

National Inspection Plan 2013

Domestic Waste Water Treatment Systems

Environmental Protection Agency

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

The EPA is an independent public body established in July 1993 under the Environmental Protection Agency Act, 1992. Its sponsor in Government is the Department of the Environment, Community and Local Government.

OUR RESPONSIBILITIES

LICENSING

We license the following to ensure that their emissions 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 manufacturing, cement manufacturing, power plants);
- intensive agriculture;
- the contained use and controlled release of Genetically Modified Organisms (GMOs);
- large petrol storage facilities;
- waste water discharges.

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- Overseeing local authorities' environmental protection responsibilities in the areas of - air, noise, waste, waste-water and water quality.
- Working with local authorities and the Gardaí to stamp out illegal waste activity by co-ordinating a national enforcement network, targeting offenders, conducting investigations and overseeing remediation.
- Prosecuting those who flout environmental law and damage the environment as a result of their actions.

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- Independent reporting to inform decision making by national and local government.

REGULATING IRELAND'S GREENHOUSE GAS EMISSIONS

- Quantifying Ireland's emissions of greenhouse gases in the context of our Kyoto commitments.
- Implementing the Emissions Trading Directive, involving over 100 companies who are major generators of carbon dioxide in Ireland.

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- Co-ordinating research on environmental issues (including air and water quality, climate change, biodiversity, environmental technologies).

STRATEGIC ENVIRONMENTAL ASSESSMENT

- Assessing the impact of plans and programmes on the Irish environment (such as waste management and development plans).

ENVIRONMENTAL PLANNING, EDUCATION AND GUIDANCE

- Providing guidance to the public and to industry on various environmental topics (including licence applications, waste prevention and environmental regulations).
- Generating greater environmental awareness (through environmental television programmes and primary and secondary schools' resource packs).

PROACTIVE WASTE MANAGEMENT

- Promoting waste prevention and minimisation projects through the co-ordination of the National Waste Prevention Programme, including input into the implementation of Producer Responsibility Initiatives.
- Enforcing Regulations such as Waste Electrical and Electronic Equipment (WEEE) and Restriction of Hazardous Substances (RoHS) and substances that deplete the ozone layer.
- Developing a National Hazardous Waste Management Plan to prevent and manage hazardous waste.

MANAGEMENT AND STRUCTURE OF THE EPA

The organisation is managed by a full time Board, consisting of a Director General and four Directors.

The work of the EPA is carried out across four offices:

- Office of Climate, Licensing and Resource Use
- Office of Environmental Enforcement
- Office of Environmental Assessment
- Office of Communications and Corporate Services

The EPA is assisted by an Advisory Committee of twelve members who meet several times a year to discuss issues of concern and offer advice to the Board.



Protecting Our Water and Our Health

National Inspection Plan

Domestic Waste Water Treatment Systems

2013

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil
Johnstown Castle Estate
Wexford
Ireland

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NATIONAL INSPECTION PLAN
Domestic Waste Water Treatment Systems

2013

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V.1.0

Important Notice for Householders

Householders will be notified in advance by their Local Authority if their domestic waste water treatment system is to be inspected and inspectors will be required to carry identification and to present this on request to householders.

Never enter a waste water tank, even when empty of waste, as dangerous gases may be present – seek specialist assistance from a trained professional.

Visit the EPA website for more information on domestic waste water

www.epa.ie/whatwedo/advice/wastewater

Acknowledgements

Developing the National Inspection Plan has involved drawing on the expertise and experience of national and international experts. The Environmental Protection Agency (EPA) gratefully acknowledges their work in providing ideas, information, comments and otherwise contributing to preparing the National Inspection Plan for domestic waste water treatment systems. The EPA in particular wishes to acknowledge the international experts who peer-reviewed the risk methodology that underpins this plan.

As part of the development of the Plan the EPA, with Trinity College Dublin, held an international symposium on domestic waste water treatment systems. This event was attended by over 250 researchers, policy makers, local authority staff and practitioners. The symposium provided a forum for debate and discussion between national and international delegates. The EPA gratefully acknowledges the participation and contributions of all of the 15 Irish based and 13 international speakers at the event. A full list of the speakers, along with videos and copies of the papers, is available on www.epa.ie.

The EPA also wishes to acknowledge those people and organisations who took time to make submissions during the consultation on the *'Proposals for a National Inspection Plan for Domestic Waste Water Treatment Systems'*.

Strategic Environmental Assessment

The EPA has undertaken a review to ascertain if the National Inspection Plan falls within the scope of the Strategic Environmental Assessment (SEA) Directive (2001/42/EC). It is the view of the EPA that this Plan does not require an SEA to be carried out.

Foreword

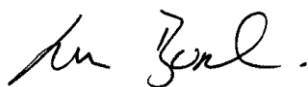
Clean, healthy and well-protected water is essential to maintain viable and vibrant communities in unsewered areas across Ireland. These communities, which are predominantly in rural areas, need to have dependable, clean sources of water and sustainable and safe ways to manage their waste waters.

According to the Central Statistics Office (CSO, 2012), on-site domestic waste water treatment systems collect, treat and discharge waste water from almost 500,000 households in Ireland. At a large catchment scale, domestic systems pose much less of a risk to watercourses than urban waste water discharges and diffuse agricultural pollution. However, if not managed and treated appropriately, domestic waste water may contaminate private and public water supplies, groundwater, and surface water, causing harm to human health and the environment.

The European Court of Justice found that Ireland had not met the legal obligation required by the 1975 Waste Framework Directive to regulate the waste water generated in our unsewered areas. This National Inspection Plan for Domestic Waste Water Treatment Systems responds to Ireland's failure to implement the 1975 Waste Directive.

Increasing pollution pressures and the rightful expectation of the public for clean water led to laws such as the EU Water Framework Directive. This Directive established a framework for the protection of all waters including rivers, lakes, estuaries, coastal waters and groundwater, including dependent wildlife and habitats, under one piece of environmental legislation. This National Inspection Plan will also form part of the 'programme of measures' under the EU Water Framework Directive. Ireland needs to make a more determined effort to protect and enhance all waters so that they achieve at least 'good' status. This inspection plan is one part of this effort to improve and protect our waters.

The success of this plan depends on a number of elements including commitments from government, local authorities and, not least, rural communities. Human and financial resources will be required for many years to come. This investment in clean, healthy and protected water will be of benefit not only to the health and wellbeing of our people but also to farming, industry and rural tourism.



Laura Burke, *Director General*

Wexford, January 2013

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Chapter 1 – An impetus for action on domestic waste water

Achieving good status water

This National Inspection Plan for Domestic Waste Water Treatment Systems (DWWTSs) sets out part of the actions being taken to respond to the judgment (C-188/08) against Ireland under the Waste Framework Directive 1975/442/EC on the regulation of domestic waste water. It will also form part of the actions by Ireland to protect water and the environment from domestic waste water discharges and will form part of Ireland's programme of measures under the Water Framework Directive.

The Water Framework Directive (WFD) (Directive 2000/60/EC) aims to improve water quality throughout the European Union. The objective of the Directive is to bring waters to good status and to protect existing good and high status waters. It applies to rivers, lakes, groundwater, estuarine and coastal waters. Ireland has an estimated 160,000 (CSO, 2012) drinking water wells and springs, and protecting these from contamination by domestic waste water is of high importance.

The role of domestic waste water treatment systems

About one-third of all houses (500,000 households) in Ireland rely on an individual 'domestic waste water treatment system' to collect, treat and discharge their household waste water. These systems are typically located on or adjacent to the property and include systems such as septic tanks, packaged plants, tertiary treatment units and associated discharge or infiltration areas. These systems, when designed and operated properly, are cost-effective means of protecting public health and water quality in low-density communities (USEPA, 2002). The houses with these systems are generally rural based dwellings built in areas without a municipal sewer and treatment plant. However, there are also households in urban and suburban areas that rely on septic tanks to treat their waste water.

Treatment systems are designed to protect humans from contact with waste water; treat waste water to minimise contamination of soils, lakes, rivers and groundwater; keep animals, insects, and vermin from contact with waste water; and minimise the generation of foul odours. The most common treatment is settlement of solid materials followed by soil infiltration. Solid material accumulates in the settlement tank and is removed on a periodic basis for recovery or disposal off-site.

Where DWWTSs are not properly located, designed, installed, operated and managed they pose a threat to human health through possible contamination of drinking water wells or from effluent ponding in gardens (Photo A), exposing people and pets to untreated waste water (Photo B). One of the biggest challenges for households relying on these systems is inadequate percolation of treatment system effluent.

Photo A: Vegetation growth signalling that effluent from a domestic waste water treatment system is ponding in this garden



Photo B: A dog drinking from an exposed waste water distribution pipe



Figure 1: Examples of health risks from domestic waste water treatment systems

In addition to the risk posed to human health, malfunctioning DWWTSs also pose a risk to our watercourses and may impact on fishing, bathing waters and other amenities. In order to reduce such risks it is essential that adequate treatment of this effluent occurs before safe disposal by percolation.

Chapter 2 – Risks to health and water from domestic waste water

Discharges from domestic waste water treatment systems result in a higher risk where percolation is inadequate and where the groundwater vulnerability is high. The EPA has constructed a risk assessment methodology using data on **density** of systems, **attenuation** and **infiltration** to establish **zones of risk** across the entire country. This has then been used in conjunction with the location of **sensitive receptors** to allocate inspections based on risk and sensitivity. This chapter sets out the background to identifying the waters at risk from domestic waste water treatment system discharges.

Waste water effluent

Domestic waste water treatment systems accept waste water from toilets, showers, sinks, wash hand basins, washing machines and dishwashers. The greater the population of the dwelling, the greater the volume of waste water produced. For the purpose of this plan, a DWWTS is assumed to have a daily hydraulic loading for each person of 150 litres and typical household occupancy of 2.8 people. On a national scale, this equates to a liquid discharge of 210,000 m³ per day or 46 million gallons (equivalent to 84 Olympic swimming pools). There are a number of different pollutants in domestic waste water, each of which can cause problems for health and the environment.

The quality of domestic waste water will vary with the nature of the system; the volume of waste water being produced; the design of the system; the number of people in the house; the chemicals (e.g. detergents) being used; and the nature of the domestic activities carried out in the household. Typical ranges of the main pollutants found by Ó Súilleabháin (2004) and Gill *et al.* (2005) are shown in Table 1.

Table 1: Typical pollutant concentrations from DWWTSs (Ó Súilleabháin, 2004 and Gill *et al.*, 2005)

Pollutant	Conventional Septic Tank	Secondary Treatment Tank
Faecal Coliforms	> 1 million/100ml	> 5-10,000/100ml
Nitrogen (mg/l N)	30-80	20-35
Phosphorus (mg/l P)	5-20	1-5
BOD (mg/l)	150-500	20-50

Microbial pathogens

Domestic waste water contains human waste products and the discharge from the DWWTS may contain disease-causing bacteria, viruses and/or parasites arising from the population using the system. The chief recognised illness associated with exposure to inadequately treated domestic waste water is acute gastrointestinal illness causing fever, nausea and diarrhoea (MacIer and Merkle, 2000). Most cases are of short duration, but vulnerable people such as infants, pregnant women, the elderly or those with pre-existing health conditions are particularly at risk of serious health consequences if exposed to these pathogens. When testing water, faecal coliforms are most commonly used as an indicator of contamination with human or animal wastes.

