water matters

*"Have **your** say!"*

neagh bann
international
river basin district

North South Shared Aquatic Resource (NS SHARE)

Invitation to comment

You are invited to give your views on the implementation of the **EU Water Framework Directive** in the **Neagh-Bann International River Basin District**. This booklet says what the Directive requires us to do and how we are working together to implement it on the island of Ireland. It summarises the main issues identified to date and outlines proposals for dealing with them. Similar booklets have been produced for the seven other River Basin Districts in Ireland and Northern Ireland.

The Water Framework Directive (WFD) was adopted in 2000; it requires governments to take a new approach to managing all their waters: rivers, lakes, groundwater, estuaries and coastal waters. Member States must ensure that their waters achieve at least good status by 2015 and that status doesn't deteriorate in any waters. To achieve good status and preserve our best waters, it will be necessary to prepare and implement **management plans** for our waters.

While work on the Directive requires a considerable amount of technical expertise, it also requires the knowledge, understanding and views of people who use water in their everyday lives, whether they're drinking it, fishing in it, feeding cattle with it, swimming in it, using it in manufacturing or power generation or even just walking the dog beside it.

The Directive is not just about the environment: an economic analysis of water uses is an essential part of the process. This booklet lists the main uses and activities that may be affected by the management plans. Again, users' knowledge and understanding can help ensure that all the implications for people and the economy are considered.

That's why your views are being sought. You don't have to read the whole of this booklet (unless you want to) because, after a background section at the start, it is divided up into topics, and you can read just the topics you're interested in. At the end, there's a section about the next steps in the Water Framework Directive process, and some suggestions if you want more information.

This is how the booklet is structured:

Your views

We would like you to read this booklet and let us have your comments.

For each of the most important water-related issues, the booklet sets out:

- background information showing the extent of each issue and the way that it can cause water problems
- a summary of existing controls and an assessment of their adequacy
- the proposed actions, the parties responsible for taking those actions and the users who would be affected.

We are interested in receiving your comments on whether we have identified the most important issues, whether we have overlooked any significant issues and what you think about the proposed actions.

We will be consulting for six months on the water-related issues and suggested actions contained in this booklet. We will gladly accept your comments up until 22 December 2007. Early responses would be appreciated to allow more time to clarify and resolve issues that may arise.

This booklet is issued jointly by the responsible authorities for the Neagh-Bann International River Basin District; Environment and Heritage Service (Northern Ireland), and the county councils of Cavan, Louth, Meath and Monaghan (Ireland). You can send comments to either or both of the following:

Ms Cate Murphy
Secretary
Implementation Working Group
Environment and Heritage Service
17 Antrim Road
Lisburn
BT28 3AL
Catriona.Murphy@doeni.gov.uk

Dr Tony McNally
Monaghan County Council
Environment Section
County Offices
The Glen
Monaghan
Co Monaghan
tmcnally@monaghancoco.ie

We will comply with data protection requirements and will use information that you provide to compile a digest of responses. Please let us know if you wish your response to remain anonymous and we will include your comments in the digest without saying who made them. If you want to add new comments or information you can contact our website at any stage **(www.nbirbd.com).**

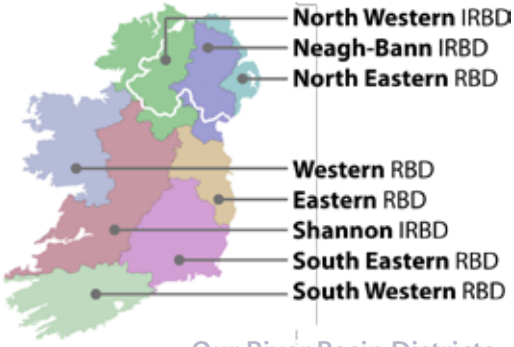
The next 11 pages provide some background information on water problems, the Water Framework Directive and the Neagh-Bann district.

Background: the WFD story so far

All the Member States of the European Union are moving towards **River Basin Management Planning** in accordance with the Water Framework Directive. The Directive aims to provide a new, strengthened system for the protection and improvement of water resources and water-dependent ecosystems. It aims at preventing any deterioration in the existing status of waters, including the maintenance of "high status" where it exists, and at ensuring that all waters achieve at least "good status" by 2015.

Neagh-Bann: an International River Basin District

The Directive requires Member States to identify river basins (or catchments) within its territory and to assign these to **River Basin Districts** (RBDs), which will serve as the "administrative areas" for coordinated water management. A cross-border basin covering the territory of more than one Member State must be assigned to an "**International RBD**". Some 400 river basins on the whole island of Ireland have been grouped and assigned to a total of eight RBDs. One of these RBDs lies wholly in Northern Ireland, four lie wholly in Ireland and three are International RBDs. The Neagh-Bann International River Basin District is a cross-border area lying mainly in Northern Ireland and partly in Ireland. The responsible authorities must coordinate their water management actions in relation to the district.



Our River Basin Districts

This booklet is issued jointly by the responsible authorities for the Neagh-Bann International River Basin District; Environment and Heritage Service (Northern Ireland), and the county councils of Cavan, Louth, Meath and Monaghan (Ireland).

A new approach to managing our waters

The Water Framework Directive takes a new approach to managing waters. This approach is distinctive in several ways, but perhaps the most important are:

- its comprehensive approach to the water environment in the whole district
- its structured approach: find out the facts, decide which of them need action, make a management plan, carry out the plan
- its requirement on all responsible authorities to coordinate their actions for water management.

There is a wide range of existing legislation that contributes to the protection of our waters; we have not listed it all in this booklet but if you are interested you can access the relevant legislation on websites through the links at **www.nbirbd.com**. It includes existing directives, daughter directives and measures to reduce pollution, for example the Urban Wastewater Treatment, Nitrates, Bathing Waters, Shellfish, Habitats and Dangerous Substances Directives. The Water Framework Directive encompasses all of this legislation. These controls are already being implemented in both jurisdictions, Ireland and Northern Ireland; however, the challenge is to coordinate these controls for optimum effect.

The comprehensive view also applies to human activities: if they affect the water environment, they have to be taken into account.

The first phase of the Water Framework Directive is being implemented, up to 2015, and there will be further phases to follow.

Much work has gone into finding out the facts: identifying all the waters in each district, finding out their current status and condition, listing the uses made of the waters and the pressures on them. That work is continuing, but there is enough information at this stage to put the preliminary findings in this booklet and ask the general public to comment on them.

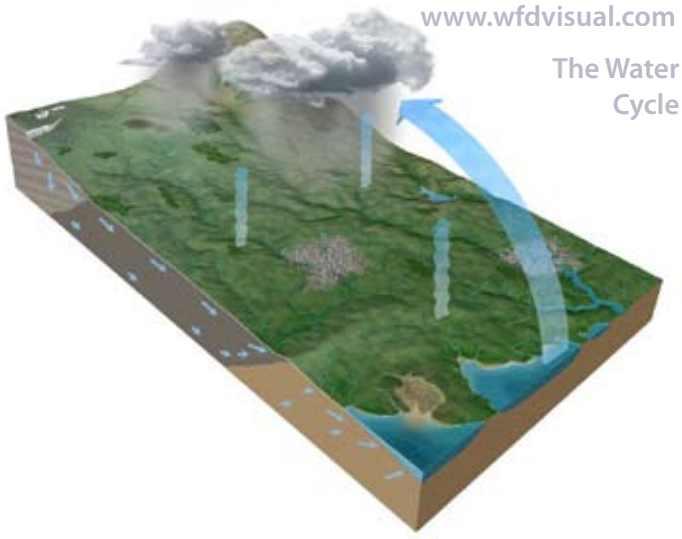
That is what this booklet is about. It is a preliminary overview of our main water related issues and the actions suggested to address these issues. You are being asked to help by checking this overview and making comments to correct or improve the listing of issues and suggested actions.

The relevant authorities are required to adopt a **River Basin Management Plan**. A draft plan will be issued in 2008, and you will have a further opportunity to comment at that stage. The final version of the plan is to be published by the end of 2009. The plan will identify the specific environmental objectives to be achieved by the end of 2015 and the programme of measures, that is the actions, that will be taken to achieve them. The authorities in Ireland and Northern Ireland will work to ensure coordination of River Basin Management Planning for the whole of the Neagh-Bann International River Basin District.

In effect, this booklet is an outline of the proposed plan; if you're interested in or likely to be affected by the plan, now is an opportunity to speak - **have your say!**

Why water matters

Water sustains life. The water on our planet flows in a constant cycle, driven by heat from the sun. Rainfall and melted snow seep underground to become **groundwater,** which emerges as springs feeding rivers. Rivers drain land from mountainous uplands, passing through lakes on a meandering journey to estuaries and the sea. These waters provide the variety of habitats that aquatic plants and animals need.



Water is essential for life. Humans need it for drinking and food preparation. It is also vital to our natural environment, supporting plants and animals. Water is critical to our economy, generating and sustaining wealth through activities such as agriculture, commercial fishing, power generation, industry, services, transport and tourism. However, water is a fragile resource that needs to be protected.

The area of land that a river drains is called its catchment or **basin**. The basin contains all surface waters (rivers, canals, lakes, reservoirs, estuaries and coastal waters) and the underground waters (groundwaters), together with the lands that drain into them. Our environment is not bounded by political borders, although the responsibilities for managing waters are. The activities that take place anywhere in the basin, even in remote upland areas, can affect the waters downstream. For example, the health of Lough Neagh or Carlingford Lough can be affected by activities as far upstream as the Mournes. **River basin districts**, containing adjacent basins, are the natural unit to manage our waters.

Water goals

Waters must be of sufficient quantity and satisfactory quality to protect our aquatic environment and beneficial uses.

Many of our waters are still healthy and the first challenge is to take action to preserve their status.

Unfortunately, there are also cases of waters choked with weeds and algae, and more severe incidents of fish-kills or contaminated drinking waters. Abstracting too much water can cause very low water levels in dry weather. Our challenge in these cases is to take action to restore such areas to their natural healthy state.


Lough Neagh at Toome Bridge, Co. Antrim

So there are two main tasks to be undertaken:

- where waters are **high or good status**, manage them so they stay that way
- where they are **less than good status**, manage them so that they improve to at least good status.

The quality of our waters will soon be classified against new water quality standards being developed by environmental agencies. Actions will be set out within the management plans to ensure that waters meet these new standards.

Human activity and impacts on water

The population of Northern Ireland is 1.7 million, 0.6 million of whom live in the Belfast metropolitan area. Over 4.2 million people live in Ireland, 1.3 million of them in the greater Dublin area. Generally, the east of the island, with its urban areas and fertile soils, is more densely populated than the west.

By 2021 there may be an additional one million people living on the island, partly because the strength of the island's economy has attracted inward migration. Large multi-national corporations have been attracted too: they have invested in Ireland and Northern Ireland because they value the island's competitive location, well managed and stable economies and highly educated workforces.

Ireland's economy has experienced unprecedented economic growth since the early 1990s. Traditionally based around agriculture, particularly livestock farming, it is now dominated by services and industry, with significant exports of electronics and pharmaceuticals. Northern Ireland's economy was historically more industrial, with engineering (aircraft and ship building) and textile manufacture, but in recent years general manufacturing has declined whilst the service sector has grown. The economy should benefit from political agreement and devolved institutions and economic prospects are good.

Both jurisdictions have seen expansion in other sectors: construction and consumer spending have increased and tourism, including recreational fishing and golf holidays, is a major growth industry throughout the island.

Our waters have been affected by these changes:

- more people and increased household water usage require bigger water supply schemes and produce larger volumes of wastewater to treat and dispose of
- demand for more food and industrial goods leads to more intensive or expanded activities with higher water demand and pollution threats
- additional homes mean the spread of urban areas and an increase in rural housing, with the associated threat of more water pollution. Building developments may necessitate more flood control works
- ports handling more exports and imports mean busy shipping routes and demand for port expansion.

