	0	6	3370	182	8303	33	834	0	0
Wicklow	0	0	9	891	129	9942	43	2600	5	19
Totals:	**456**	**81870**	**409**	**189471**	**1902**	**47050**	**126**	**7033**	**17**	**95**

[1]Where no information was provided, spaces are left blank. [2]Full list of private supplies available at http://www.epa.ie/pubs/advice/drinkingwater/publicdrinkingwatersupplies/; [3]Drinking Water Monitoring results and water supply details for each year since 2000 for each county is available at http://erc.epa.ie/safer/resourcelisting.jsp?oID=10206&username=EPA%20Drinking%20Water.; [4]No private water supply details were submitted for this County/Area for 2016. [5]NC = not calculated, as the population served by commercial premises could not be determined.

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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