Microbial pathogens arising from DWWTSs pose a threat in three circumstances:

- Where percolation into the ground is inadequate and ponding and/or direct discharge to ditches and streams occurs, with the potential for direct contact with pathogens by, in particular, children and domestic animals.
- Where the percolation area (or soak pit) is in the zone of contribution of a water supply well or spring and there is inadequate treatment of the effluent in the subsoil and/or bedrock, resulting in pathogens reaching the drinking water source.
- Where the site is suitable for a DWWTS but the system has not been designed and/or installed and/or maintained properly.

Usually there are around 1 million *E. coli* bacteria in one litre of effluent from a septic tank serving a typical household. The drinking water standard for *E. coli* and coliform bacteria is zero.

Disease causing microbes are particularly a problem for private schemes reliant on groundwater for drinking water. Many of these wells have poor well-head protection with little or no source-catchment protection and often do not have any form of treatment to prevent microbial pathogens reaching the consumer of the drinking water.

Phosphorus

Domestic sources of phosphorus are human waste, laundry detergents and cleaning products. Phosphorus is the principal growth-limiting nutrient for macroplankton and phytoplankton growth in freshwater rivers and lakes and is the main cause of eutrophication in rivers and lakes in Ireland. Additional phosphorus encourages algal growth beyond the natural levels. This growth depletes the dissolved oxygen in the water, causes algal blooms in lakes and fish kills in rivers. Molybdate-reactive phosphorus (MRP) is commonly used as a measure of the biologically available phosphorus in water. MRP is the dominant form of phosphorus pollutant arising from DWWTS discharges.

Nitrogen

Domestic sources of nitrogen are human waste, food preparation, hygiene washings, cleaning products and, to a lesser extent, laundry sources. As waste water percolates through the subsoil, it converts firstly to ammonia and then to nitrate. Ammonia can have a detrimental effect on freshwater aquatic life. Nitrate is highly mobile in the ground and therefore can readily enter groundwater and, if a well is located nearby, drinking water. The consumption of nitrate-rich water by young children may give rise to a condition known as methaemoglobinaemia or blue baby syndrome. In addition, nitrate in surface water can impact on aquatic ecosystems, particularly in estuarine and coastal waters.

Waste water sludge

Solid material settles and builds up within the DWWTS settlement tanks. Sludge from a DWWTS contains a significant number of pathogens and nutrients and so its management is critical to ensure that the sludge doesn't pose a risk to human health and the environment. Domestic waste water sludge is considered a waste and therefore its recovery or disposal is controlled. Sludge must be removed from the tank periodically (the frequency will depend on the system's size and use) by a permitted waste collector. Further information on waste water sludge is available to the homeowner on www.epa.ie. A list of permitted waste collectors is available at www.nwcpo.ie.

Chapter 3 – Identifying areas at risk

Ranking areas by risk

The EPA, in conjunction with the Geological Survey of Ireland and other external expertise, has developed a **specifically designed method to rank areas by the risk** posed by domestic waste water to both human health and the environment across the hydrological and geological settings in Ireland. This methodology has been peer-reviewed internationally and full details are available in the EPA report 'A Risk-Based Methodology to Assist in the Regulation of Domestic Waste Water Treatment Systems' (2013) (available on www.epa.ie).

The risk assessment method uses the source-pathway-receptor (S-P-R) model, currently used for groundwater protection schemes in Ireland. The S-P-R model is based on the concept that for a risk to exist there must be a **source** of potential pollution (e.g. a discharge from a DWWTS), a **receptor** that may be impacted by that pollution (e.g. humans or the environment), and a **pathway** by which the pollution can get from the source to the receptor (e.g. through bedrock or soils).

Figures 2 and 3 show how a source (a discharge from a DWWTS), is linked to receptors (an abstraction well, a river, and an aquifer used for drinking water) via different pathways. In Figure 2 the discharge moves through thin subsoil and fractures in rock to reach an abstraction well where it can contaminate drinking water.

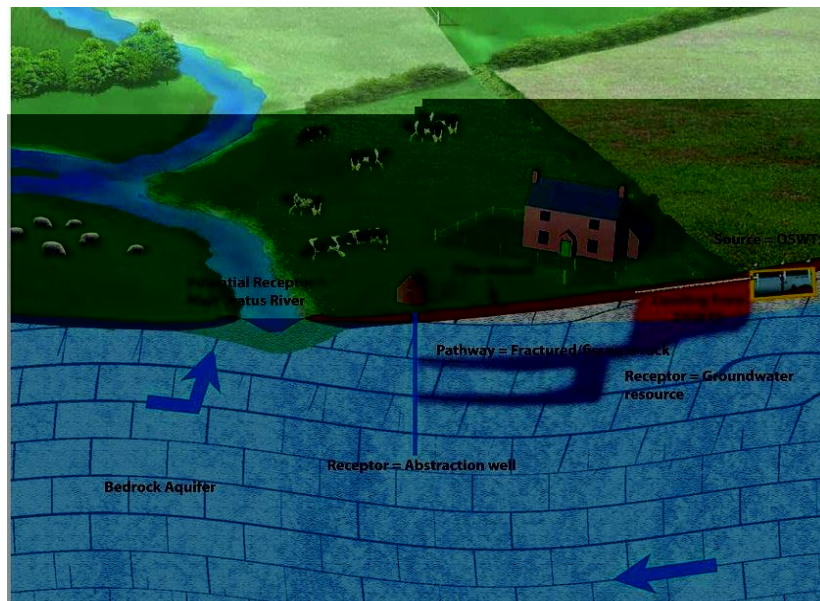


Figure 2: S-P-R model for domestic waste water treatment system with subsurface pathways (permeable subsoil)

In Figure 3 thick subsoil prevents the discharge taking an underground route but if the permeability of the subsoil is too low, adequate percolation cannot occur and ponding of DWWTS discharge at the surface is likely, with a consequent threat to human health. In such a situation, effluent can also flow 'downhill' in the more permeable topsoil and enter the well down the outside of the well casing if not properly installed.

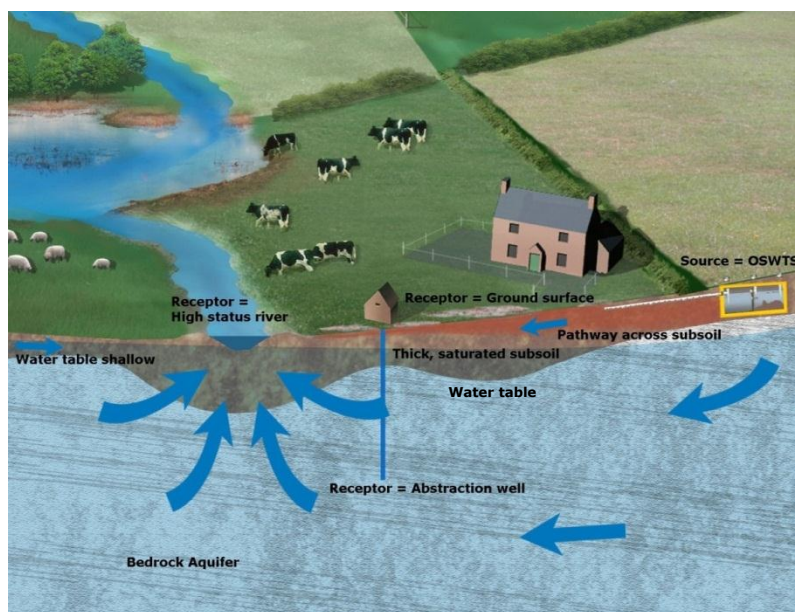


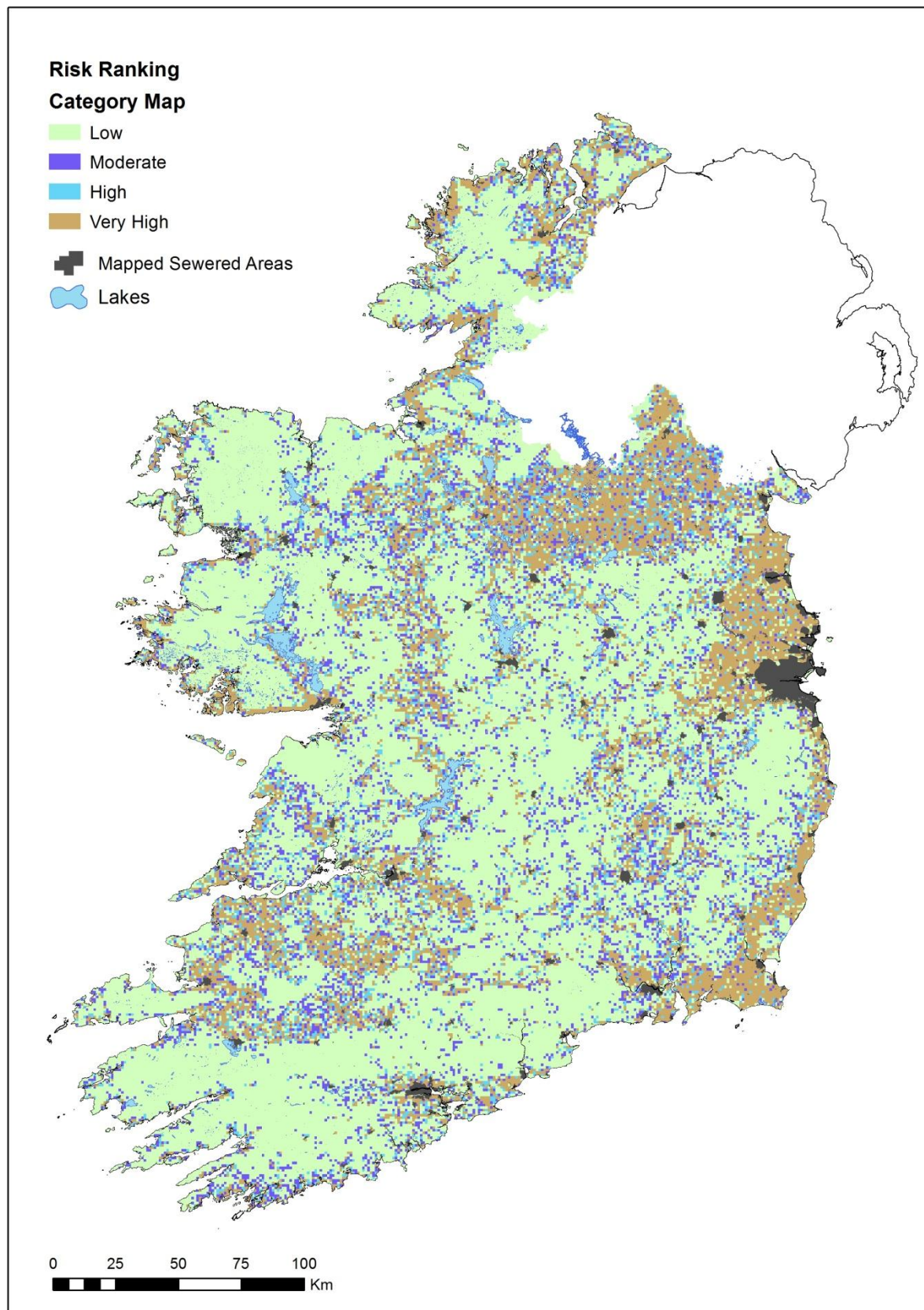
Figure 3: S-P-R model for domestic waste water treatment system with surface pathways (impermeable subsoil)

Every DWWTS carries a degree of risk of impacting on water quality and receptors. In many cases, the risk may be low or manageable through well sited, designed and managed systems. In other cases, the discharge can pose a significant threat to human health, groundwater or surface water quality and related receptors. The risk assessment is based on the following information:

- **Source characterisation:** How significant is the DWWTS discharge - the volume of waste water, the pollutants of concern (MRP, nitrate, pathogens), the nature and condition of the system, the number of systems in the area;
- **Pathways analysis:** How and where the pollutants flow, to what extent the pollutants are expected to attenuate, whether there is a hydrogeological or hydrological link that can deliver a pollutant source to a nearby receptor;
- **Receptor identification:** Who or what potentially could be affected, taking account of appropriate environmental quality standards.