In Ireland, recent monitoring of our waters has detected the first signs of a reversal of the downward trend in water quality: this improvement results from investment and improved working practices. Water quality surveys in Northern Ireland have also measured improvements in certain waters resulting from water management actions. It is vital for our water environment, and the economy that depends on it, that recovery continues. We must take practical action to balance our demands so that all our waters are in a healthy state:

- so that drinking water sources are sufficiently protected to guarantee quality of supply
- so that we have enough water to sustain commercial use
- so that our native aquatic plant and animal communities are protected
- so that our waters can be used for recreation and tourism.

Common water problems

Perhaps the most common environmental water problem is **pollution**, which can threaten all parts of the water cycle from groundwaters to rivers, lakes, estuaries and coastal waters. Pollution means that there is too much of a harmful substance in the water: for example a poisonous metal or pesticide, a nutrient that causes excessive growth of weeds, or even silt that can smother fish spawning beds.

Pollution can arise from two types of sources:

- local **point** sources, for example pipes discharging effluents from industries, wastewater treatment plants, urban areas or mines
- widespread **diffuse** pollution sources, such as land use activities like farming, forestry or septic tanks.

The effect of **physical modifications** on waterways is of growing concern. Waters are modified so we can make particular use of them. Examples include:

- drainage of lands for development, agriculture, forestry or peat extraction
- construction of flood defences or weirs to control river water levels
- damming of lakes to provide storage for power generation or water supply
- port developments or construction of coastal defences to prevent flooding or erosion.

These engineered modifications can either directly remove habitat or indirectly change the natural structure or flow of our waterways. This may mean a reduction in biodiversity, loss of rare or endangered habitats and species or depletion of valuable fish stocks.

Abstraction of unsustainable amounts of water is another potential problem for both underground and surface water resources. If we remove too much water for drinking or commercial purposes, we reduce an ecosystem's ability to function. In extreme cases we can dry up river beds or lake shores, or even cause salt water to be drawn into the water beneath our coastal rocks.

Our water environment is also facing other threats. One example of an emerging problem is the spread of **invasive alien species**, such as the Zebra Mussel. These are non-native aquatic plants or animals that can displace and upset the natural balance of our native species. Another example is **climate change**; its impact is difficult to predict, but heavier winter rainstorms may cause more flooding, raising demand for flood controls, whereas summer droughts could affect abstractions or water quality.

The Neagh-Bann district and its waters

The Neagh-Bann district is an **international river basin district**: around 6,000 km^2 in Northern Ireland and 2,000 km^2 within Ireland. It takes in all of County Armagh, large parts of Antrim, Louth, Monaghan and Londonderry, significant areas of Down, Meath and Tyrone and small areas of Cavan and Fermanagh.

The district is flanked by the Sperrin Mountains to the north-west, the Antrim Plateau to the north-east and the Mourne Mountains and uplands of Monaghan and Meath to the south. The northern part contains the broad, very fertile Bann valley; the southern part is dominated by small drumlin hills from the last ice age.

Over half a million people live in the district. Most of the main urban areas — Antrim, Ardee, Armagh, Ballymena, Banbridge, Coleraine, Cookstown, Craigavon, Dundalk, Dungannon, Monaghan, Newry and Portadown — are located beside rivers. In rural areas, many people live in small villages or single dwellings. The growing population increases pressure on the systems that deliver drinking water and treat wastewater.

Agriculture, mostly livestock grazing on pasture land, is the main activity. The district has internationally important wetlands, which support a wide range of plants and animals, and its waters provide fishing and boating: some areas within the district are popular holiday destinations. All of the activities in the district have the potential to impact our waters and therefore must be managed sustainably.

Our special areas

While all of our waters are important, some areas require greater protection because they contain rare and vulnerable habitats or wildlife. Research is being carried out to determine how best to protect these areas and their wildlife. Other areas are sensitive because of their beneficial uses or the need to protect human health. They include drinking water sources, shellfish growing areas and bathing areas, where we must guard against bacteria, viruses and parasites such as *Cryptosporidium* and *Salmonella*.

All of the areas and waters requiring special protection in the Neagh-Bann district have been identified, mapped and listed in a register (see **www.nbirbd.com**). They include parts of Dundalk Bay, Carlingford Lough and Clogherhead, the Sperrins, Slieve Gullion, the Mournes and Slieve Croob.

The principal **river** system is the Bann (on which Lough Neagh is situated) with its main tributaries the Blackwater, Sixmilewater, Maine, Moyola and Ballinderry. Smaller basins include the Newry River draining to Carlingford Lough and the Castletown, Fane, Dee and Glyde rivers draining to Dundalk Bay.

The main **lake** is Lough Neagh, almost 400 km^2, in the centre of the district: the largest lake in Britain and Ireland. Other lakes include Lough Fea, Lough Gullion, Portmore Lough, Stoneyford Reservoir, Spelga Dam, Cam Lough, Lough Island Reavy, Lough Ross, Lough Beg, Lough Muckno and Emy Lough.

Marine waters account for just over 200 km^2. There is a short length of coastline to the north where the Bann enters the North Channel. To the south the Newry River Estuary flows into the Irish Sea at Carlingford Lough and the Ballymascanlan and Castletown estuaries meet the Irish Sea at Dundalk Bay.

Permeable rocks and soils in the west of the district allow **groundwater** to be stored in underground **aquifers**, but most of the district has rocks and mixed clays that hinder water seepage.

The causes of our local problems

There is a wealth of knowledge available about our waters in national water quality reports, academic research and investigations. In 2004, all available information was investigated to identify the district's main problems: those that are widespread and those that pose the greatest threat of damage to our water environment. The analysis (see **www.nbirbd.com**) identified these potential problems.

Rivers: many rivers are under threat from diffuse and point source pollution, as well as physical modifications. A smaller number of rivers suffer from over-abstraction.

Lakes: again diffuse and point source pollution and physical modifications are key problems for our lakes. Abstraction affects a small number of lakes.

Marine waters: physical changes and pollution coming from the district upstream threaten many of our estuarine and coastal waters.

Groundwaters: diffuse pollution is the key influence on our underground waters. A few localised areas are affected by point source pollution or over-abstraction.

This table ranks our water problems: 1 = least threat and 5 = greatest threat.

	Rivers	Lakes	Marine Waters	Groundwaters
Point Source Pollution	**3**	**4**	**2**	**1**
Diffuse Source Pollution	**5**	**5**	**1**	**2**
Physical Modifications	**5**	**5**	**2**	**-**
Abstractions	**1**	**1**	**-**	**1**

Using local expertise

The Directive requires the involvement of a very wide range of public bodies, which are mentioned throughout this booklet. Two specific bodies have been set up to ensure their involvement: an implementation working group for authorities in Northern Ireland and an equivalent public authorities forum within Ireland. These bodies are referred to as the **authorities groups** throughout this booklet.

To encourage the public to participate in making and implementing action plans, special stakeholder groups have been established in both jurisdictions. Ireland set up an advisory council for each river basin district whose members are councillors, community representatives and stakeholders. Northern Ireland has established a national stakeholders forum and nine individual catchment stakeholder groups are being set up. These **participation groups** have already contributed knowledge, expertise and views that have helped in preparing this booklet. A full list of participants is available on **www.nbirbd.com.**

Local workshops and meetings were held with the district's public participation and authorities groups to debate the main issues and help to shape this booklet. The main water problems identified in the Neagh-Bann district were:

Point sources
- wastewater and industrial discharges
- other point sources: landfills, quarries, mines and contaminated lands

Diffuse sources
- agricultural activities
- wastewater from unsewered properties
- forestry activities
- usage and discharge of dangerous substances

Physical modifications
- including channel dredging, culverts, weirs, boat movements and floodplain demand

Abstractions
- protection of sources and prevention of water shortages

Locally focussed and future issues
- alien species/biodiversity
- protecting high quality areas
- shared waters issues
- future pressure trends and climate change.


Stakeholder Consultations

Question 1
Do you agree that these are the key causes of water problems within the Neagh-Bann district?

Positive steps

As you read earlier, recent monitoring in Ireland has detected the first signs of a reversal of the downward trend in water quality: this improvement results from investment and improved working practices. Water quality surveys in Northern Ireland have also measured improvements in certain waters resulting from water management actions. It is vital for our water environment, and the economy that depends on it, that recovery continues.

In the Neagh-Bann area, the public participation groups and authorities highlighted some areas where significant progress has been made:

- the recent nitrates action programmes that have been coordinated in Ireland and Northern Ireland will play a major role in addressing agricultural pollution
- use of new technologies in developments such as sustainable drainage schemes, constructed wetlands, silt ponds and riparian zone protection (for example; a sustainable drainage system has been built into the Toome by-pass and a major shopping centre at Dundalk)
- technology developments like animal manure digestor pilot schemes
- education campaigns like the recent Green Schools programme in Ireland
- upgraded wastewater treatment works throughout the district, which are making a real difference and have helped with Louth County Council's success in achieving Blue Flag Status for local beaches
- small community projects such as the Ballinderry River Enhancement Association, the Arney Wise Use of Water Project, and the Upper Bann River Enhancement Partners.

And there is more good news in that the responsible government authorities in both jurisdictions have so far successfully met all the Water Framework Directive's early milestones and are among the EU Member States showing the highest level of compliance with the Directive to date. So progress is possible: we can tackle the issues and manage our waters.

Planning our actions

It is time to think, plan and act to protect our waters. We have a legal obligation to comply with the Water Framework Directive, but more importantly if we do not meet this challenge we will have failed ourselves and future generations.

Actions needed to protect waters will be prescribed in **river basin management plans**. The first plans, for the period 2009–2015, will address our main water issues with second and third plans, for the periods 2015–2021 and 2021–2027, which will address any remaining issues or any new issues that may arise.

The water issues faced in both Ireland and Northern Ireland are very similar and the actions taken to solve these problems in our shared waters are being coordinated. The managing authorities groups within the Neagh-Bann district will each make action plans for the waters in their own jurisdiction, to suit their different legal and administrative arrangements.

Our activities must be sustainable, so that we protect our waters while continuing to enjoy economic development. The necessary changes will not just affect public authorities and industry; they will also apply to every individual. Everything that we do from washing dishes to fertilising gardens has a consequence for our waters.

Emerging and changing issues

The first management plans will address the district's main water issues. But what if we have missed something, or some new issue emerges before 2015?

New issues will emerge and the importance of existing issues will change along with economic and social changes driven by population growth, development demand and land use change. Climate change impacts may be complex and hard to predict, for example the spread of alien species may be stimulated by increased temperatures in waters, so these impacts will have to be reviewed during the plan.

A series of special studies are being carried out to update information and improve the understanding of our water issues. New areas, including the shared waters along the border and small coastal areas which were not fully covered in earlier investigations, are being assessed in greater detail this time around. Study highlights are presented in this booklet, but the detailed findings of the in-depth studies are available on the district's website **www.nbirbd.com**.

Slieve Gullion

Action themes

The Neagh-Bann public participation and authorities groups recommended the following action themes to overcome shortcomings in current water management:

- joined-up thinking: for instance, ensuring that development plans and upgrades are in place before new development is allowed
- more resources to improve response to water problems
- use of economic tools such as water charging or grants as incentives
- education and awareness campaigns
- keeping water on the political agenda.

Question 2
What is your view about these suggested action themes?
Have we missed something that would be helpful within the Neagh-Bann district?

Wastewater and industrial discharges

In urban areas wastewater from homes and industrial or commercial sources is collected and carried in public sewers to treatment plants, where many of the pollutants are removed. The sewers also drain storm water from urban areas including roads, roofs and recreational areas. The level of treatment is determined by the size of the population being served and the sensitivity of the receiving waters. The treated wastewater, or **effluent,** is discharged through an outfall pipe to our rivers, lakes, marine waters or, occasionally, to groundwater.

Ireland has 540 sewerage systems serving populations of between 500 and 1.7 million: 408 modern municipal treatment facilities and 132 smaller plants providing minimal or no treatment. Many of these smaller schemes are located on Ireland's coastline. Northern Ireland has 279 plants serving populations of more than 250: 35 of them serve populations greater than 10,000 and 3 serve populations over 100,000. Approximately 800 wastewater works serve populations of less than 250.