The risk assessment methodology was used to determine the potential risk posed by DWWTSs all over Ireland. The result, shown on Map 1, is that each 1 km² of the country has been assigned a risk category, which corresponds to the likelihood of DWWTSs in that area presenting a risk to human health or the environment. The categories are low, moderate, high, and very high.

Map 1: Risk Ranking Map



The results of the risk assessment indicate that:

- The risk to human health from pathogens in domestic waste water is significantly higher in areas with a high **density** of DWWTSs and inadequate percolation; and in vulnerable areas with private wells.
- Phosphorus is the main pollutant posing a threat to the environment, particularly to surface water, either where there is **inadequate percolation** or where there is **inadequate attenuation** prior to entry of waste water into bedrock aquifers. While the cumulative pollutant load arising from DWWTSs will be insignificant compared to urban waste water treatment systems and agriculture at river basin scale, it can be significant in certain physical settings at small catchment scale.
- The threat posed by nitrogen from DWWTSs is low at catchment scale and at the scale of this assessment due to dilution; however, in exceptional circumstances, at site-scale (a few hectares), a high **density** of DWWTSs can cause localised plumes with elevated nitrate concentrations in groundwater.

Areas of Special Interest

There are some receptors which are more sensitive to the pollutants present in DWWTS discharges than other areas. The locations of these sensitive receptors are shown in Map 2.

Groundwater Drinking Water Supplies

DWWTSs may pose a risk to the quality of a groundwater drinking water supply. If the discharge from a DWWTS comes in contact with a groundwater body used for the abstraction of drinking water, there is a risk of human exposure to pathogens contained in the discharge and therefore a risk to human health. This applies to both individual wells and larger abstraction schemes, whether private or managed by a Water Services Authority.

Bathing Waters

DWWTSs may pose a risk to the quality of water used for bathing. If the discharge from a DWWTS enters water used for bathing, there is a risk of human exposure to pathogens contained in the discharge and therefore a risk to human health. Local authorities are responsible for taking measures where a bathing water site fails to comply with EC bathing water standards (as set out in *Bathing Water Quality Regulations, 2008* (S.I. No. 79 of 2008)). The Regulations also require that all identified bathing waters are classified as having water quality status not less than 'sufficient' (based on microbiological standards) by September 2015.

High Status Sites

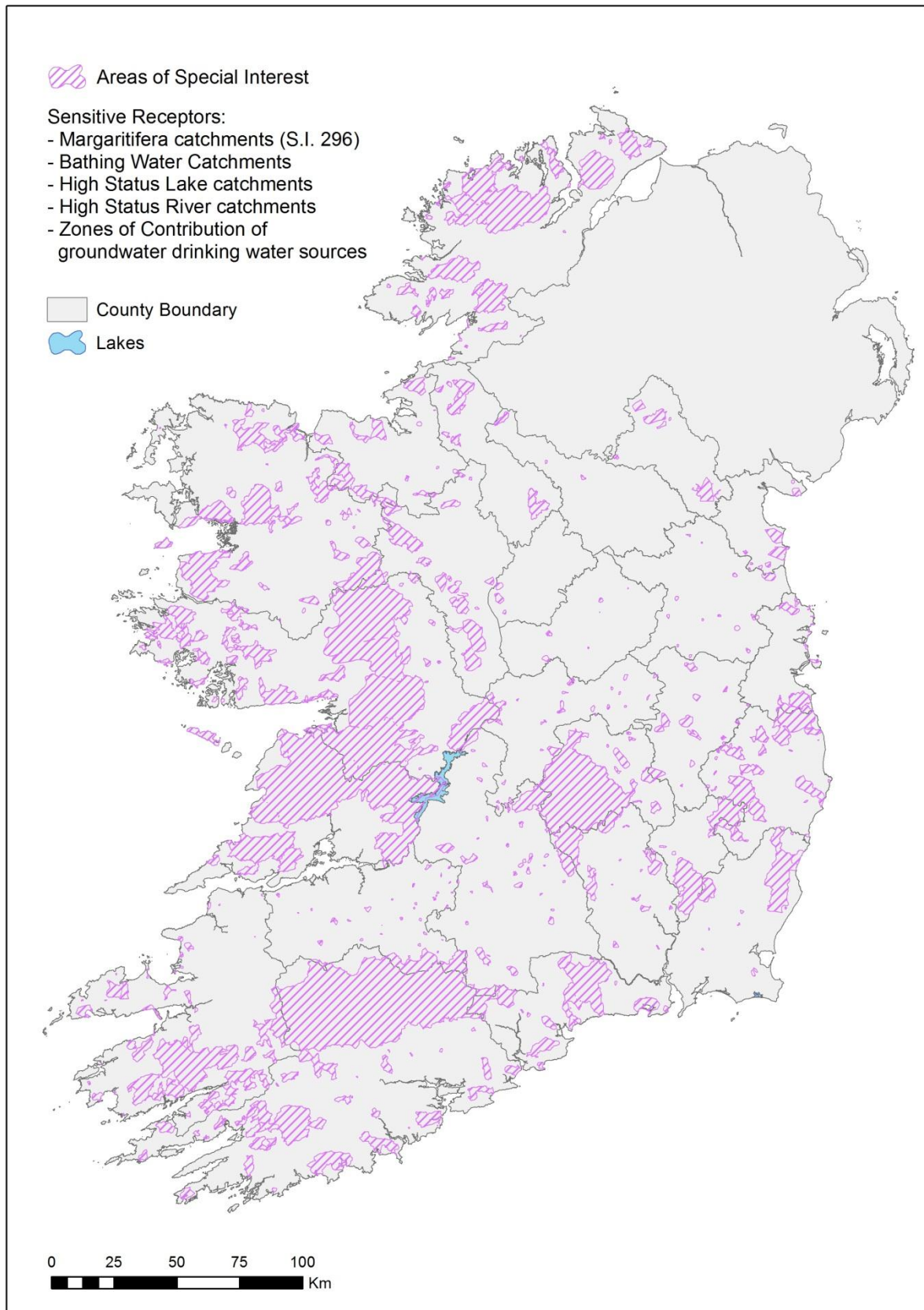
Discharges from DWWTSs contain significant levels of nutrients which can cause eutrophication and a reduction in river water quality. This can have a negative impact on the diversity of species in the river body, in particular those species sensitive to nutrient enrichment. High status sites are crucial to support the survival of such species, which include juvenile salmon (*Salmo salar*) and the freshwater pearl mussel (*Margaritifera margaritifera*).

High ecological quality is an indicator of largely undisturbed conditions and only minor impact from human activity. The Water Framework Directive requires Member States to protect and maintain high and good status water bodies.

Freshwater Pearl Mussel

The sub-basin plans and environmental objectives established under the *European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations*, S.I. 296 of 2009 for those pearl mussel populations designated under the Habitats Directive form part of the Water Framework Directive's river basin programme of measures. They form part of the basic measures and the objectives for these protected areas must be achieved by 2015.

Map 2: Areas of Special Interest



Chapter 4 – Strategy behind the National Inspection Plan

International Practice

The development of the National Inspection Plan is informed by international practice in regulation and in particular reflects:

- the *EU Recommendation on minimum criteria for environmental inspections* (2001/331/EC) (RMCEI);
- risk assessment (the S-P-R model); and
- the principles of Better Regulation – focus on risk-based inspections and achieving outcomes such as good water status and protecting human health.

This plan includes a variety of strategies including:

- (1) Risk based inspection;
- (2) Proxy inspection based on ambient monitoring of water quality;
- (3) Engagement and incentive strategies.

National Inspection Plan Overview

The National Inspection Plan uses two main strands (Figure 4) to achieve protection of public health and the environment. Through the mechanisms of citizen engagement strategies and DWWTS inspections, the Plan aims to ensure that:

- Adequate treatment of domestic waste water is in place;
- Treatment systems are adequately operated and maintained;
- Risks to human health and the environment are identified and managed;
- Public awareness is raised;
- Information is available to owners of domestic waste water treatment systems regarding their responsibilities and how to operate and maintain their systems;
- Information is supplied in multiple, easy to understand formats such as leaflets, video and web-based ‘frequently asked questions’;
- Incentives are used such as a lower probability of inspections for registered sites.

Overall, the aim is to move to a situation where a majority of homeowners with domestic waste water treatment systems know what to do to ensure that their systems are well operated and maintained and act voluntarily to achieve this.

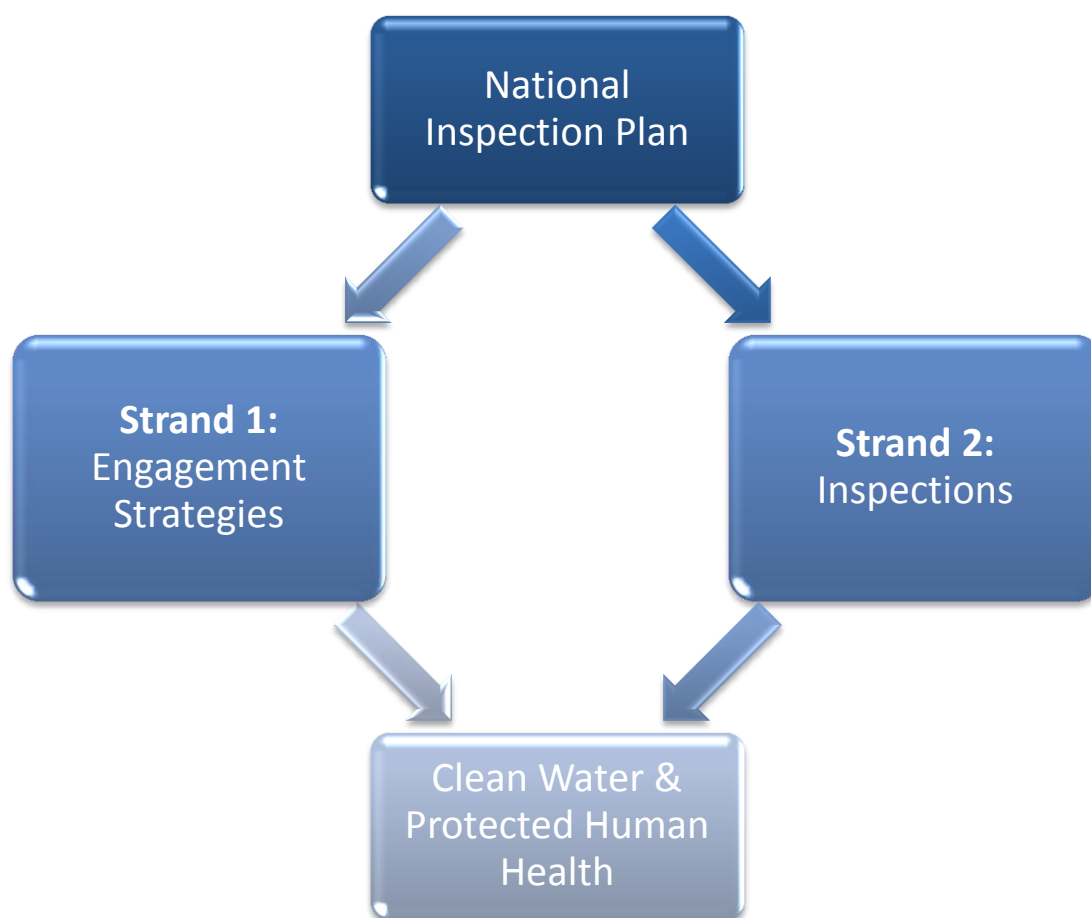


Figure 4: The building blocks of the Plan

Who Does What?

The Plan will be implemented by the Water Services Authorities (WSAs) under the supervision of the EPA. The Plan will commence in 2013, with the initial focus on citizen engagement and inspections commencing in July 2013. The EPA will review the Plan during 2014: this review will include an assessment of the information gathered from the inspections and the response to the awareness raising campaign. Thereafter the EPA will review the Plan at regular intervals not exceeding five years.

The **EPA's** role in the regulation of DWWTs includes:

- Drafting the National Inspection Plan for DWWTs;
- Developing an inspector appointment and inspection management system;
- Developing guidance and directions for use by WSAs;
- Overseeing citizen engagement;
- Providing workshops to WSAs on risk-based site selection; and
- Supervising local authorities' environmental functions.

The EPA also has roles in the implementation of the Water Framework Directive; regulation of large urban waste water treatment plants, industrial and waste sites; and in ensuring that WSAs deliver safe, clean and well protected drinking water.

The Department of the Environment, Community and Local Government sets national water policy and strategy. In addition, there are specific roles for owners of DWWTSs and further responsibilities for WSAs and their inspectors under the *Water Services (Amendment) Act 2012* as set out in Table 2.

Table 2: Roles and Responsibilities under the *Water Services (Amendment) Act 2012*.

Owners of DWWTS	WSA, including inspectors
Apply to a WSA to have their system registered	Establish and maintain a public register of DWWTSs within their functional areas
Pay a registration fee	Issue a certificate of registration to applicants who register their systems
Renew registration every 5 years	Implement the inspection requirements set out in the EPA National Inspection Plan
Produce a valid certificate of registration on request	WSA (or EPA) to direct an inspector to carry out an inspection having regard to the National Inspection Plan
Maintain their treatment system so that it does not constitute a risk to human health or the environment	Inspector to enter and inspect DWWTS as directed by a WSA (or EPA)
Comply with relevant Regulations (i.e. 70L)	Inspector to conduct monitoring, sampling, photographs, survey, excavate etc.
Remediate their treatment system as appropriate	Inspector to request information regarding maintenance, servicing and operation of DWWTS
Provide evidence of the DWWTS registration to the purchaser of the premises on completion of a sale	Inspector/WSA to inform the owner of a premises of the findings of the inspection

Chapter 5 – Citizen engagement

Engagement Activities

In September 2012, the EPA with Trinity College, Dublin (TCD) convened an International Symposium on Domestic Wastewater Treatment & Disposal Systems. The Symposium dealt with a number of themes focusing on best international practices for the regulation of discharges from domestic waste water treatment systems. Speakers with national and international expertise in the area were invited to participate.

The EPA also met with representatives from rural, farming and environmental groups to seek comment and input to the Plan. Public consultation was invited on the EPA document 'Proposals for a National Inspection Plan for Domestic Waste Water Treatment Systems' prior to the publication of the Plan.

The Plan will initially focus on engagement strategies (e.g. Figure 5 below) aimed at advising, educating and assisting the public. The EPA will oversee the implementation of the citizen engagement strategy by the Water Services Authorities.

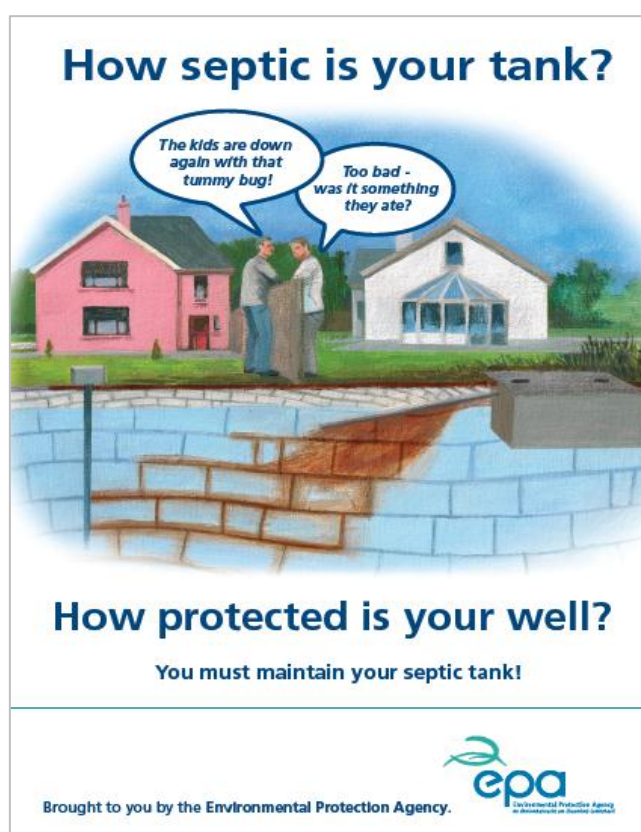


Figure 5: EPA public information notice

Awareness and Education Framework

The first strand of the Inspection Plan is a national public awareness campaign to promote best practice relating to the operation and maintenance of DWWTSs. The campaign will be rolled out by WSAs prior to the initiation of targeted risk based inspections and could be developed on a shared services basis. Key messages will be communicated via a series of channels e.g. web based, videos, animations (Figure 6), FAQs workshops, presentations, TV (e.g. EcoEye), local radio interviews etc.

Key messages of the framework

Clean water is an essential resource – one we take for granted, but can't any longer

Clean water is vital for the health and well-being of you and your family

The quality of our water contributes to economic growth – to food exports, fisheries, tourism

Our clean water resource is under threat

We all need to take steps to protect our water

This campaign will inform DWWTS owners of the role they can play to protect their health, that of their neighbours and the environment. Owners will be made aware of the simple steps they can take to properly operate and maintain their system as well as raising awareness as to the health implications where a DWWTS isn't working properly. The campaign should ensure that those who are responsible for DWWTSs are provided with authoritative and accessible advice so that they can protect their health and that of their family, neighbours and the environment.



Figure 6: Screenshot of the DWWTS animation on the EPA website.

Chapter 6 – Inspections

Inspection activities

The second strand of the plan involves carrying out risk based inspections in addition to undertaking the monitoring (i.e. proxy inspections) of water quality set out in local enforcement plans and in the river basin management plans. Inspections will identify problem DWWTSs and trigger measures to eliminate the health and pollution risk. A greater number of inspections will be targeted in high risk areas as compared to low risk areas, and unregistered sites will be the initial target. Where a sensitive receptor is present, a DWWTS will be twice as likely to be inspected as in areas without a sensitive receptor. The objective of the inspections is to reduce the risk posed to human health and effect improvements in water quality.

The risk based methodology discussed earlier is used as the basis for the selection of sites for risk based inspections. The methodology highlights the areas of the country at risk and explains why some receptors are more sensitive than others, and therefore why they are given a higher priority in terms of inspection.

Proxy inspections involve the use of monitoring or other tools such as GIS to complement individual site inspections. As part of the Water Framework Directive the EPA and local authorities carry out a significant amount of surface water and groundwater sampling. Measuring proxy outcomes, such as downstream water quality as an indicator of impact from DWWTSs, may be useful in determining performance; targeting future DWWTS inspections; or triggering immediate remedial actions without the necessity for a site inspection.

Other types of inspections are outlined in Table 3.

Table 3: Other types of DWWTS inspections

Inspection Type	Details
Registration inspection	Owners of DWWTSs who fail to register within the specified time period will become a higher enforcement priority and are more likely to be inspected.
Re-inspection	Following an initial inspection of a DWWTS an owner may request a re-inspection further to receipt of an Advisory Notice. The WSA authority arranges for the re-inspection and the Advisory Notice is confirmed, modified or cancelled.
Verification inspection	The WSA may carry out a verification inspection to verify that remedial works are completed prior to the closure of an Advisory Notice. These inspections will be recorded as part of the Plan.
Reactive inspection	To date, WSAs have undertaken reactive inspections in certain circumstances such as following complaints, incidents or accidents where the operation of DWWTSs may give rise to an impact on human health or the environment. These inspections are undertaken under the <i>Local Government (Water Pollution) Acts 1977-1990</i> . Complaints relating to DWWTSs are dealt with under the national environmental complaints procedure.

Allocation of risk-based inspections

The potential risk posed by DWWTs all over Ireland was shown in Map 1 where each 1 km² segment of the country is assigned a risk category, which corresponds to the likelihood of DWWTs in that area presenting a risk to human health or the environment. The risk categories are low, moderate, high, and very high. Additional sensitive receptors that are considered at potential risk from DWWT discharges are shown in Map 2. Overlaying the two maps results in eight risk zones, based on the four risk ranking categories that are derived from the Risk Assessment which are each then subdivided, based on the presence or absence of catchment areas of sensitive receptors. These eight zones are illustrated in Table 4 and Map 3.