Between 2000 and 2006, authorities in Ireland and Northern Ireland invested almost €3/£2 billion to upgrade 210 wastewater treatment plants. In Ireland, local authorities have built over 90% of the infrastructure needed to comply with the Urban Wastewater Treatment Directive. Extra investment will be required to keep pace with population and economic growth; urban drainage must also cope with higher drainage demands. An additional €2.5/£1.7 billion may be invested in wastewater treatment under Ireland's National Development Plan 2007–2013. In Northern Ireland, a further €1/£0.6 billion may be spent by 2010.

Throughout the island of Ireland, there are some 700 major industries with discharges to waters, a further 1,800 small-scale commercial and industrial activities discharging to sewer systems and 3,500 discharging direct to waters.

How can wastewater and industrial discharges cause water problems?

Inadequately treated effluents can lead to unacceptable levels of pollutants (nutrients, bacteria, organic materials or dangerous substances) in receiving waters. These pollutants can damage water quality and downstream uses (for example bathing waters, shellfish waters or waters supporting sensitive species). The amount of dilution available is an important factor: a discharge from a small village into a large river may pose no threat to water quality, whereas a discharge from a larger town may cause significant quality deterioration in the receiving waters if the level of treatment or available dilution isn't adequate.

Spills to surface waters from sewerage networks release untreated wastewater and storm water, which can have nutrients, bacteria, organic materials and dangerous substances from homes and industries, metals and hydrocarbons from vehicle exhausts and run-off from roads, pesticides from parks, golf-courses and gardens. Leaking of pollutants from underground sewers and tanks can threaten groundwaters and surface waters.

In the Neagh-Bann district, estimates indicate that municipal and industrial discharges produce over 25% of the yearly phosphorus load and over 10% of the nitrogen load. Some rivers (such as the Proules) have been seriously polluted by such discharges. In response, facilities are being improved in many urban areas including Carrickmacross, which discharges to the Proules, and other locations such as Banbridge and Ballyclare. More investment is needed to make sure that treatment plants can cater for the growing demands in the district. The potential impacts of sewer spills and run-off from roads were highlighted as water problems by the Neagh-Bann participation and authorities groups.

What existing controls are in place?

The Water and Sewerage Services Order was introduced in Northern Ireland in April 2007. It appointed a government-owned company (Northern Ireland Water) to deliver water and sewerage services. The order establishes a regulatory regime to ensure compliance with environmental, consumer protection and efficiency standards and sets out new rights for consumers.

The Urban Wastewater Treatment Directive requires Ireland's local authorities and Northern Ireland Water (formerly Water Service) to provide appropriate **wastewater treatment** for urban areas. Planning permission must be obtained for wastewater treatment plants from An Bord Pleanála or the Planning Service in Northern Ireland. The Water Order requires consents to be issued for any trade, sewage effluent or other polluting matter from commercial, industrial, or domestic premises to waters in Northern Ireland. The Foreshore Acts in Ireland and the Food and Environmental Protection Act in Northern Ireland apply controls on the construction of sewage disposal pipes on or near the foreshore.

Local authorities and Northern Ireland Water are obliged to monitor inflowing wastewater and effluent at treatment plants; their activities are assessed by the Environmental Protection Agency and Environment and Heritage Service respectively.

The Environmental Protection Agency and Environment and Heritage Service regulate major **industrial activities** under the Integrated Pollution Prevention and Control (IPPC) Directive. Small-scale commercial and industrial discharges to sewer systems and waters are licensed or consented by local authorities in Ireland, and Northern Ireland Water and

Environment and Heritage Service respectively in Northern Ireland. Industrial discharge controls lay down effluent quality and quantity conditions.

In Ireland, the Environmental Protection Agency and local authorities are responsible for addressing water pollution from **spills or leakage** under the EPA and Water Pollution Acts; in Northern Ireland, Environment and Heritage Service is responsible under the Water Order. In Ireland, the **Phosphorus Regulations** and **Dangerous Substances Regulations** require local authorities to control activities that may cause pollution. Specific bye-laws have been made in priority areas to control **urban discharges**; for example Dublin City Council has recently banned the disposal of fats and grease and has introduced a collection system to produce biofuel.

Many local authorities have adopted **Sustainable Drainage Systems** (SuDS), which control the quantity and quality of run-off waters by providing storage in tanks, swales or ponds. This delays or prevents discharge to streams or rivers until there is capacity to accommodate it or until it can be diverted to a treatment plant. SuDS guidance is also being progressed in Northern Ireland: Environment and Heritage Service works closely with Northern Ireland Water to identify and rectify unsatisfactory sewer spills, to rationalise sewer systems and to reduce their total number. Environment and Heritage Service issues performance standards that control spill frequency, volume of discharge and associated pollutant loads so that water quality objectives and desired amenity value of receiving waters are not compromised. Other agencies have also introduced controls: for example the National Roads Authority in Ireland, has a strategy for dealing with water quality considerations of **road development**.

Are these controls adequate to meet the new targets?

Recent changes, arising from the establishment of Northern Ireland Water as a government-owned company, mean that wastewater discharges from public sewerage infrastructure in Northern Ireland are now subject to enforcement action if the conditions of consent are not met or pollution incidents are caused by a failure to properly maintain and operate the infrastructure.

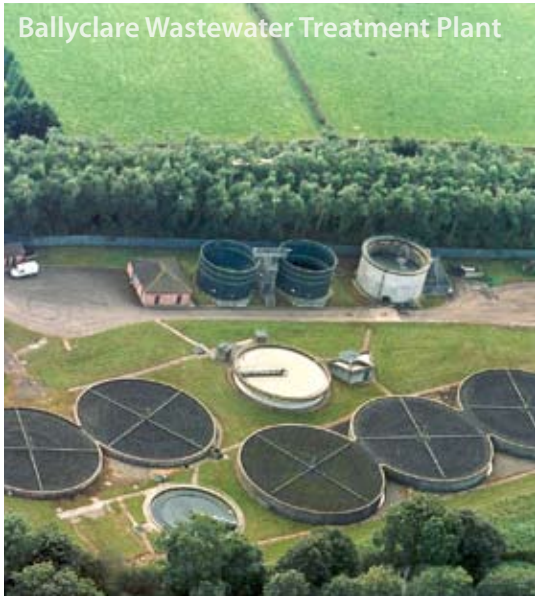

Oxidation Ditch at Crossmaglen

Controls in Ireland focus on infrastructure provision but may not adequately control the operation of wastewater treatment plants and sewage facilities. Local authorities are currently exempted from licensing requirements under Ireland's Water Pollution Acts. There are very few controls on the pollutant loads from spills and leakage of drainage systems. To meet new and more demanding water quality standards, a system of authorisation or licensing is required in Ireland.

Environmental Protection Agency reports on Urban Wastewater Discharges in Ireland have consistently highlighted the need to improve monitoring at treatment plants. A recent study in Ireland indicated that there is a shortfall of reliable monitoring data or results. This too needs to be addressed.

What additional actions are proposed?

In Ireland, the Department of the Environment, Heritage and Local Government is making new regulations to address the deficiencies in existing controls. The regulations will create a single national licensing system for the operation of local authority wastewater discharges and sewage facilities such as pumping stations and overflows. The system will be administered by the Environmental Protection Agency. The licences will set mandatory emission limits for pollutants to achieve new water quality standards in receiving waters and will specify monitoring requirements.


Ballyclare Wastewater Treatment Plant

Environment and Heritage Service will review wastewater consent conditions during 2008 to take account of the new water quality targets. Around 80% of Northern Ireland's river, lake and coastal catchments have been designated as sensitive to nutrient enrichment. That means that, within seven years of designation, wastewater treatment must include nutrient removal if the discharges go either directly or indirectly to these sensitive areas.

Industrial licence or consent conditions will have to be reviewed and revised to ensure that adequate controls and emission limits are set to achieve new water quality standards in receiving waters. This will require minor changes to licences or consents issued by the Environmental Protection Agency, Environment and Heritage Service, Northern Ireland Water or local authorities.

Detailed studies are underway in both jurisdictions to support the review of licensing systems and address urban spills. These studies cover the identification of the pollutants discharged in effluent, the pollutant limits to be set in licence conditions and best practice in spreading the sludge from treatment processes on agricultural land. Computerised web-based systems will provide better access to monitoring information and improve the management of wastewater treatment plants. Education and awareness-raising programmes will also be provided.

These proposed actions will result in stricter controls on existing and planned wastewater and industrial discharges to waters. Stakeholders directly affected by these proposed measures include Northern Ireland Water, Ireland's local authorities, transport authorities in both jurisdictions as well as industries discharging wastewater effluent to sewers or directly to waters.

Question 3
What is your view about the suggested actions to control problems related to wastewater and industrial discharge within the Neagh-Bann district?
Are these actions appropriate?
Have we missed something important?

Landfills, quarries, mines and contaminated lands

Waste disposal sites (including old un-lined landfills), quarries, mines, gasworks sites and industrial lands produce lesser discharges to waters than wastewater plants and industries, but residues or waste products from previous activities may have seeped into the ground and continue to threaten groundwater and surface waters around these sites.

Our knowledge of these sites is incomplete and needs updating to assess the scale of this problem. We have good records of today's engineered landfills but not of the contents or locations of past landfills. The Environmental Protection Agency list 86 contaminated sites (including 25 illegal landfills) in Ireland whilst Environment and Heritage Service's database lists hundreds of potential areas of land contaminated by previous use in Northern Ireland. Throughout the island, 850 quarries and 100 mines, both active and inactive, have been identified, most of them very small and unlikely to present a serious risk.

There are at least 225 unregulated or illegal landfills throughout the island. Northern Ireland's Environment and Heritage Service receive 1,000 to 1,200 reports of illegal dumping each year. Estimates suggest that in 2002–2004, up to 250,000 tonnes of household waste from Ireland were illegally dumped in Northern Ireland; the cost of removal is likely to exceed €40/£28 million. The two jurisdictions have agreed joint enforcement operations to penalise and deter illegal activities. An Environmental Protection Agency report in 2005 provided the first comprehensive overview of the scale of unauthorised waste activity in Ireland. It concluded that large-scale illegal dumping (as in County Wicklow during 1997–2002) had ceased and that illegal cross-border movement of waste had reduced significantly as a result of increased vigilance and cross-border cooperation.

How can these sites cause water problems?

The key threat to waters from these sites is potential contamination from pollutants (mainly dangerous substances, for example metals and fuel). These chemicals may travel through groundwaters and enter surface waters, affecting the quality of both, damaging aquatic plants and animals and impairing water uses.

There is a second possible threat. At some quarry sites, the water table is lowered to allow quarrying. This can affect nearby wetland areas, and the transfer of groundwater to surface waters can change water chemistry.

There is concern about the potential impacts of such sites in the Neagh-Bann district. One example is the illegal dumping that occurs along the border and uplands of the district, where sand pits or uncultivated land have been used to dispose of waste. The Neagh-Bann participation and authorities groups identified these as potential water problems in the district.

What existing controls are in place?

Both jurisdictions have legislation dealing with the establishment and operation of waste management, quarry and mine sites and contaminated lands; the legislation is supported by policies and guidance on best practice for addressing water pollution problems.

The Waste Management Act in Ireland and the equivalent Waste and Contaminated Land Order in Northern Ireland are the primary controls for regulated **waste management**. Licensing of waste facilities is administered by the Environmental Protection Agency in Ireland and Environment and Heritage Service in Northern Ireland.

Quarries that are four years or older must register with local authorities under the Planning and Development Act in Ireland. The Department of the Environment, Heritage and Local Government has prepared guidelines for local authorities on the registration requirements and process. In Northern Ireland, the Geological Survey of Northern Ireland compiles and maintains a register of working quarries and pits. Planning applications for new facilities, above a size threshold, generally require an Environmental Impact Assessment in both jurisdictions.