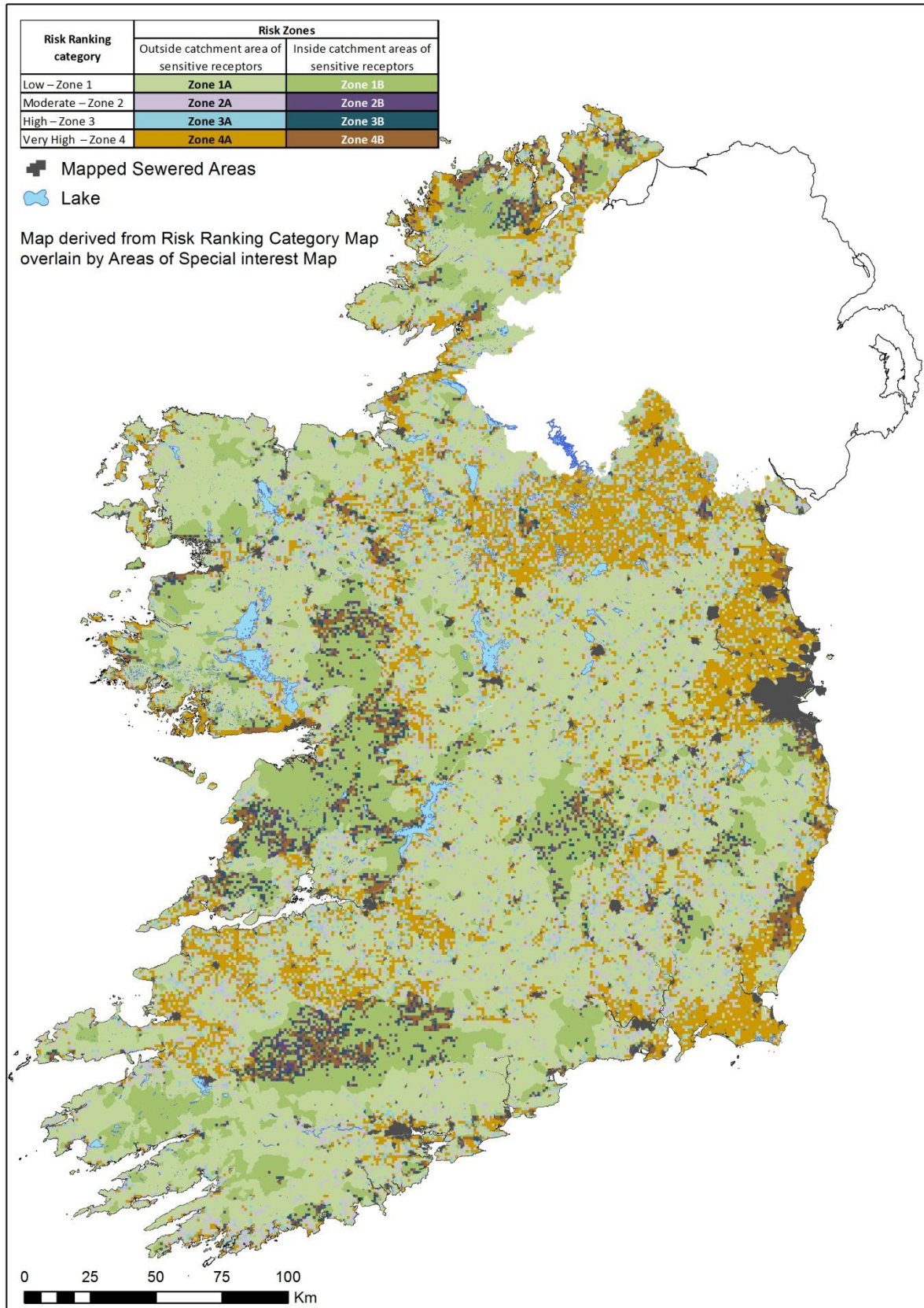
Table 4: Division of the risk categories

Risk Ranking category	Risk Zones	
	Outside catchment area of sensitive receptors	Inside catchment area of sensitive receptors
Low – Zone 1	Zone 1A	Zone 1B
Moderate – Zone 2	Zone 2A	Zone 2B
High – Zone 3	Zone 3A	Zone 3B
Very High – Zone 4	Zone 4A	Zone 4B

These eight zones can now be used to determine the appropriate allocation of inspections of DWWTs on the basis of risk to human health and the environment, i.e. more inspections will be done where the risk is higher and fewer where the risk is lower. In order to reflect this, weightings are chosen for each risk category, i.e. low 5%; moderate 15%; high 30%; very high 50%. This means that if the area of a county is divided equally among the four risk categories, 5% of the inspections would be carried out in low risk areas (Zone 1), 15% in the moderate risk areas (Zone 2), 30% in the high risk areas (Zone 3) and 50% in the very high risk areas (Zone 4). Within the catchments of sensitive receptors (Zones 1B, 2B, 3B, 4B) an additional weighting is applied which is to double the rate of inspections in these areas relative to the surrounding areas. The weightings enable a uniform approach country-wide to the allocation of inspections and are consistent with the risk-based philosophy being followed.

In practice, the area of a county will be unequally distributed among some or all of the different risk categories. Table A.1 in Appendix A shows the areas in each category for each county. Applying the relevant weighting factors to the areas in each risk category takes the risk into account and gives a distribution for the county of the inspections to be done in the areas covered by each risk category. Table A.2 in Appendix A shows this distribution, based on a national allocation of 1,000 inspections.

Map 3: Risk ranking map combined with Areas of Special Interest Map giving eight risk zones



Number of inspections

Risk-based site inspections by registered and trained inspectors will begin from July 2013. The Plan requires that a minimum of 1,000 inspections are carried out by WSAs over a twelve-month period starting in July 2013 (Table 5). Following a review of the plan in 2014, it is anticipated that this minimum number will change. The success of the Plan will be reviewed by the EPA at intervals not exceeding every 5 years and numbers of inspections adjusted accordingly to ensure that the desired environmental outcomes are being achieved.

In addition to risk based inspections, WSAs will undertake inspections of DWWTSs based on local priorities arising from incidents; water quality information; WFD; Good Agricultural Practice; catchment protection; water protection; other routine inspections and proxy inspections as appropriate. Having regard to the multiplicity of inspection types, the WSA should keep in mind that a single inspection may satisfy multiple environmental quality objectives, e.g. the impact of a DWWTS on freshwater pearl mussel catchments and high status river catchment. It is anticipated that these inspections will significantly add to the overall number of inspections relating to the impact of DWWTSs.

Table 5: Minimum national allocation of risk-based domestic waste water system inspections per county

County	Minimum number of inspections
Carlow	12
Cavan	48
Clare	55
Cork	99
Donegal	80
Dublin	15
Galway	98
Kerry	57
Kildare	25
Kilkenny	31
Laois	26
Leitrim	29
Limerick	50
Longford	17
Louth	18
Mayo	47
Meath	40
Monaghan	33
Offaly	16
Roscommon	33
Sligo	26
Tipperary	39
Waterford	16
Westmeath	14
Wexford	53
Wicklow	25

A comparison between counties

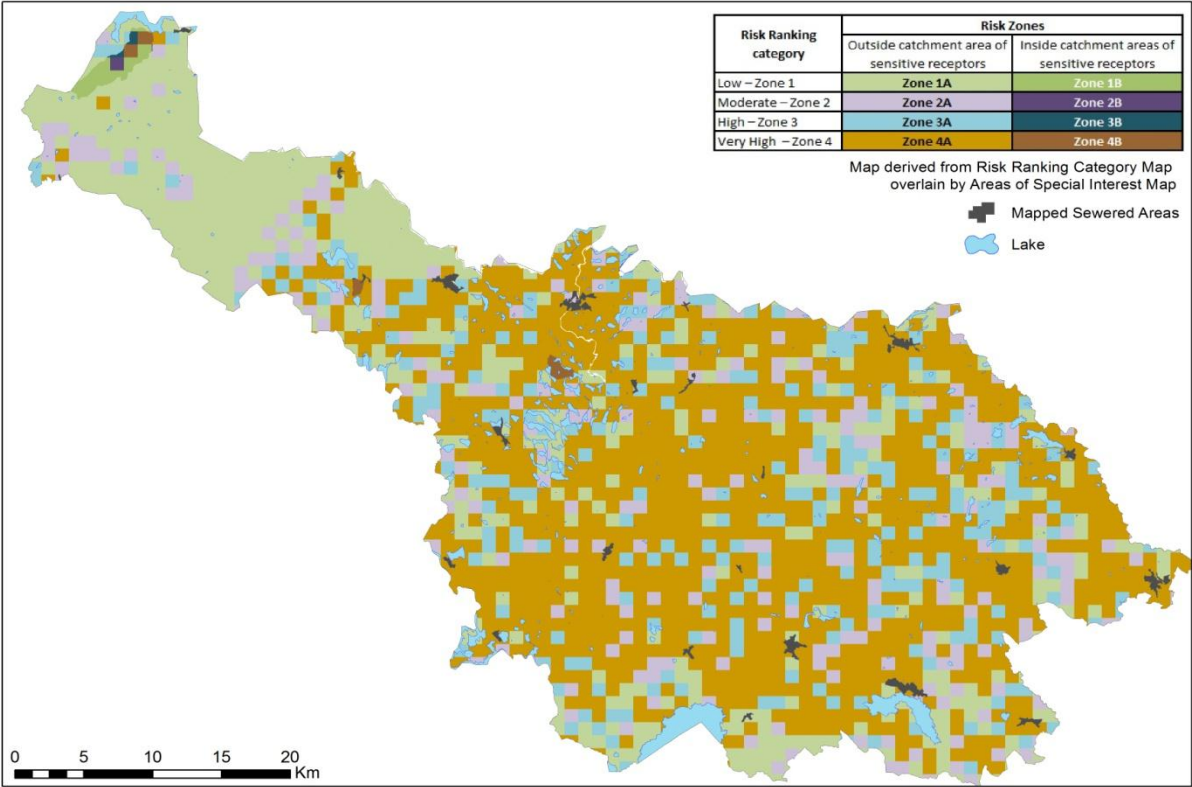
There is huge variation in the distribution of the risk categories on a national and county level. As such it does not automatically follow that the number of inspections to be carried out in each county will be in direct proportion to its size. A county with large areas of poor percolation, high groundwater vulnerability, and a high density of DWWTSs will require more inspections than a similar-sized county dominated by good percolation, low groundwater vulnerability and a low density of DWWTSs. These and other factors were taken into account during the risk assessment and a summary is given in Table A.3 in Appendix A.

A comparison between Counties Cavan and Waterford is shown here to illustrate the allocation of risk-based inspections. These two counties are approximately the same size, but Cavan has been allocated three times more risk-based inspections than Waterford.