Proposed new **mines** in Ireland require three principal kinds of permits: a mining lease or licence from the Minister for Communications, Marine and Natural Resources, planning permission under the Planning and Development Act and an integrated pollution prevention and control licence from the Environmental Protection Agency. The recent Energy Act allows for preparation and implementation of mine rehabilitation plans for the protection of the environment, and grants rights of access if necessary to do this. In Northern Ireland, the Department for Enterprise, Trade and Investment grants prospecting and mining licences for exploration and development of minerals. Planning permission for mineral development is also required under Northern Ireland's planning system. The Geological Survey of Northern Ireland maintain and update registers of abandoned or working mines. Applications for all new mines generally require an Environmental Impact Assessment in both jurisdictions.

The Environmental Protection Agency Act and the Water Pollution Acts in Ireland and the Water Order in Northern Ireland identify responsibilities for addressing water pollution incidents and the requirement to consent discharges to waters. The Environmental Protection Agency, Environment and Heritage Service and local authorities in Ireland apply the principles of integrated pollution prevention, the polluter pays principle and the precautionary approach when dealing with historic, unregulated sites such as **contaminated lands**.

Are these controls adequate to meet the new targets?
The current regulatory controls assign the responsibilities for managing these sites. The challenge, throughout the island, is to enforce these controls, particularly to deal with historic, unregulated sites.

What additional actions are proposed?
Using a Code of Practice developed by the Environmental Protection Agency in 2006, local authorities in Ireland are identifying relevant historic waste disposal sites, assessing the threat to waters and, where necessary, developing plans to address problem sites. Northern Ireland's Waste Order will be amended to include new measures for the investigation, enforcement and prevention of waste offences, with increased penalties and new powers to stop, search and seize vehicles used in committing offences. Developers and contractors will be required to produce Site Waste Management Plans to ensure better management of waste from construction.

By the end of 2007, the Environmental Protection Agency, Department of Communications, Marine and Natural Resources and Geological Survey of Ireland will have completed characterising historic mine sites in Ireland, gaining better information about the sites and their environmental impact. There are new powers to rehabilitate mines and manage waste from extractive industries. In Northern Ireland, a similar Review of Old Mineral Permission (ROMP) for quarries and mines in Northern Ireland will set new environmental standards as conditions of existing planning permissions.

The Environmental Protection Agency has indicated that local authorities could apply its best practice guidance to identify and assess potentially contaminated lands in Ireland. The Department of the Environment in Northern Ireland has proposed Contaminated Land Regulations to cover the designation of special sites and their handling. Remediation notices could be served under the new controls listing the measures required to remove pollutants or return the land to an uncontaminated condition. A register detailing contaminated land sites, available for public inspection, would also be compiled.

These activities will confirm the locations and threats that these sites pose and support the control of discharges. Monitoring, extended where appropriate, will confirm the extent of the problem. In considering potential restoration measures, social and cost factors, as well as technical feasibility, will have to be evaluated. Education and awareness-raising programmes will also be provided.

These proposed actions will result in stricter controls on activities with the potential to discharge to waters. Stakeholders directly affected by these proposed measures include local authorities and district councils and industries, commercial enterprises and owners of land on which such activities have taken place.

Question 4
What is your view about the suggested actions to control problems related to landfills, quarries, mines and contaminated lands within the Neagh-Bann district?
Are these actions appropriate?
Have we missed something important?

Agriculture

Agriculture and the agri-food sector account for 7% of total added value in the island's economy and, in 2005, employed around 142,000 people, just over 5% of the combined workforce of both jurisdictions, in full-time, part-time or casual employment. Farms cover about two thirds of the island's total land area, 90% as grassland and 10% for tillage (mostly in the south and east of Ireland and the lowlands of Northern Ireland). Beef, milk and sheep account for over half of the value of agricultural produce; meat and milk products are major exports. Average stocking levels on farms in both Ireland and Northern Ireland are 1.3 animals per hectare, (1.8 in lowland areas).

Former European aid schemes, production demands and economic influences encouraged intensification: fewer farms, lower employment, larger herds and farms becoming more grass-based. Intensive piggery, poultry and mushroom enterprises are concentrated in south and mid-Ulster. Counties Cavan and Monaghan have the highest numbers of pigs and poultry respectively.

Environment and Heritage Service's latest report on Water Pollution Incidents and Enforcement identified agricultural activities as one of the three most common types of pollution in waters, responsible for 24% of Northern Ireland's pollution incidents. Likewise, the Environmental Protection Agency's most recent National Water Quality report identified agricultural activities as the main problem in one third of Ireland's moderately polluted river channels.

Reform of the EU Common Agricultural Policy, and new opportunities (for example the increase in biofuel crops), mean that the agricultural sector will continue to change and farmers will have an important role in our action plans.

How can agriculture cause water problems?

Environmental agencies have identified two main water quality problems relating to agriculture. A third, pesticides, is covered under Dangerous Substances. The two main problems are:

- enrichment of water by nutrients (phosphorus and nitrogen). Nutrients can be carried into waters from a range of activities on farms including contaminated water running from farmyards, or washed from fields that have been treated with nutrient-rich organic and chemical fertilisers or leaks from manure stores. The nutrients accelerate plant growth, which disturbs the balance of aquatic plants and animals and affects water quality. This eutrophication, as it is called, is the most widespread threat to our water quality
- organic pollution from animal slurry/manure and silage effluent. The breakdown of this organic material uses up oxygen that aquatic plants and animals need to survive, and suspended solids and ammonia can cause fish kills

(although such kills have reduced in number). Slurry can also contaminate drinking water with bacteria, parasites and viruses. Ireland's latest drinking water report shows widespread contamination of smaller rural water supplies from agricultural sources.

In the Neagh-Bann district, agriculture is a very important activity, using about 60% of the land. But estimates of nutrient input into waters indicate that agriculture produces over 60% of the yearly phosphorus load and 80% of the nitrogen load. Consultations showed significant local concern about the water problems that could result from agricultural intensification and also raised a local problem of fallen animals in waters.

What existing controls are in place?

Ireland's Department of Agriculture and Food and Northern Ireland's Department of Agriculture and Rural Development both operate within Europe's Common Agricultural Policy and environmental controls, so the key agricultural controls are set in the same European policy context, both North and South. In 2005, both departments opted for full decoupling of agricultural support from production under Europe's Single Farm Payment scheme.

Under **cross-compliance**, all farmers are required to respect the various Statutory Management Requirements set down in European legislation on the environment and on public, animal and plant health and animal welfare; they are also required to maintain land in Good Agricultural and Environmental Condition. In 2006, both jurisdictions introduced **nitrates action programme** regulations to provide statutory requirements for good agricultural practice in protecting waters from nutrient inputs; implementation will be monitored under cross-compliance. These regulations include controls on minimum storage requirements for livestock manure, nutrient management and land management actions that prevent or reduce water pollution. Monitoring and mini-catchment programmes in each jurisdiction will monitor the effectiveness of these nitrates action programmes.

Livestock Farming

Participation in **agri-environmental schemes**, such as Ireland's Rural Environment Protection Scheme (REPS) and Northern Ireland's Environmentally Sensitive Area (ESA) and Countryside Management Scheme (CMS) continues to increase. These schemes reward farmers for carrying out their activities in an environmentally friendly manner to bring about environmental improvement on farms; **organic farming** is also supported. At the end of 2006 over 13,000 Northern Ireland farmers (almost 45% of farmland) and almost 60,000 Irish farmers (around 50% of farmland) were participating in these schemes.


Fertiliser Application

Both agriculture departments provide investment aid for improved storage for **farm manure** and, in Ireland, also fund equipment for application to land. The 2005/06 schemes (with grant rates of 60% to 75%), helping farmers to comply with the requirements of the nitrates action programmes, had 48,600 applicants in Ireland and 4,800 in Northern Ireland.

In Northern Ireland, around 11,000 beef and sheep farmers are taking part in a **farm quality assurance scheme** involving audits and environmental care. The Department of Agriculture and Rural Development plays a strong advisory role, providing support on pollution control, and has recently issued a consultation on a **code of good agricultural practice** for the prevention of pollution of water, air and soil. Controls on agricultural water pollution are also contained in Northern Ireland's Biodiversity and River Conservation Strategies, available from **www.dardni.gov.uk** and **www.ehsni.gov.uk**.

The two Departments of the Environment, their environmental agencies (Environment and Heritage Service and the Environmental Protection Agency), fishery boards and Irish local authorities, also have powers of inspection and enforcement under **water pollution laws**, including the nitrates action programme regulations. These bodies undertake routine inspections and enforcement actions in response to water quality incidents related to agriculture. The two environmental agencies license intensive agricultural enterprises under the **Integrated Pollution and Prevention Control** (IPPC) system. Both jurisdictions apply IPPC Directive thresholds.

Under Ireland's **phosphorus regulations**, local authorities must identify, address, monitor and report on activities (including agriculture) associated with phosphorus pollution. In Ireland, some local authorities have made **bye-laws** to control agricultural activities in some priority areas. Local authorities also have responsibility for requiring agricultural **sludge** to be used in accordance with a Nutrient Management Plan to avoid contamination of soil and pollution of water.

In Northern Ireland, the Department of the Environment introduced regulations governing the **construction standards** for the storage of silage, slurry and agricultural fuel oil in 2003 and **phosphorus regulations** which control the use of chemical phosphorus fertiliser to crop requirement in 2006. Environment and Heritage Service is responsible for the enforcement of these regulations along with other legislation restricting the application of sewage sludge and other organic wastes to crop requirement.

Are these controls adequate to meet the new targets?

The recent introduction in both Ireland and Northern Ireland of good agricultural practice regulations and cross-compliance are evidence of the agricultural sector's role in protecting the majority of waters. However, these measures will be kept under review to ensure that objectives are achieved.

What additional actions are proposed?

The nitrates action programmes will be reviewed on a set timescale. Strengthened measures may be needed, for example in sensitive areas, if the action programmes have not shown adequate water quality improvements. In Northern Ireland there is a commitment to review the need for further phosphorus controls.

Detailed studies will assess the effectiveness of the nitrates action programmes. Ongoing surveys and mini-catchment studies, which are being progressed in both jurisdictions, will produce information to monitor trends in key agricultural and water quality indicators. One measure of effectiveness for agricultural practices is reduction in farm nutrient surplus which takes account of animal numbers, fertiliser sales and animal feeds; both jurisdictions have recorded a marked decline in fertiliser sales and/or animal numbers in recent years. Agricultural survey findings and indicators will be tracked and reported in the district's action plans.

Specific agri-environmental technological solutions may be implemented in appropriate areas: for example, grant aid is available for digestor schemes that treat excess manure from intensive enterprises. Voluntary agri-environmental schemes such as riparian zone restoration in sensitive areas are being encouraged. Education and awareness-raising programmes will also highlight these issues.

This series of recently reinforced actions will result in higher performance standards for agricultural activities. Stakeholders directly affected by these proposed measures include the agri-food sector: farmers and dependent industries.

Question 5
What is your view about the suggested actions to control problems related to agriculture within the Neagh-Bann district?
Are these actions appropriate?
Have we missed something important?

Wastewater from Unsewered Properties

In rural areas many houses and businesses are not connected to public systems that collect, treat and dispose of wastewater: they rely mainly on on-site systems (conventional septic tanks or proprietary systems), via soil percolation areas. Throughout the island, around 500,000 properties (20–30% of the total) are currently without public sewerage provision, representing over 1.6 million people (a quarter of the island's population), and generating around 300 million litres of wastewater a day.

There has been a large increase in development in unsewered areas:

- single dwellings or holiday homes, often in ribbon developments alongside roads leading from towns and villages
- housing clusters of up to 100 homes served by shared treatment systems
- commercial premises such as hotels and guesthouses
- light industrial facilities.

How can unsewered properties cause water problems?

To minimise impacts on water quality, treatment facilities should be located in suitable areas and designed, constructed and maintained to appropriate standards. If these systems are not working properly, nutrients, organic material, chemicals and bacteria may seep from wastewater into groundwater, contaminating nearby drinking water wells or damaging the quality of receiving rivers, lakes or marine waters.

The very limited research to date suggests that many systems are not working properly. An initial survey of on-site systems in three small sub-catchments placed 35% of systems at high risk of impacting water quality. Over half of County Cavan's population is served by on-site systems. Cavan County Council's 2002 pilot survey found that more than one third of on-site systems were defective. Many tanks were poorly maintained (not desludged) or poorly designed; in extreme cases, wastewater was bypassing percolation systems, entering streams by channels, pipes or across the ground. In the same year septic tanks caused nearly 30% of water quality complaints investigated in the county. Cavan County Council introduced bye-laws dealing with this issue.

Septic tanks were raised at every consultation event in the Neagh-Bann district as posing a potential problem to the district's waters. The counties in Ireland with the highest percentage of one-off housing units built since 1991 are counties Galway (52%), Roscommon (43%), Donegal (41%) and Monaghan (40%). Awareness throughout the district has been heightened by the introduction by Cavan County Council of bye-laws dealing with this issue. In Northern Ireland, the growing demand for rural housing has sparked a debate about planning policy and water pollution. As many rural properties are spread over wide areas, provision of public sewerage systems, especially ahead of new development, is very difficult and often very costly. Effective controls on planning, design, construction and operation of on-site systems are required to avoid water quality problems.

What existing controls are in place?

The planning system is the key control, ensuring the protection of our waters by restricting the location of new developments. Domestic, commercial and industrial developments must obtain **planning permission**, either via Ireland's local authorities or from Northern Ireland's Planning Service. Both jurisdictions have issued guidance to support on-site system control.

Ireland's Department of the Environment, Heritage and Local Government has issued **guidance on best practice** to local authorities about development plan policies, development control and enforcement standards and practices. The Environmental Protection Agency has published guidance manuals explaining the investigation and design requirements for systems serving individual premises. Northern Ireland's Planning Service has issued a **rural development strategy**; **standards** and **joint UK guidance** for on-site systems are also available and guidance is undergoing review.

In Ireland, small discharges of domestic sewage (from a typical septic tank serving a single dwelling) via a percolation area are exempted from **Water Pollution Acts** licensing. However, licences are required for larger discharges from septic tanks and other treatment facilities. Some local authorities have passed specific bye-laws covering priority areas where on-site system discharges have caused water quality problems. In Northern Ireland, Environment and Heritage Service **consent** all discharges and undertake inspections and enforcement for water quality incidents related to septic tanks and proprietary on-site systems.

Are these controls adequate to meet the new targets?

These controls and guidance play a major role in protecting water quality in unsewered areas, but problems arise where tanks or systems are not properly planned, designed, managed and operated.

In Ireland, the Environmental Protection Agency guidance manuals cover single houses and small commercial developments; new guidance is needed to cover clusters of houses or commercial developments discharging at a single location.

Northern Ireland's policy is being developed by Environment and Heritage Service to make practice more consistent and provide guidance for a wider range of situations.

What additional actions are proposed?

In Ireland, legislation is being amended to clarify and elaborate the statutory basis for the licensing of discharges to soil. The current guidance manuals for Ireland and Northern Ireland will be changed to improve existing controls.

Detailed studies are progressing to support the guidance. The aim is to ensure that new unsewered development is located in areas where adequate on-site wastewater treatment and soil percolation can be achieved, rather than in areas where groundwater or surface water is vulnerable to pollution or where the risk of flooding is significant. Sensitive areas — used for shellfish growing or to supply drinking water — will receive particular attention. Local development plans and development control and enforcement practices will have to be modified to reflect these restrictions. The design of new facilities will have to consider soil, geology, surface water and groundwater, both at the site and around it. The guidance will also incorporate improved procedures for soil and hydrology investigation and rigorous controls for installation and construction supervision.

For existing systems, large unsewered populations are being mapped and methods are being developed to calculate the vulnerability of receiving waters to loading from on-site systems. In priority areas, where water quality is threatened, options such as providing main sewers or tank maintenance programmes will be investigated.

A monitoring system that can pinpoint sub-standard installation or performance is being developed. Study of Cavan County Council's bye-laws implementation and effectiveness will inform any future regulatory or enforcement changes. Education and awareness-raising programmes will highlight the issues.

These controls, combined with new water quality standards, will address problems caused by discharges from unsewered properties. These actions will result in the production of new guidance and stricter controls in unsewered areas; they will therefore affect developers in unsewered areas, owners of unsewered property and unsewered industrial and commercial enterprises.

Question 6
What is your view about the suggested actions to control problems related to unsewered properties within the Neagh-Bann district?
Are these actions appropriate?
Have we missed something important?

Forestry

Forest cover now accounts for just over 10% of the island's land area, up from about 1% in 1920. The objective in Ireland is to expand cover to 17% in the next 30 years. In Northern Ireland, the aim is to steadily expand woodland over the next 50 years to achieve 12% forest cover. The expansion of forest area may help to offset carbon emissions as trees are net carbon users. Forests can also provide recreational locations and create habitats, enhancing biodiversity when replacing other more intensive land uses.

Over 75% of forest cover on the island is coniferous; the rest is broadleaf, mixed or other wooded land. More recent, private plantations tend to have higher proportions of broadleaved species. About 57% of Ireland's forest cover is State-owned and managed by Coillte; in Northern Ireland, public forests amount to 70% of all woodland. Private forest owners have been planting in significant amounts since the 1980s: as their trees mature they will account for a greater proportion of forest cover and of timber harvesting (which now occurs mainly in state or public forests).

How can forests and forestry activity cause water problems?

Forests can have both positive and negative impacts on the environment. The negative impacts are largely related to poor management or to planting on unsuitable soils, and many of the current water problems associated with afforestation are a legacy of old practices, which have been subsequently amended.

When a forest is established, site cultivation and drainage may give rise to nutrient or sediment loss. Forest canopies intercept rainfall, some of which is returned to the atmosphere; the remainder is stored or finds its way to soil, underlying rock or surface waters. Changing canopy cover can alter the quantity and quality of water flowing from forested areas. Forest canopies can absorb air pollutants that may affect water quality, depending on the geological setting. Road construction and harvesting may also result in sediment and nutrient loss. Depending on the subsequent land use, inappropriate deforestation may result in soil erosion, slope instability, nutrient leaching and reduced water-holding capacity in floodplains.

The main potential water problems that can result are:

- acidification: forest canopies can capture sulphur and nitrogen compounds from the atmosphere. Rain becomes more acidic as it passes through the canopies to the ground below, and may worsen the chemical balance of receiving waters

- nutrient enrichment: forestry activities can introduce extra nutrients which, in naturally nutrient-poor areas, can lead to problems such as algal growth
- sedimentation: road-making and stream-crossing can cause erosion and sedimentation on susceptible soils. Mobile sediments may reduce water quality or damage sensitive areas
- flow pattern changes: the amount of water reaching the soil surface is reduced by evaporation of water intercepted by the canopy. Clearfelling of forests may lead to a change in flow patterns
- pesticide contamination: incorrect application of pesticides may result in contamination of waters.

Public and private forestry areas cover less than 5% of the land area within the Neagh-Bann district. However, many of them are in sensitive salmon and trout spawning areas in forested upland headwaters. This is a particular cause for local concern and underpins the need for adequate control on forestry operations in sensitive areas.

What existing controls are in place?

To ensure that all timber produced in Ireland is derived from sustainable managed forests, Ireland's Forest Service (part of the Department of Agriculture and Food) is implementing **Sustainable Forest Management** (SFM), with the **Irish National Forest Standard** as a framework for development and evaluation. A **Code of Best Forest Practice** covers all stages from seed selection through to the establishment and maintenance of timber harvesting.

Tree felling in Ireland is subject to licence under the **Forestry Act.** Landowners are required to give notice of intention to fell trees, following which Prohibition Orders are normally served. These remain in force pending the issuing of a Limited Felling Licence, which can include environmental and replanting conditions. General Felling Licences are normally granted to large estates with management programmes, or for lands where scattered trees must be cleared in order to enable new planting.

The Minister for Agriculture and Food introduced licensing regulations in 2006 to control **aerial fertilisation** in Ireland.

In Northern Ireland, the **Forestry Act** establishes statutory responsibility for promoting the interests of forestry, afforestation, production and supply of timber and the maintenance of adequate reserves of growing timber. Recent policy developments are anchored in the UK Government's international commitments on sustainable forest management, biodiversity and climate change. The UK **Forestry Standard** sets out criteria for sustainable forest management as the basis for forest monitoring; the **Forest and Water Guidelines** (substantially revised in 2003) set out the environmental principles and standards required.

The Forest Service and some private forestry interests are certified under the UK **Woodland Assurance Standard**, which is endorsed by the Forest Stewardship Council and assessed by third-party audit. Private woodlands are subject to the requirements of the UK **Forestry Standard**; about 3,500 ha of private woodland have also been certified under the UK Woodland Assurance Standard, bringing the total of woodland certified in Northern Ireland to 75%.

Forest Service implements **Environmental Impact (Forestry) Regulations,** carrying out environmental impact assessments of forest-related projects. Most forestry projects are eligible for grant aid, so Forest Service is notified that a development is intended.

Are these controls adequate to meet the new targets?

The existing legislation, binding environmental codes of practice and guidelines play a major role in protecting water quality in forested areas. However, as research increases knowledge of the interaction between forest and water, legislation and guidelines may have to be strengthened. For example, additional guidelines may be required on protection of highly sensitive catchments with species such as the freshwater pearl mussel, trout and salmon.


Tree Felling

Ireland's Forestry Act requires replanting of felled areas. It may need to be revised to allow certain previously-forested areas, particularly the more sensitive peatland sites, to be managed differently after clearfelling including the non-planting of these areas in the future.

What additional actions are proposed?

For forests and associated activities, the key actions are:

- to ensure implementation of current statutory regulations, guidelines and codes of practice. Environmental protective measures for forestry in sensitive areas can include establishing riparian buffer zones in advance of harvesting, managing the size of coup (crop) area to be felled to limit nutrient input, managing drainage systems and establishing sediment control systems such as ponds or diffuse overland flow
- to introduce more stringent actions for the most sensitive areas, when scientific evaluation establishes a need. For example, nutrient loading could be reduced in sensitive areas by the phased felling of smaller harvesting coup rather than felling a large forest block all at once
- to ensure that future development is undertaken strictly within statutory regulations, water protection guidelines and codes of practice so that forests will have little or no impact on water quality. That applies especially in environmentally sensitive areas, with a need to limit nutrient and sediment losses and acidification.

Detailed studies are currently underway in Ireland to provide a better understanding of forests, forestry operations and water. Maps of areas sensitive to acidification, nutrient enrichment, sedimentation and flow change are being developed to improve the assessment of sites suitability for planting. The increased scientific knowledge will feed into any amendments to existing guidance and may result in revised guidance, if appropriate, to ensure proper assessment of sites suitable for forestry.

In Ireland, recommendations for the monitoring and assessment of forest activity will also be included in any updated guidance. A register of chemical use will be established detailing the specific material used, the quantity used, the date of application and the location of application. Education and awareness-raising programmes will also be used to highlight these issues.

In Northern Ireland, the Strategy for Sustainability and Growth provides a road map for addressing potential difficulties, for example, current unregulated felling and regeneration of forests will be addressed through the introduction of new regulations compelling forest owners to manage their woods with greater consideration to sustainability, including the timing and extent of felling and the composition of regenerating woods. The lack of an indicative forestry expansion strategy will be addressed through the development of maps indicating the areas where Forest Service believes that forests should be developed. These maps will take account, amongst other matters, of the water environment in connection with increased afforestation, particularly in environmentally sensitive areas with regard to limiting nutrient and sediment losses and acidification.

Codes of practice and guidelines must be applied rigorously to ensure compliance with water quality standards; modified or additional codes may be required, as well as some changes in the legislative framework governing forestry. These actions will therefore affect the forestry sector: both publicly and privately owned plantations as well as the associated saw-milling and processing industries.