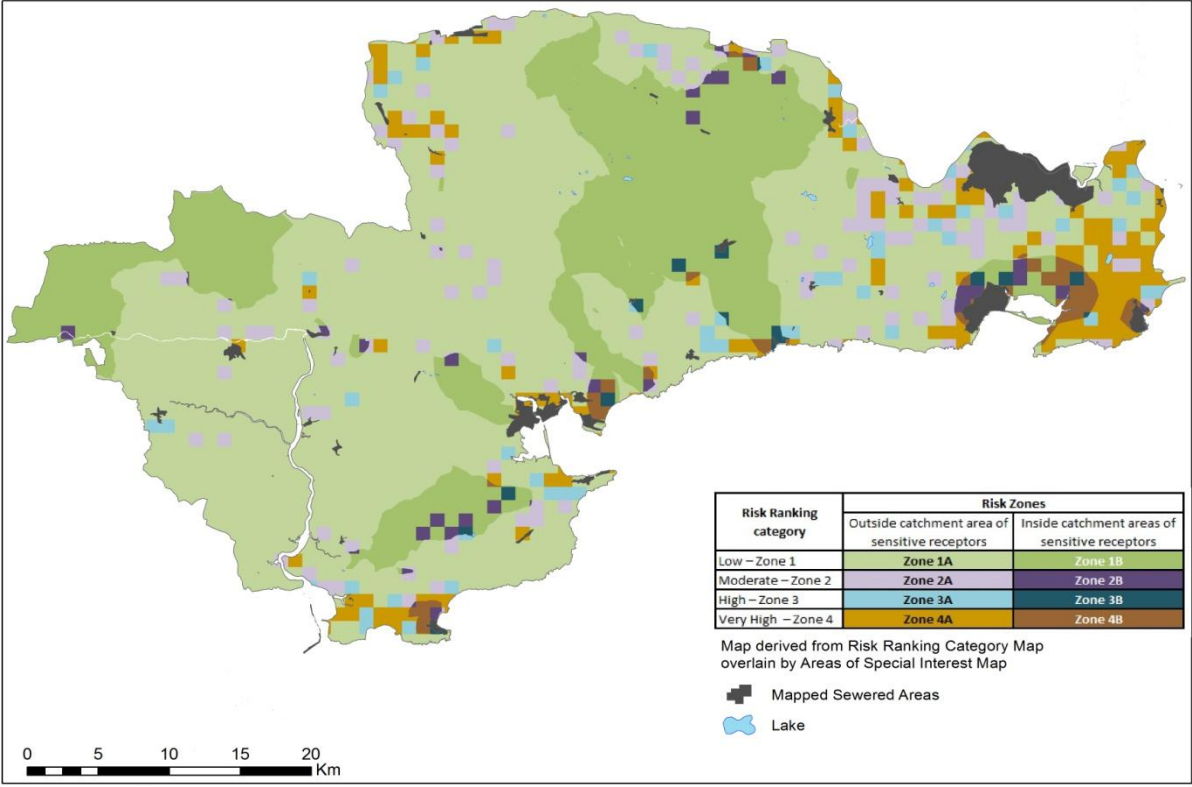
Maps 4 and 5 below show the 'Risk ranking map combined with Areas of Special Interest Map' for Counties Cavan and Waterford. Waterford has 36 times more area in sensitive receptor catchments than Cavan, so it might be expected that Waterford would be allocated more inspections. However, most of this area (89%) is in the low risk category. Cavan has six times more area in high and very high risk categories than Waterford.

The comparison demonstrates that the major factor determining the number of inspections is the area of the county in high and very high risk categories. Sensitive receptors in high and very high risk areas require the most focus and therefore have the greatest weighting applied. Sensitive receptors in low risk areas remain at low risk, despite their designation, due to the combination of factors (e.g. good percolation, low groundwater vulnerability, low density of DWWTSs) that determined that the risk to any receptor in that area from DWWTSs is low.

Map 4: Risk ranking map combined with Areas of Special Interest Map for County Cavan



Map 5: Risk ranking map combined with Areas of Special Interest Map for County Waterford



Selection of Inspection Sites

The EPA will provide site selection training for WSAs, which will include the allocation of inspection numbers in line with the risk based approach. Each WSA will be given access via the EPA's web-based portal EDEN to relevant GIS datasets. The steps for selecting a site are shown in Figure 7.

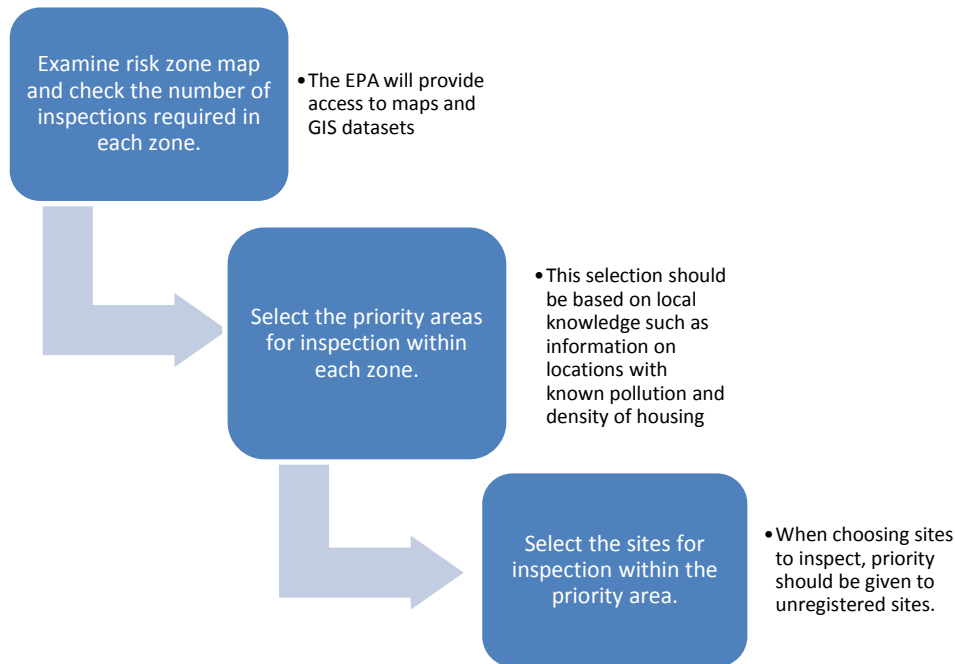


Figure 7: Site selection

Conducting a site inspection

The *Water Services Act 2007 (Registration and Inspections) Regulations 2012* (S.I. No. 384) sets out the content of an inspection and the requirements for the appointment of inspectors. The EPA is assigned the responsibility of appointing inspectors for the purposes of inspection of DWWTSs under the Act.

The WSA will notify the owner 10 days in advance of the inspection. Specially trained local authority inspectors will carry identification and will check that the treatment system, as constructed, is fit for purpose and is not giving rise to a risk to public health or the environment.

The inspections will determine compliance with the *Water Services (Amendment) Act 2012* and associated regulations and in particular the *Water Services Acts 2007 and 2012 (Domestic Waste Water Treatment Systems) Regulations 2012* (S.I. 223 of 2012). The inspector will check:

- whether the system is registered;
- if it is leaking;
- if the system components are in working order;
- if effluent is ponding on the surface of the ground;
- if it is discharging direct to surface water without a licence;

- if rainwater or clean surface water is entering the system;
- whether the system is being properly operated and maintained;
- if the system has been de-sludged; and
- if the system is being managed in a manner that does not adversely affect the environment.

General information relating to the site conditions will be gathered to inform the inspector's decision relating to compliance with Regulation S.I. No. 223. In addition, information on private wells will be gathered to inform guidance that will be provided to the owner on the proper construction, protection and operation of these wells.



Figure 8: Screenshot of the 'What to expect from an inspection' animation on the EPA website

Inspection Form

The DWWTS Inspection form is made up of three distinct sections:

1. General details relating to the DWWTS site and attached properties;
2. Site assessment details; and
3. Compliance questions which are based upon Regulation S.I. No. 223 and will determine whether or not there is evidence to indicate that the DWWTS is posing a risk to human health or the environment.

As part of completing the inspection form, the inspector may capture photographic evidence illustrating issues or problems with the site. A copy of the pro-forma inspection template report will be made available to the public on the EPA website.

During the inspection, water services staff will provide the owner with some basic information on managing septic tank-type systems and why it is important to manage their system in order to prevent contamination and protect human health. Further information is also available on www.epa.ie.

After the Inspection

The owner will be notified about the findings of the inspection within 21 days. If the system is deemed to pose a risk to either public health or the environment the WSA will issue an Advisory Notice within 21 days. Examples of sites likely to require remediation are shown in Figure 9.



Figure 9: Sites liable to require remediation

The WSA must issue an Advisory Notice (see example in Appendix B) where the inspection identifies that the treatment system has contravened the *Water Services Acts 2007 and 2012 (Domestic Waste Water Treatment Systems) Regulations 2012* (S.I. No. 223 of 2012). The main provisions of the Advisory Notice will:

- State that the owner of the premises has contravened regulations;
- State that the domestic waste water treatment system constitutes a risk to human health or the environment;
- State the reasons for that opinion; and
- Direct the owner to remedy the matters specified in the notice by a specified date.

The Advisory Notice will not specify the exact remedial works to be undertaken. As each case is site specific the owner of the DWWTS may be required to seek expert technical advice. The owner of the DWWTS in receipt of an Advisory Notice may seek to have their system re-inspected for a fee of €20. The Advisory Notice may be confirmed, amended or cancelled as a result of the re-inspection. Where a time extension is required by the owner for valid reasons they may apply to the WSA for such an extension. In exceptional circumstances where an Advisory Notice has been issued it may be appealed to the District Court on the grounds that the appellant is not the person on whom the notice should have been served or any substantive or procedural illegality.

Chapter 7 – Implementing and reviewing the plan

Implementation of the plan

The implementation of this plan will be carried out by Water Services Authorities. Each authority will be responsible for ensuring that inspections and the engagement strategies for their functional areas are carried out, as previously discussed.

The public awareness campaign is underway and will continue after site inspections commence. Inspections will begin in July 2013. Water Service Authorities should develop a schedule for carrying out the risk based inspections.

Domestic Waste Water Application (DWWA) System

An Information Technology system (DWWA) has been developed by the EPA for use by Water Services Authorities and the EPA (Figure 10). The system will capture all information relating to DWWTS inspections for the dual purpose of ensuring a consistent approach to inspections throughout the country and reducing the administrative overhead of reporting to the EU under Water Framework Directive Programme of Measures and Recommended Minimum Criteria for Environmental Inspections.