Question 7
What is your view about the suggested actions to control problems related to forestry within the Neagh-Bann district?
Are these actions appropriate?
Have we missed something important?

Usage and discharge of dangerous substances

The term **dangerous substances** describes a wide range of chemicals that may be toxic to people, plants and animals and are harmful to our water environment.

They are contained in many everyday products used increasingly often in households (for example medicines and cleaning products), industry, forestry, agriculture, small businesses, mines, construction sites and water treatment works. Surface run-off from roads and urban areas can also contain dangerous substances from motor vehicle emissions.

How can dangerous substances cause water problems?

Some dangerous substances can be toxic to aquatic plants and animals at levels equivalent to a teaspoonful dissolved in an average swimming pool. They can persist in our waters and their sediments and slowly build up in the bodies of aquatic organisms, poisoning them and causing problems higher up the food chain or interfering with their natural breeding processes. Quality standards for dangerous substances are being determined by Europe-wide methods to protect the most sensitive of our species.

As there are many potential sources of dangerous substances, there are numerous ways that substances can enter our waters. These include regulated, unregulated or accidental releases such as:

- licensed industrial and municipal effluents
- authorised discharge from on-site wastewater systems
- contamination from applying pesticides to agricultural land, forestry, livestock, recreational areas, roads, paths, railways or gardens
- use of chemicals in aquaculture to control disease
- seepage from un-lined waste disposal sites or contaminated sites
- intermittent combined sewer overflow spills from urban systems
- accidental misuse or inappropriate disposal of products.

The threat from household usage and release of dangerous substances was voiced during consultations as a potential water problem. Dangerous substances spillages can be very damaging to our waters, requiring rapid response and costly clean-up operations, for example a spill of diesel from a fuel laundering plant into the Flurry River in May 2005. This incident required joint response by Environment and Heritage Service and Louth County Council. Oil booms were installed by authorities on both sides of the border and the landowner was forced to take action, employing a specialist clean-up company to remove the oil and bioremediate the site.

What existing controls are in place?

Ireland and Northern Ireland have set **drinking water standards**, **water quality standards** and **emission control standards** for a range of dangerous substances (including chemicals prioritised across the European Union and further substances of relevance in each jurisdiction). In Northern Ireland, Environment and Heritage Service, the Food Standards Agency and Northern Ireland Water undertake various dangerous substances monitoring programmes, for example under the OSPAR convention. In Ireland, monitoring is undertaken by local authorities, the Environmental Protection Agency and the Marine Institute.

Several agencies are responsible for enforcing various regulations aimed at controlling dangerous substances:

- major industrial activities are regulated by the Environmental Protection Agency and Environment and Heritage Service under the **Integrated Pollution Prevention and Control** (IPPC) Directive. Permits restrict the discharge of certain dangerous substances to waters
- these environmental agencies report the total discharges to water of key pollutants to the European Commission every three years under the **European Pollutant Emission Register** (EPER) initiative. Registers are important to verify that controls intended to reduce or phase out these discharges are working
- under regulations for the **Major Accidents** (Seveso II) Directive, industries that use dangerous substances above a threshold level must have procedures to prevent and control accidents
- in Ireland, under the **Water Pollution Acts**, local authorities license industrial and commercial premises that discharge to waters and have specific responsibilities under the **Dangerous Substances Regulations**. The Environmental Protection Agency administer these controls. Similarly, under Northern Ireland's **Water Order** and **Water and Sewerage Services Order**, Environment and Heritage Service and Northern Ireland Water consent trade or sewage effluent discharges to waters or sewers
- the Environmental Protection Agency, local authorities and Environment and Heritage Service are all involved in controlling discharges of dangerous substances to **groundwater**
- **aquaculture** and its associated activities are controlled in Ireland by the Department of Communications, Marine and Natural Resources, supported by the Marine Institute and local authorities. Aquaculture in Northern Ireland is controlled by Fisheries Division (Department of Agriculture and Rural Development). Loughs Agency and Environment and Heritage Service, supported by the Veterinary Medicines Directorate

- Ireland's Pesticides Control Service and Northern Ireland's Pesticide Safety Directorate authorise pesticide substances. The Health and Safety Authority and Irish Medicines Board are involved in dangerous substances approval in Ireland. Likewise, the Health and Safety Executive and Veterinary Medicines Directorate are involved in Northern Ireland.

Are these controls adequate to meet the new targets?

The current controls focus on a limited list of substances, but more substances now need to be controlled. The European Commission has proposed water quality standards for 33 priority substances and 8 other pollutants. Expert groups in Ireland, Northern Ireland and the United Kingdom have identified further specific pollutants that threaten local waters.

What additional actions are proposed?

By 2008, new water quality standards will be set following consultation in Ireland and Northern Ireland. This process will have to be repeated periodically as new concerns emerge about substances.


Oil Spillage

Dangerous substances at groundwater, river, lake and marine sites will be surveyed by the Environmental Protection Agency, Marine Institute and Environment and Heritage Service. Their status will be classified, monitored and reported upon.

The systems of licensing and authorisation also need to be updated and extended to cover the new range of substances and the activities discharging these substances. Under new regulations being made by Ireland's Department of the Environment, Heritage and Local Government, licences for wastewater treatment plant discharges and storm overflows will set mandatory emission limits and specify monitoring requirements to achieve new quality standards in receiving waters. The system will be administered by the Environmental Protection Agency. Other local authority discharges containing dangerous substances, which may require licensing, are being studied. In April 2007, Environment and Heritage Service set new consent limits for dangerous substances discharges from wastewater treatment works and water treatment works.

Industrial licence/consent conditions will be revised to set controls and emission limits adequate to achieve the new quality standards in receiving waters. This will require minor changes to existing Environmental Protection Agency, local authority, Marine Institute, Environment and Heritage Service and Northern Ireland Water licensing/consenting systems.

In June 2007, a new European regulatory framework for the Registration, Evaluation and Authorisation of Chemicals (REACH) set up a registration system for chemical usage. Chemicals identified under REACH will be assessed for the risks they pose to human health and the environment. It will be administered by the respective health and safety agencies, supported by the Environmental Protection Agency and Environment and Heritage Service.

The current EPER scheme will be replaced by the European Pollutant Release and Transfer Register (PRTR) from 2007 onwards. PRTR will include more substances (91 rather than 50) and industry sectors than EPER. The first PRTR data will be published in 2009.

The respective pesticides control units will continue to review pesticide authorisation based on the current scientific advice. The cycle of pesticide surveys has been harmonised between jurisdictions so that the same crops are surveyed in the same year throughout the island.


Effluent Discharge

Inventories of emission, discharges and losses of substances (whether prioritised by the EU or nationally) will be established so that the working of controls can be checked. These activities will all help to identify substances needing control through licensing, authorisation, water quality standards and monitoring. Education and awareness-raising programmes, and voluntary initiatives like the phosphorus-free detergents agreement, will also highlight these issues.

The new water quality standards and the extended monitoring, licensing and authorisation actions will address the major sources of dangerous substance discharges. Control, which will be coordinated between authorities in Ireland and Northern Ireland, will be stricter. Stakeholders directly affected by these proposed measures include the public, local authorities and industrial and commercial activities involved in the production, use, handling, storage or discharge of dangerous substances.

Question 8
What is your view about the suggested actions to control problems related to dangerous substances within the Neagh-Bann district?
Are these actions appropriate?
Have we missed something important?

Physical modifications

We have physically modified many of our waters for water supply, recreation, transport, flood protection, hydropower, aquaculture and land drainage. The extent of modification is being systematically assessed for the first time: throughout the island of Ireland there are over 110,000 culverts and bridges on our rivers, almost 1,500 kilometres of river embankments, thirty large water reservoir or hydropower dams, fifteen large ports and over 400 kilometres of coastal defences.

How can physical modifications cause water problems?

Physical modifications can directly affect habitats or indirectly change natural processes (for example flow or silt movement), altering plant and animal communities by reducing their variety or numbers. For example:

- rivers have a natural mix of pools and shallow riffles and variation of flow patterns, providing habitats for fish. Draining or maintaining rivers without recreating this natural mix can deprive trout and salmon of spawning habitats and thus reduce their numbers; protected areas fringing the waters can be damaged by reduced water levels or by flooding
- migratory fish need to access upstream spawning areas; bridges or weirs can restrict access and reduce spawning success and thus population numbers
- hard structures like ports and harbours can replace or reduce natural habitat
- land drainage, overgrazing, deforestation and cattle access can have an indirect effect on both surface and groundwaters, changing how much and how fast water drains off the land. The effect on one receiving stream may be small, but the combined effect can change water quality and flooding behaviour in a district, resulting in increased risk of property flooding.

Physical modifications in the Neagh-Bann district include Greenore Port, the control system on Lough Neagh and the Lower Bann, hydropower generating schemes on the River Maine and historic drainage works in the Blackwater catchment. Consultations have raised concern about widespread development on floodplains, especially its potential effects on water quality and flooding behaviour.

What existing controls are in place?

Planning and development processes and marine licensing systems provide a general level of control over physical modifications at the approval stage. But the existing controls are limited in scope and vary depending on the type of physical modification and its proposed location:

- the Office of Public Works and Department of the Marine, Communications and Natural Resources, Rivers Agency and Environment and Heritage Service are the lead authorities for **river and coastal flood and erosion** management
- **private developments** must obtain planning permission either via local authorities in Ireland or Planning Service in Northern Ireland. Planning guidance has been prepared for flood risk in Northern Ireland
- **fishing and aquaculture** activities are licensed by local authorities in Ireland, regional fisheries boards, the Department of Communications, Marine and Natural Resources, the Loughs Agency, Department of Culture, Arts and Leisure or Department of Agriculture and Rural Development
- works on the **foreshore** are authorised or licensed by the Department of Communications, Marine and Natural Resources or Department of the Environment
- for the disposal of **dredged material** at sea, permits are required from the Minister for Communications, Marine and Natural Resources or Environment and Heritage Service
- **Environmental Impact Assessments** are required in support of planning applications and foreshore licence applications for certain large developments
- in Northern Ireland, a new licensing system to control the **extraction of aggregates** was introduced in May 2007.

Are these controls adequate to meet the new targets?

There is no comprehensive system to control physical modifications and monitor and protect the physical conditions of surface waters. A comprehensive registration and authorisation system may be needed to control the impact of physical modifications.

What additional actions are proposed?

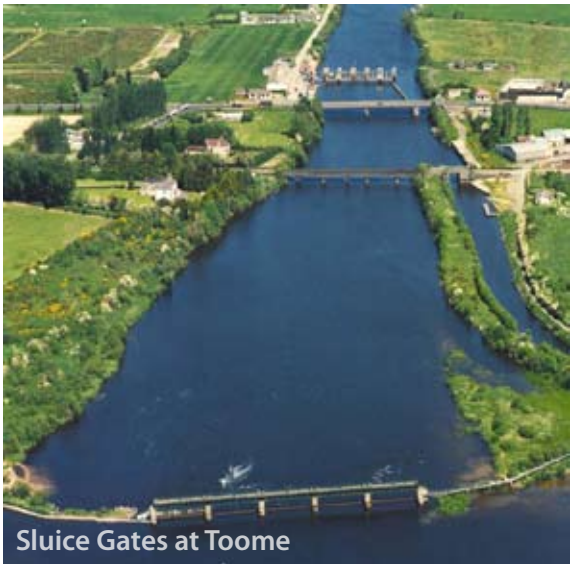
The European Commission is likely to adopt a Floods Directive in 2007. Flood risk assessments and mapping and the preparation of Flood Risk Management Plans will be required in both jurisdictions. The Office of Public Works in Ireland and Rivers Agency in Northern Ireland will lead the development of plans, which will address climate change effects, incorporating modern approaches of avoiding increased flood risk and non-structural solutions such as flood forecasting systems.

In Ireland, central government is currently considering the introduction of regulations to control physical modifications to surface waters. These controls may involve a licensing regime or registration based on general binding rules. In Northern Ireland, a similar review of existing legislative controls will be conducted to decide whether new legislation is required.


Greenore Point

Detailed studies of physical modifications and their effects are underway to support the development of controls on physical modifications. Progress so far indicates that the key sources of problems are:

- in fresh waters, river drainage works and land use changes. Monitoring methods that take account of the natural shape of the river and systematically record landscape changes within the surrounding area are currently being trialled
- in marine waters, coastal structures, land use change, ports and associated dredging. The sensitivities of habitats and of plant and animal communities to physical modifications are being explored.


Sluice Gates at Toome

The specific habitat requirements of salmonids and other fish are now well understood following research on the River Bush and elsewhere in Ireland. The feasibility of rehabilitating affected waters is being examined against social, technical and cost criteria; for instance, rivers with the potential to produce significant salmon and trout populations might be prioritised for remedial programmes. Measures might include channel narrowing, planting to stabilise river banks, introducing stone riffles or fish passes, replacing hard structures with soft elements (for example saltmarsh wetlands or beach nourishment) or compensatory habitat creation.

Guidance on best practice will cover construction techniques and timing of works, floodplain development control, good management and environmental initiatives such as Sustainable Drainage Systems (SuDS); it will ensure that proposed developments are consistent with flood and coastal management plans. A decision-making support tool will help regulators assess applications for new developments and maintenance works; the effects of physical modifications will be monitored. Education and awareness-raising programmes will be provided.

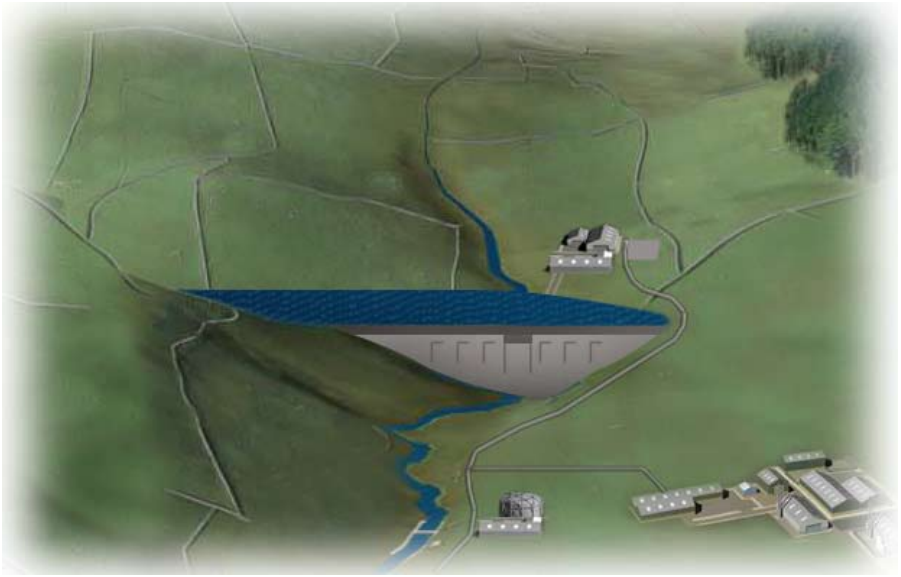
These proposed actions will result in stricter controls on existing and planned physical modifications to surface waters. Stakeholders directly affected by these proposed measures include developers and operators proposing engineered modifications to surface waters.

Question 9
What is your view about the suggested actions to control problems related to physical modifications within the Neagh-Bann district?
Are these actions appropriate?
Have we missed something important?

Abstractions

We use large amounts of water supply each day:

- at home for drinking, cooking, cleaning, bathing and flushing the toilet
- in agriculture for animals to drink and for dairy washing and watering crops
- recreationally for watering golf courses, sports grounds, etc
- in many different industries as an ingredient or, in the production process, for washing or cooling, or for power generation.



These uses add up to more than 2.7 million cubic metres (m^3) of water every day, almost 1 billion cubic metres a year, over the island of Ireland. All of that water has to be treated to a high standard to remove impurities and make it fit for consumption.

This water is abstracted either from surface waters or from groundwaters (wells and springs). In Northern Ireland, 90% of water supply is provided by Northern Ireland Water (formerly Water Service). The main sources of this public water supply are reservoirs (47%) and loughs (39%); rivers and groundwaters each supply 6%. Groundwater abstractions for industry, agriculture and small wells account for the 10% of private supply. In Ireland, local authority water schemes supply 83% of the population; the rest use private schemes (7%) or individual wells (10%). Ireland has around 550 surface water schemes (about 375 being large supplies of over 100 m^3 a day), and there are almost 2,000 groundwater wells (over 600 being large supplies).

The vast majority of these abstractions are currently sustainable. However, rising demand (due to population growth) and the impact of climate change may mean that some areas will experience a reduction in the available water resource in the future.

How can abstractions cause water problems?

If we abstract too much water from our underground and surface water resources, we reduce flow in springs and rivers and lower water levels in lakes, wetlands and wells. This can make water supplies unsustainable and can have a negative impact on aquatic plants and animals and wetland areas. In extreme cases river beds may dry up, lake shores can become exposed and, in coastal areas, salt water may seep into groundwater.

Consultations raised concerns about water supplies in the Neagh-Bann district. The rapid pace of development is leading to over-abstraction in some areas. Leakage from water supply systems was also raised: for example Dundalk is losing up to 40% of its supply due to leakage.

What existing controls are in place?

In Northern Ireland, new regulations were introduced in February 2007 to deliver efficient and sustainable water usage and protect waters from inappropriate abstractions. Any abstraction of a large volume of water must now be licensed by Environment and Heritage Service, which will assess the application on the basis of sustainability of water resources. Public and private water schemes are covered, but there are some exemptions, including emergency fire services.

The level of approval will depend on the volume of water to be abstracted:

- Permitted Controlled Activities are small-scale activities presenting a minimal risk (under 20 m^3 per day)
- licences apply to abstractions that will pose a greater risk: **simple licences** for 20 m^3 to 100 m^3 per day; **complex licences**, supported by more detailed impact analyses, for larger abstractions.

The agriculture and agri-industries sectors will have the highest number of licences (about 2,000), mostly simple licences. The public water supply sector will require about 60 complex licences for large abstractions. Other licences will include commercial/industrial (225), hydro power (70), fisheries (400), quarries (170), golf courses (150) and the food and drink industry (110).

Local authorities in Ireland obtain approval to abstract water from surface water sources under the **Water Supplies Act** and must establish and maintain registers of abstractions under the **Water Pollution Act.** Currently, individual water supply schemes operate under historical water rights agreements and new schemes are assessed as part of local planning approval systems.

The quality of drinking water is stipulated in **drinking waters regulations** in both Ireland and Northern Ireland. The **nitrates and groundwater directives** also contain requirements to protect the source of water supplies throughout the island.

Are these controls adequate to meet the new targets?

In Northern Ireland, the new regulations will adequately control water abstractions. Abstraction legislation in Ireland is dated and needs to be updated and extended to protect waters adequately, with a modernised system of registration and prior authorisation for significant abstractions.

What additional actions are proposed?

Ireland's Department of Environment, Heritage and Local Government will propose new regulations creating a single registration and licensing system for all significant abstractions from groundwaters and surface waters. The licence will set abstraction limits to preserve water resources and will also specify compulsory monitoring requirements. These proposed new controls in Ireland, like those recently introduced in Northern Ireland, will ensure appropriate supervision of all significant abstractions.

Detailed studies are underway in Ireland to establish, more accurately, the amount of water abstracted today, with predictions for the year 2015. Methods are being developed to calculate minimum water resource requirements to protect waters. The following requirements are being considered:

- in rivers the flow necessary to protect fish populations, especially during summer's low-flow period, is the key abstraction control
- in lakes the acceptable water level fluctuation is the key abstraction control
- in groundwaters a better understanding of water balance has been developed to protect water resources so that the water table and dependant plants and animals are not adversely affected.

Unsustainable abstractions are being identified: alternative sources of water may be required, with social factors, costs and technical feasibility to be evaluated. Proposed developments may be restricted if they are not consistent with development plans and supply scheme investment programmes. Leakage detection and reduction programmes will be promoted; guidance dealing with all these issues will be prepared; awareness-raising programmes will highlight these issues to domestic and industrial users.

These proposed actions will result in stricter controls on existing and planned abstractions. Stakeholders to be directly affected include public authorities using water or proposing abstractions, industrial, commercial and agricultural operations currently using water and developers proposing abstractions.

Question 10
What is your view about the suggested actions to control problems related to abstractions within the Neagh-Bann district?
Are these actions appropriate?
Have we missed something important?

Invasive alien species

Invasive alien species are non-native plants or animals that successfully establish themselves in our aquatic and fringing habitats and damage our natural flora and fauna. There is growing evidence that they pose a major threat to our diversity of native plants and animals: for example by preying on them, out-competing for habitat or food, altering habitat or introducing pathogens or parasites.

The Environmental Protection Agency and Environment and Heritage Service are working to establish a harmonised list of alien species for the island. They have identified six key alien species present in the Neagh-Bann district:

- **Australian Swamp Stonecrop** has been found on Lough Neagh, Lough Beg, Lough Island Reavy and the Gosford River. It forms dense carpets, shading out other flora, and depletes oxygen resources, competing with native aquatic plants
- **Common Cord Grass** and **Japanese Weed** have been found in Carlingford Lough. Common Cord Grass replaces native mudflat vegetation with a less diverse sward, reducing feeding resources for birds and altering the coastal landscape. Japanese Weed out-competes local species, such as seagrasses and kelp, for space and light
- **Water Fern** has been found in Lough Neagh and the River Bann and **Floating Pennywort** in Sixmilewater River. These free-floating plants form thick layers, completely covering the surface of slow-moving water, reducing light levels so that submerged native plants die off causing serious oxygen loss. Invasive alien plants can also cause localized flooding by blocking channels and drainage ditches
- **Zebra Mussels** have been found recently in Lough Neagh. They out-compete native mussels. They attach to firm surfaces, boat hulls, rock, gravel, other mussels and plants and spread easily into other systems.

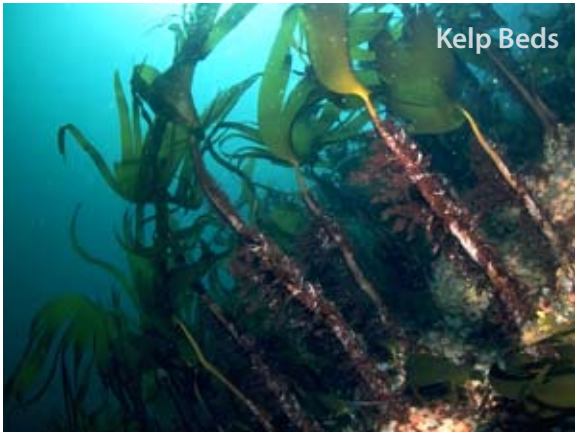

Zebra Mussels

Natural Heritage (Environment and Heritage Service) in Northern Ireland and the National Parks and Wildlife Service in Ireland are the primary authorities for biodiversity protection. They are jointly leading studies of how aquatic alien species spread and how to exclude them, remove them or, where eradication is not feasible, manage them. Risk assessments have been carried out for over 560 potential and established invasive species. Management plans will be prepared for the 10 highest-risk alien species or groups of species already here, with exclusion strategies or contingency plans prepared for the 10 highest-risk potential invaders. The studies will also review monitoring programmes and raise public awareness of the threats.

Other scientific groups and fishery organisations are undertaking supporting studies and will recommend control measures. Awareness-raising campaigns will also play an important part in our action plans.

Question 11
What is your view about the suggested actions to address alien species problems within the Neagh-Bann district?

Protecting high quality areas


Kelp Beds

High quality areas include surface waters (rivers, lakes, estuarine and coastal areas), which have suffered only minor impact from human activity and as a result are still near natural or pristine conditions. They support a naturally diverse mix of aquatic wildlife. Such areas have gradually declined since the 1970s when water quality monitoring began. Our objective now is to prevent any further deterioration.