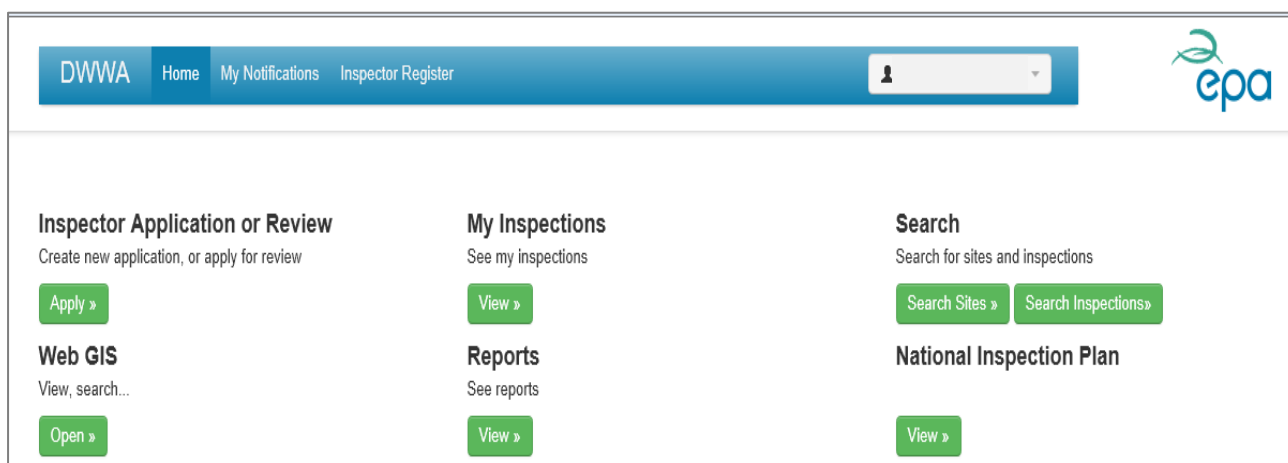


Figure 10: Screenshot of the DWWA system

The system is made up of a number of elements, each related to a distinct part of the legislation:

- 1. Register of Inspectors**

The system will enable the appointment of inspectors and the maintenance of a register of inspectors, which will be available to the public.

- 2. DWWTS Inspections**

Inspectors appointed to the Register will be able to submit information gathered as part of the DWWTS inspections. The system will produce a report detailing the findings of the inspection which can be issued to the owner by the WSA.

Where the inspection has found evidence to show that the DWWTS contravenes the relevant regulations, the system will allow the WSA to compile and issue an Advisory Notice. This Advisory Notice, along with the inspection report, will be issued to the owner.

3. WebGIS

A WebGIS and WebGIS functionality will be made available to users of the system: to assist WSAs in the planning and scheduling of the DWWTS inspections; and to log the location of inspected DWWTS and link it to associated properties.

The WSA can use the WebGIS to view all of the layers showing the geographical distribution of risk from pollutants to surface waters and groundwater alongside layers showing the locations of sensitive receptors. As inspections are completed, the location of the inspected DWWTS along with whether or not it is compliant will also be indicated in this WebGIS.

4. Reporting

As inspections are submitted by inspectors, the system will log the numbers and outcomes of each inspection, which will be used by the EPA for EU reporting requirements under WFD and RMCEI.

Progress and Quality Reporting

The data collated within the DWWA will allow individual WSAs to track the progress of their own inspection schedules against what is expected in the National Inspection Plan. At a national level, the EPA will also be able to produce progress reports detailing the number of inspections that have been carried out nationally, by each WSA and the progress made against the Plan. Data collected may also be used to identify priority issues for enforcement in addition to refining the risk assessment methodology, as appropriate. Data on the quality of inspections will allow monitoring of the consistency of DWWTS inspections. The implementation of the plan will be subject to regulatory oversight by the EPA.

Review of the Plan

Section 70K. (3) of the *Water Services (Amendment) Act 2012* sets out the legislative requirements for reviewing the Plan. In particular it provides that:

‘The Agency shall from time to time as it thinks appropriate, and at least once in each period of 5 years after the date of making the national inspection plan, review the plan and make such revisions thereto as it thinks fit and reference in this Part to such a plan, shall unless the context otherwise requires, be construed as including references to such a plan as so revised’.

The EPA proposes to undertake a review of the National Inspection Plan, i.e. a review of the awareness campaign and first series of inspections, in 2014. The primary purpose of the review will be to ensure that the strategies implemented are successful and effective in protecting human health and the environment and allow for any modifications where these are deemed necessary.

Section 70I of the 2012 Act provides for the supervision by the EPA of the performance of Water Services Authorities. In evaluating the performance of the WSA, the EPA may review:

- The quality, quantity and proper recording of inspections;
- The quality of the awareness campaign (i.e. citizen engagement);
- Progress on achieving compliance with targets set in the Water Framework Directive;
- Adequacy of sludge infrastructure and its management;
- Enforcement of functions assigned under the Sanitary Services Acts, 2007 & 2012, Waste Management Acts and related legislation.

Where the EPA is of the opinion that a Water Services Authority has failed to perform its functions, it may issue a direction to the Water Services Authority. Failure to comply with such a direction is an offence. Each WSA should on an annual basis review its performance with respect to the number of inspections allocated to it in the Plan and the number of additional inspections carried out. Where inspections targets are not achieved the reasons for this should be documented as part of this review of performance.

This National Inspection Plan relies on changing behaviour and recognition by home owners that water and domestic waste water treatment systems are a health and environment issue. The Plan envisages periodic checks to reinforce this message and target inspections in areas in need of greatest protection. The Plan is integrated into the Water Framework Directive River Basin Management Planning to maintain and where necessary improve water quality with the consequential benefit to public health. The review will ensure that the objectives of the Plan are being met.

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Glossary

Advanced Waste Water Treatment System: It is a term that encompasses secondary and/or tertiary treatment systems.

Aquifer: Any stratum or combination of strata that stores or transmits groundwater.

Aquifer Category: Based on the hydrogeological characteristics and on the value of the groundwater resource, all of the Republic of Ireland's land surface is divided into nine aquifer categories (also described as resource protection areas).

Attenuation: Reduction in mass or concentration of a compound in groundwater over time or distance from the source due to naturally occurring physical, chemical, and biological processes.

Biochemical Oxygen Demand (BOD): BOD is a measure of the rate at which micro-organisms use dissolved oxygen in the biochemical breakdown of organic matter in waste waters under aerobic conditions. The BOD5 test indicates the organic strength of a waste water and is determined by measuring the dissolved oxygen concentration before and after the incubation of a sample at 20°C for 5 days in the dark. An inhibitor may be added to prevent nitrification from occurring.

Chemical Oxygen Demand (COD): COD is a measure of the amount of oxygen consumed from a chemical oxidising agent under controlled conditions. The COD is greater than the BOD as the chemical oxidising agent will often oxidise more compounds than micro-organisms.

Domestic Waste Water: The *Water Services Act 2007* defines domestic waste water as waste water of a composition and concentration (biological and chemical) normally discharged by a household, and which originates predominantly from the human metabolism or from day to day domestic type human activities, including washing and sanitation, but does not include fats, oils, grease or food particles discharged from a premises in the course of, or in preparation for, providing a related service or carrying on a related trade.

Domestic Waste Water Treatment System (DWWTs): *Water Services (Amendment) Act* defines a domestic waste water treatment system as:

'a system involving physical, chemical, biological or thermal processes, or a combination of such processes, utilised for the treatment or disposal of domestic waste water, or the sludge derived from domestic waste water, and includes –

- (a) all septic tanks and waste water tanks and systems receiving, storing, treating or disposing of domestic waste water and all drains associated with such tanks or systems, and*
- (b) all drains associated with the discharge of domestic waste water, whether or not they discharge to a septic tank or waste water tank'.*

Environmental Data Exchange Network (EDEN): An EPA web-portal used by local authority Water Services Authorities (WSAs) for reporting and managing compliance.

Eutrophication: The enrichment of water by nutrients, especially compounds of nitrogen and/or phosphorus, causing an accelerated growth of algae and higher forms of plant life to produce an undesirable disturbance to the balance of organisms present in the water and to the quality of the water concerned.

Geographical Information System (GIS): A GIS is a system designed to capture, store, manipulate, analyse, manage, and present all types of geographical data.

Infiltration: The process by which water on the ground surface enters soil.

Infiltration system: Comprises percolation areas and polishing filters that discharge partially treated and treated effluent into the ground.

Organic Matter: Mainly composed of proteins, carbohydrates and fats. Most of the organic matter in domestic waste water is biodegradable. A measure of the biodegradable organic matter can be obtained using the BOD test.

Ortho-phosphorus: Ortho-phosphorus is soluble reactive phosphorus and is readily available for biological uptake.

Pathogenic Organisms: Those potential disease-producing micro-organisms which can be found in domestic waste waters. Organisms, such as *Escherichia coli* and faecal streptococci, with the same enteric origin as the pathogens are used to indicate whether pathogens may be present or not in the waste water.

Percolation: The slow passage of liquid through a filtering medium.

Percolation area: A system consisting of trenches with pipes and gravel aggregates, installed for the purpose of receiving waste water from a septic tank or other treatment device and transmitting it into soil for final treatment and disposal.

Programmes of Measures (POMs): The Water Framework Directive requires that a programme of measures for improving water quality be developed and implemented.

Septage: Liquid, solid, or semi-solid material removed from a septic tank.

Septic Tank System: A waste water treatment system that includes a septic tank mainly for primary treatment, followed by a percolation system in the soil providing secondary and tertiary treatment.

Source Protection Zone: A source protection zone is generated by integrating the two elements of land surface zoning (SPA and vulnerability) – a possible total of eight source protection zones can be generated.

Strategic Environmental Assessment (SEA): SEA is the process by which environmental considerations are required to be fully integrated into the preparation of Plans and Programmes and prior to their final adoption. The requirement for SEA derives from the SEA Directive (2001/42/EC).

Subsoil Permeability: The permeability of subsoil is largely a function of (a) the grain size distribution, (b) the amount (and sometimes type) of clay size particles present, and (c) how the grains are packed together.

Suspended Solids (SS): Includes all suspended matter, both organic and inorganic. Along with the BOD concentration, SS is commonly used to quantify the quality of waste water.

Tertiary Treatment: Additional treatment processes which result in further purification than that obtained by applying primary and secondary treatment.

Total Nitrogen: Mass concentration of the sum of Kjeldahl (organic and ammonium nitrogen), nitrate and nitrite nitrogen.

Total Phosphorus: Mass concentration of the sum of organic and inorganic phosphorus.

Waste Water: The discharge from sanitary appliances, e.g. toilets, bathroom fittings, kitchen sinks, washing machines, dishwashers, showers.

Waste Water Sludge: The solids that settle in the bottom of the primary/secondary settlement tank.

Water Services Authority: a County Council or a City Council: subject to such exceptions as may be prescribed, and where the context permits, any reference to a sanitary authority or local authority in any legislation, in so far as it relates to functions of that authority in relation to water services, shall be regarded as a reference to a water services authority.