In addition, there are other designated special areas which are specifically protected under legislation. These areas are of particular importance because of their value as drinking waters, bathing waters, shellfish waters or habitats. They may be protected because they contain unique and sensitive wildlife (for example salmon and freshwater pearl mussel) and/or habitats (for example raised bogs and coastal lagoons). Some areas are extremely sensitive, tolerating only minimal human impacts, and in some cases may require more stringent actions to protect them: for example freshwater pearl mussels and naturally nutrient-poor lakes.

The damage or loss of high quality and protected areas is often due to their sensitivity to land use changes in surrounding catchments: agriculture, forestry, peat harvesting and rural development activities. Our management plans will include more stringent controls on such activities in these sensitive catchments to protect the most sensitive user, which could be humans, via drinking or bathing waters, or protected habitats, plants or animals.

Natural Heritage in Northern Ireland and the National Parks and Wildlife Service in Ireland are the lead conservation authorities coordinating specific actions to protect these sites. They are leading studies to harmonise conservation action throughout the island, creating joint lists of sites protected under separate but complementary habitats and birds directives. A detailed study on the water quality and quantity requirements of priority habitats and species has identified field survey and monitoring needs. The agencies are jointly considering dovetailed conservation monitoring programmes. These actions will be progressed by the agencies working together in relation to our shared waters.

Other organisations will have a role in these nature conservation actions. This includes all government organisations as signatories of biodiversity and sustainability policies in Northern Ireland and Ireland.

Question 12
What is your view about the suggested actions to address sensitive area problems within the Neagh-Bann district?

Shared waters issues

The Neagh-Bann is an international river basin district. The Water Framework Directive promotes common approaches, standards and measures for water management and provides for the monitoring of water status on a systematic and comparable basis across the European Community. It also aims at ensuring that water management is coordinated on the basis of whole river districts: that is, on the basis of the natural, environmental unit rather than administrative or legal boundaries.


River Blackwater

Rivers and lakes throughout the island of Ireland are designated as a single region (Ecoregion 17) under the Directive. Likewise, all estuaries and coastal waters surrounding the island of Ireland are included in Ecoregion 1, which also includes marine waters in Scotland, England and Wales. Implementation of the Directive therefore creates the opportunity for all government authorities on the island of Ireland to co-operate on the sustainable management of our shared water environment.

The environment can suffer if policies and controls aren't applied equally in both jurisdictions, as when waste from Ireland was illegally dumped in Northern Ireland after Ireland introduced waste charging. This problem is being addressed by authorities in both jurisdictions acting jointly on waste management enforcement.

Organisations throughout the island, working closely together, have successfully met all of the early milestones of the Water Framework Directive. Cooperation is underpinned by joint participation on Directive implementation and technical groups.

This joint booklet shows that the water problems faced in Ireland and Northern Ireland are very similar and that the actions taken to solve these problems in our shared waters are being coordinated. The boundaries of, and pressures on, our shared, or cross-border, waters have been mapped for the first time. A coordinated assessment of all our waters has been undertaken so that we have a full picture of the problems that need to be addressed in our action plans. Organisations in both jurisdictions are currently developing coordinated approaches to surveys, water status systems, assessments and actions plans, and are committed to ongoing collaboration to implement the Directive.

Question 13
What is your view about the suggested actions to address the shared water issues within the Neagh-Bann district?

Future pressure trends and climate change

The problems that our waters are facing today may worsen in the future. Many pressures, such as population growth, development demand and land use changes, will increase as our economies continue to grow.

The impact of climate change is difficult to predict, but heavier winter rainstorms may cause more flooding, raising demand for flood controls, whereas summer droughts could increase abstractions and reduce the amount of water available to dilute pollution. Temperature changes might give invasive alien species a competitive advantage in our waters.

Detailed studies are underway to help assess these future trends and changes in the Neagh-Bann district and attempting to predict their potential affect on water status. The aspects being analysed include:

- **climate change**, which has the potential to affect water resources, agricultural practices, forestry management and biodiversity
- **agriculture**, which may change under European reforms, with more intensive farming patterns and practices in some areas of the district
- **population change**, identifying potential growth areas where facility upgrades will be needed
- changes in **land use policies**, in particular in the countryside.

Actions to address the consequences of these changes will be included in our management plans.

Flooding at Portadown

Question 14
What is your view about our approach to assessing future risks within the Neagh-Bann district?

What happens next?

Actions are our response to existing water problems and to growing threats. **Management plans** are to be prepared to respond to all the identified issues. Work on the preparation of plans for the Neagh-Bann district, and other cross-border districts, is currently underway by the relevant authorities, assisted by consultants:

- the **draft management plans** will be published in 2008, and you will have an opportunity to comment on them
- after further consultation, the **final management plans** will be adopted and published in 2009
- those plans will run to 2015.

The plans will set out environmental objectives together with actions (known as a **programme of measures**) that will aim to ensure these objectives are achieved in practice. The programme will include both **basic** and **supplementary** measures.

Basic measures

The first (and minimum) element of the programme will be the **basic measures** to implement existing water protection directives in full, for example the Urban Wastewater Treatment, Nitrates, Bathing Waters, Shellfish, Habitats and Dangerous Substances Directives.


Carlingford Lough

But our existing regulatory controls may not be sufficient to deliver improved comprehensive protection for all waters, as envisaged by the Water Framework Directive. Consequently, the basic measures may also include additional controls introduced for specified activities. Such actions include updated pollution controls (such as Codes of Good Agricultural Practice), new systems of authorisation (for abstractions, physical modifications or dangerous substances) plus general binding rules related to on-site systems and forestry.

Supplementary measures

The programme of measures can also include **supplementary measures** that augment basic actions to achieve water objectives. These include codes of practice, voluntary agreements, demand reduction, education, rehabilitation or research programmes and legal, administrative and economic instruments. These actions will be considered (either nationally or locally) on the basis of current monitoring and detailed studies that will give a firm idea of the scale and nature of water problems.

Affecting people

The first action plans will be adopted and come into effect in 2009; a draft will be published in 2008 for comment. These plans will have an effect on every individual in the Neagh-Bann district. The change that just one person can make will help to improve our waters. It is really important that you consider the issues raised in this booklet and how they will affect you. This booklet is intended to give you and all interested parties an overview of the main issues that have been identified, as well as possible actions to address them that might be included in a draft management plan. You may think that the actions are not practical, too strict or too lenient — or perhaps we have missed something that would be helpful. If so, this is your chance to tell us - **have your say!**









Before the draft is published

There is still important work to complete before the plans can be drafted.

Setting the environmental objectives for our waters

The authorities are developing guidelines or handbooks to promote the coordinated implementation of river basin management plans across river basin districts. They will set out in practical terms the legal obligations for establishing environmental objectives for water. Under certain restricted circumstances there may be exemptions; direction will be provided on their application. The guidelines will address such questions as:

- what are the default objectives for groundwaters and surface waters?
- what objectives apply to protected areas (bathing waters, shellfish waters, nutrient sensitive areas, protected habitats and species)?
- what objectives apply to heavily modified waters (for example ports) and artificial waters (for example canals)?
- what if objectives cannot be met by 2015 in some cases?
- what if there is a temporary deterioration in the status of a water body?
- what if objectives cannot be met because of new physical modifications or sustainable developments?
- what if the cost of achieving the objectives by 2015 is disproportionately expensive?

Integrating plans and programmes

The water objectives can only be achieved if plans and programmes in other relevant policy areas are coordinated and integrated. The guidelines will set out how this can be done. These plans and programmes include:

- Habitat and Species Protection Plans under the Habitats Directive
- Water Services (Ireland) or Northern Ireland Water investment programmes
- Nitrates Action Programmes
- Strategic national development plans and related local plans
- Flood Management Plans.

For example, this coordinated approach could mean prioritising investment (under Water Services Investment Programme) to eliminate known impacts on protected habitats (for example a Special Area of Conservation) where wastewater discharges are inadequately treated.

Cam Lough

Assessing environmental impacts

While River Basin Management Plans will have a positive effect on the water environment, their impact on other aspects of the environment, for example air quality or climate change, needs to be assessed. Therefore, they must be subject to Strategic Environmental Assessment (SEA). SEA is a system of integrating wider environmental considerations into plans and programmes. Its purpose is to provide a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of specified plans and programmes with a view to promoting sustainable development. SEA must be applied to plans and programmes which set the framework for future development consent for projects. This booklet is the starting point for the SEA of the river basin management plan. The problems and suggested actions in this booklet will assist the scoping of, and consultation about, the plan's wider environmental impacts.


River Callan

Assessing regulatory impacts

Achieving these new objectives may require the introduction of a range of new regulatory controls (for example licensing and registration of wastewater discharges, abstractions and physical modifications) to give legal effect to the actions. Regulatory Impact Assessments (RIAs) will be applied to regulatory proposals in both jurisdictions. The role of RIA is to evaluate the potential impacts of any new regulation and establish whether it would have the desired impact. For example, it is useful to identify potential side-effects or unforeseen extra costs associated with a new regulation. It also helps to clarify the cost of enforcement of the regulation. Future regulations for the implementation of the Water Framework Directive will generally be subject to RIA.

Implementing the management plans

Coordinated North–South implementation of the Directive has been facilitated to date, by the North–South SHARE Project, which is funded under INTERREG IIIA (total cost some €7.5/£5.3 million) and which supports the development of technical tools appropriate to conditions on the island of Ireland.

The task of implementing the management plans will fall, mainly, to the statutory authorities. In the case of the Neagh-Bann district, it is envisaged that a small unit will be set up by Monaghan County Council's Environment Department to coordinate the work of the statutory authorities in Ireland. In Northern Ireland, work will be coordinated by the Department of the Environment and Environment and Heritage Service, through the Interdepartmental Working Group, which includes the four main government departments responsible for implementing the plan.

Getting involved

Thank you for reading this booklet. Please send your comments and views to:

Ms Cate Murphy
Secretary
Implementation Working Group
Environment and Heritage Service
17 Antrim Road
Lisburn
BT28 3AL
Catriona.Murphy@doeni.gov.uk

Dr Tony McNally
Monaghan County Council
Environment Section
County Offices
The Glen
Monaghan
Co Monaghan
tmcnally@monaghancoco.ie

Public participation

As well as giving your views on the proposals in this document, you might like to participate in other aspects of the implementation of the Water Framework Directive. Public participation is one of the Directive's requirements but, even if it wasn't, it would be sensible: local stakeholders often know local problems best and can suggest practical solutions. The management plan needs local support.

It can be difficult to get people interested in protecting waters unless it is part of their job or they are already involved, for example as anglers or environmentalists. However, a group of environmental organisations from Ireland and Northern Ireland, collectively known as **The Wetlanders**, carried out a roadshow and survey to provide a snapshot of public participation in early 2007. They talked to almost 1,000 school children and in detail to farmers, anglers and tourist industry focus groups, who identified agriculture, housing and development, industry, sewage, dumping, climate change and quarries as serious water problems. The Wetlanders concluded that:

- the interest is there
- engagement is difficult
- local action is better than national campaigns
- creative approaches are needed
- conviviality works.

To encourage the public to participate in making and implementing action plans, stakeholder groups have been established in both jurisdictions. Ireland set up an advisory council for each river basin district containing councillors, community representatives and stakeholders. Northern Ireland has established a national stakeholders forum, with individual catchment stakeholder groups. These participation groups have already contributed knowledge, expertise and views that have helped in preparing this booklet. A full list of participants is available on **www.nbirbd.com**.

However, there are other ways of participating: by making individual comments on the proposals, by contacting the advisory council, stakeholder forum or catchment stakeholder group member who represents your sector or your local area, by attending public meetings or by participating in local voluntary groups like the parties within the Wetlanders. Log on to **www.nbirbd.com** to send your comments and ideas or to be put in touch with contacts in the district.

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