Appendix A: Tables for allocation of risk based inspections

Table A.1: Area of each county in each risk category

	Total Area (km ²)					Catchment Areas of Sensitive Receptors (km ²)				
	Total	Zone 1 Low	Zone 2 Moderate	Zone 3 High	Zone 4 Very High	Total	Zone 1B Low	Zone 2B Moderate	Zone 3B High	Zone 4B Very High
National	66976	42214	7568	4633	12560	14534	10374	1486	873	1801
Carlow	880	545	144	67	125	265	175	43	21	25
Cavan	1852	440	215	229	968	14	8	1	1	5
Clare	3106	2010	423	253	419	1874	1295	245	133	201
Cork	7279	5227	858	426	768	2718	1894	323	191	311
Donegal	4707	2842	463	334	1068	1218	821	108	74	216
Dublin	531	166	35	28	303	66	31	9	3	23
Galway	5808	3866	588	350	1004	2613	1822	255	161	375
Kerry	4623	3173	481	271	698	939	827	37	32	42
Kildare	1629	916	195	110	408	87	65	8	4	10
Kilkenny	2033	1088	363	189	392	222	150	36	16	21
Laois	1700	1145	216	122	218	879	659	101	48	71
Leitrim	1494	630	199	192	473	135	69	16	18	31
Limerick	2631	1213	357	297	764	186	100	24	18	45
Longford	1026	511	145	90	281	16	12	1	1	1
Louth	772	259	108	62	343	62	10	5	4	43
Mayo	5254	4201	488	232	333	988	830	77	39	42
Meath	2246	1163	228	154	700	22	4	3	1	14
Monaghan	1252	281	174	176	622	83	25	17	8	32
Offaly	1977	1559	176	90	152	68	54	7	3	4
Roscommon	2424	1501	314	207	402	366	272	38	16	39
Sligo	1772	1066	193	152	361	206	128	19	16	43
Tipperary	4200	3246	436	207	310	279	221	33	11	14
Waterford	1809	1475	133	58	144	499	444	21	10	24
Westmeath	1714	1356	163	76	118	11	8	2	1	0
Wexford	2301	932	283	163	923	263	100	25	24	114
Wicklow	1956	1406	190	100	261	456	349	33	20	54

Table A.2: Number of Inspections per risk area based on national allocation of 1,000 inspections

	Outside catchment areas of sensitive receptors					Inside catchment areas of sensitive receptors			
	Overall Total	Zone 1A Low	Zone 2A Moderate	Zone 3A High	Zone 4A Very High	Zone 1B Low	Zone 2B Moderate	Zone 3B High	Zone 4B Very High
Carlow	12	1	1	1	4	1	1	1	2
Cavan	48	2	3	5	38	0	0	0	0
Clare	55	3	2	3	9	10	6	6	16
Cork	99	13	6	6	18	15	8	9	24
Donegal	80	8	4	6	33	6	3	3	17
Dublin	15	1	0	1	11	0	0	0	2
Galway	98	8	4	4	25	14	6	8	29
Kerry	57	9	5	6	26	6	1	1	3
Kildare	25	3	2	2	16	1	0	0	1
Kilkenny	31	4	4	4	14	1	1	1	2
Laois	26	2	1	2	6	5	2	2	6
Leitrim	29	2	2	4	17	1	0	1	2
Limerick	50	4	4	7	28	1	1	1	4
Longford	17	2	2	2	11	0	0	0	0
Louth	18	1	1	1	12	0	0	0	3
Mayo	47	13	5	5	11	6	2	2	3
Meath	40	5	3	4	27	0	0	0	1
Monaghan	33	1	2	4	23	0	0	0	3
Offaly	16	6	2	2	6	0	0	0	0
Roscommon	33	5	3	4	14	2	1	1	3
Sligo	26	4	2	3	12	1	0	1	3
Tipperary	39	12	5	5	12	2	1	1	1
Waterford	16	4	1	1	5	3	0	0	2
Westmeath	14	5	2	2	5	0	0	0	0
Wexford	53	3	3	3	32	1	1	1	9
Wicklow	25	4	2	2	8	3	1	1	4

Table A.3: Characteristics considered during risk assessment

	Overall area (km ²)	Minimum number of inspections per county (based on national total of 1,000 [*])	% of county at Very High Risk	% of county with Extreme Groundwater Vulnerability	% of county with Very High Likelihood of Inadequate Percolation	% of county with catchment areas of Sensitive Receptors	DWWTS density (number of systems per km ²)
Carlow	880	12	14	33	6	30	8
Cavan	1852	48	52	30	62	1	8
Clare	3106	55	13	54	26	60	6
Cork	7279	99	11	52	13	37	8
Donegal	4707	80	23	74	15	26	7
Dublin	531	15	57	28	40	12	24
Galway	5808	98	17	41	38	45	7
Kerry	4623	57	15	50	25	20	6
Kildare	1629	25	25	7	22	5	10
Kilkenny	2033	31	19	57	19	11	8
Laois	1700	26	13	29	10	52	7
Leitrim	1494	29	32	25	75	9	5
Limerick	2631	50	29	29	36	7	9
Longford	1026	17	27	13	40	2	7
Louth	772	18	44	23	30	8	15
Mayo	5254	47	6	29	19	19	5
Meath	2246	40	31	12	31	1	10
Monaghan	1252	33	50	32	46	7	10
Offaly	1977	16	8	4	22	3	6
Roscommon	2424	33	17	35	35	15	6
Sligo	1772	26	20	31	47	12	6
Tipperary	4200	39	7	32	5	7	6
Waterford	1809	16	8	32	7	28	7
Westmeath	1714	14	7	6	15	1	7
Wexford	2301	53	40	28	37	11	11
Wicklow	1956	25	13	63	10	23	6

^{*} Inspections numbers rounded to whole numbers for allocation purposes

Appendix B: Example of Advisory Notice

ADVISORY NOTICE**WATER SERVICES ACTS 2007 and 2012**

NOTICE PURSUANT TO SECTION 70(H) OF THE WATER SERVICES ACT 2007 OF FAILURE TO COMPLY WITH THE DUTIES OF OWNERS OF PREMISES CONNECTED TO A DOMESTIC WASTE WATER TREATMENT SYSTEM AS SPECIFIED IN SECTION 70C(1) OF THE ACT.

To: [Name]
 From: [County Council]
 County: [County Name]
 Address: [Property Address]

WHEREAS the water services authority is of the opinion that the person to whom this notice is addressed has failed to comply with a duty specified under section 70C(1) of the Water Services Act 2007, namely:

1. The owner has contravened regulations made under section 70L of the Water Services Act 2007, or
2. The domestic waste water treatment system constitutes, or is likely to constitute, a risk to human health or the environment, and in particular - (i) creates a risk to water, or soil, or to plants and animals, (ii) creates a nuisance through noise or odours, or (iii) adversely affects the countryside or places of special interest.

CONNECTED PROPERTY

Address
 [Property Address]
 [Property Address] Multiple addresses if required

Townland

County

REASON FOR OPINION

#	Legislation Section	Advisory Notice Reason

MEASURES REQUIRED

#	Measures	Details

Ref: DWPR00000xx

NOTICE IS HERE BY GIVEN that the matters specified above must be remedied by you by
[dd/mm/yyyy]

WATER SERVICES
AUTHORITY STAMP

Signed By:

Print Name:

Dated this day of 20

DRAFT

IMPORTANT NOTES FOR THE PERSON ON WHOM THIS NOTICE IS SERVED

- It is an offence to fail to rectify matters specified in this advisory notice within the specified timeframe.
- Inspections carried out, and advisory notices issued, under the Water Services Act 2007 do not provide exemption from prosecution for public health or environmental offences under other legislation.
- You may, within 21 days of the issue of this notice, apply to the issuing water services authority to have a re-inspection carried out by an authorised officer of the water services authority. Your application must be (a) in writing and (b) accompanied by the re-inspection fee of €20. The fee will be refunded if this advisory notice is cancelled as a result of the re-inspection.

Appendix C: Legislation

Domestic Waste Water Legal Context

There are several pieces of European and national legislation which apply to domestic waste water treatment systems. The principal ones are summarised in this section.

Waste Framework Directive (75/442/EC)

In October 2009, the European Court of Justice (ECJ) ruled that Ireland had not adopted legislation to comply with Articles 4 and 8 of the *Council Directive on Waste 75/442/EEC* (C-188/08). The Court concluded that Ireland had failed to comply with its legal obligations relating to the regulation of domestic waste water treatment systems and lacked, in particular, systematic periodic checks and inspections of DWWTSs.

Article 4 of the Directive requires that: *'waste is recovered or disposed of without endangering human health and without using processes or methods which could harm the environment and in particular:*

- (a) without risk to water, air, soil and plants and animals,*
- (b) without causing a nuisance through noise or odours,*
- (c) without adversely affecting the countryside or places of special interest.'*

Article 8 of the Directive provides that Member States: *'shall take the necessary measures to ensure that any holder of waste:*

- (a) has it handled by a private or public waste collector or by an undertaking which carries out the operations listed in Annex II A or B, or*
- (b) recovers or disposes of it himself in accordance with the provisions of this Directive.'*

Water Framework Directive (2000/60/EC)

The Water Framework Directive aims to improve water quality throughout the EU. It applies to rivers, lakes, groundwater, and coastal waters. The Directive requires the preparation of management plans on a river basin basis and it then requires a programme of measures for improving water quality.

Water Services Act, 2007

The Water Services Act 2007 (No. 30 of 2007) places a 'duty of care' on the owner of a waste water treatment system (Section 70) to ensure that 'it is kept so as not to cause or be likely to cause a risk to human health or the environment'. It also gives powers to a person authorised by the WSA to direct the owner to take such measures as are considered necessary to deal with the risk. Inspections other than the risk-based inspections set out in this Plan may be undertaken by authorised persons under the Water Pollution Acts.

Water Services (Amendment) Act, 2012

The Water Services (Amendment) Act, 2012 (No. 2 of 2012) provides for the registration of domestic waste water treatment systems, the preparation of a National Inspection Plan and the inspection and remediation of treatment systems that are impacting on health or the environment.

Section 70K of the *Water Services (Amendment) Act, 2012* requires the EPA to prepare a National Inspection Plan for domestic waste water treatment systems and sets out the items to be considered by the EPA when drawing up the Plan. WSAs are required to give effect to the Plan and failure to do so is an offence. The legislation also makes provision for the revision of the Plan.

The standards that domestic waste water treatment systems shall meet are set out in the *Water Services Acts 2007 and 2012 (Domestic Waste Water Treatment Systems) Regulations 2012* (S.I. No. 223 of 2012). These regulations were published in June 2012 following a public consultation process by the DoECLG. The regulations prescribe the actions to be taken by owners of domestic waste water treatment systems to ensure compliance with their obligations under Section 70(C)(1) of the *Water Services (Amendment) Act 2012*.

An Ghníomhaireacht um Chaomhnú Comhshaoil

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

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

ÁR bhFREAGRACHTAÍ

CEADÚNÚ

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

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

FEIDHMIÚ COMHSHAOIL NÁISIÚNTA

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

MONATÓIREACHT, ANAILÍS AGUS TUAIRISCIÚ AR AN GCOMHSHAOL

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

RIALÚ ASTUITHE GÁIS CEAPTHA TEASA NA HÉIREANN

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

TAIGHDE AGUS FORBAIRT COMHSHAOIL

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

MEASÚNÚ STRAITÉISEACH COMHSHAOIL

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

PLEANÁIL, OIDEACHAS AGUS TREOIR CHOMHSHAOIL

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

BAINISTÍOCHT DRAMHAÍOLA FHORGHNÍOMHACH

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

STRUCHTÚR NA GNÍOMHAIREACHTA

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

Tá obair na Ghníomhaireachta ar siúl trí ceithre Oifig:

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

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

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