

Are they technically feasible?

Supplementary measures have to be technically feasible, which means they must ensure that waters achieve their objectives. It may not be technically feasible to solve every problem straight away, or even within the next three planning cycles, if:

- no technical solution is available or
- it takes longer to fix the problem than there is time available or
- practical constraints prevent implementation of the solution until a certain date or
- the cause of an impact is unknown so a solution cannot be identified.


Are they cost-effective?

The combination of supplementary measures must be the most cost-effective. Furthermore the cost of these combinations of measures must not be significantly greater than the benefits gained. Economic tests of supplementary measures involve these steps:

- assess the status of the waters against the target status to determine the gap that needs to be closed by measures
- consider how much of the status gap will remain after the basic measures have been fully implemented
- determine the key issues acting on the waters
- screen the technically feasible measures relating to these key pressures; this shortlisting recognises that not every solution is appropriate in all waters
- for each shortlisted measure, estimate cost and effectiveness (that is when and how much of the remaining status gap will be closed)
- formulate combinations of measures that together will achieve the target status. In some cases a single measure may suffice, but in general strategies will combine measures addressing more than one issue
- determine the most sustainable combinations of supplementary measures that will minimise impacts on the wider environment
- determine the most cost-effective combination of supplementary measures
- select the most effective combination of supplementary measures taking account of sustainability and cost-effectiveness.

Supplementary measures may be phased or deferred if:

- there is no technically feasible solution or there is low certainty that there is a problem to solve
- the measures are not cost-effective or are disproportionately expensive
- implementation of the measures, before a certain date, would not be in line with the polluter pays principle.

 Economic guidance and our economic characterisation baseline report are available with our background documents (www.wfdireland.ie). Further economic assessment of disproportionate costs will be undertaken in parallel with consultations during 2009 to refine the programme of measures.

Are they environmentally sustainable?

The impacts of the supplementary measures on the wider environment have to be considered to ensure that they are sustainable. To determine this, a Strategic Environmental Assessment has been applied in parallel with the preparation of this draft plan (www.wfdireland.ie).

The range of supplementary measures

The supplementary measures identified by our technical studies and considered in our draft plan are all judged to be technically feasible. The measures considered range from reducing the pressure at source (for example reducing nutrient loading on a wastewater treatment facility) through remediation by technical or engineering solutions (for example providing treatment upgrades) to relocation of the pressure (for example selecting a different discharge location).

Local authorities have considered this comprehensive range of possible supplementary measures and used the economic guidance to propose the measures that follow.


Tackling the issues

The issues for which supplementary measures may be needed are:

- the point and diffuse sources of pollution (each of which is considered separately below), which are likely to hinder the restoration of good status. They include some locally focussed and future issues. Note that tackling these sources,

- and especially dangerous substances, will also reduce chemical pollution
- physical modifications, also likely to hinder the restoration of good status
- abstractions, similarly likely to hinder the restoration of good status
- research and education.

Point and diffuse sources: wastewater and industrial discharges

 Water services authorities have to assess existing and proposed urban wastewater treatment facilities to determine whether the level of treatment will meet discharge authorisations set by the Environmental Protection Agency in line with new surface water environmental objectives. Supplementary treatment beyond the requirements of the urban wastewater treatment regulations has to be considered on a case-by-case basis where judged necessary to restore status. This may mean nutrient reduction from smaller discharges or more stringent treatment to remove chemical pollutants (removal of metals by chemical precipitation or removal of organics by activated carbon). Supplementary measures must be planned through the Water Services Strategic Planning process. Consideration is being given to establishing a supplementary budget under the Water Services Investment Programme and Rural Water Programme to finance priorities for supplementary treatment identified in Water Services Strategic Plans.

Technical studies commissioned by local authorities on point source discharges identified wastewater treatment plants and industrial discharges in the South Western District which may require supplementary measures:

- 51 urban wastewater treatment plants lack capacity to cater for the projected future increase in population within the catchment area of the plant. Limiting development, additional controls on licensed discharges and public awareness campaigns could be considered as possible supplementary measures.
- 19 treatment plants and 13 industrial discharges are discharging to waters where the available dilutions are considered insufficient to meet water quality objectives. Possible supplementary measures include further investigations to confirm assimilative capacity, reduction in wastewater treatment plant loading, applying a higher standard of treatment or relocating the point of discharge.
- 36 urban wastewater treatment plants and 9 industrial discharges are discharging to protected areas classified as less than good status. Supplementary measures could include initiating research to determine the impact of the discharge or applying a higher standard of treatment such as ultra-violet disinfection or filtration.

A suite of supplementary measures has been identified which should be considered for waters where the basic measures may not be sufficient to achieve the core objectives. More than one measure may apply to a point source. The total number of waters for which supplementary measures will be necessary is 388 nationally and 54 in the South Western District.

The number of waters where each of these supplementary measures need to be considered nationally and in the South Western District are as follows:

Table 8 Urban and industrial discharges supplementary measures nationally and in the South Western District

Code	Supplementary Measure	National Numbers	South Western District
Reduce			
S1	Measures intended to reduce loading to the treatment plant: - Limit or cease the direct importation of polluting matter (for example liquid wastes, landfill leachate, sludges). - Investigate the extent of use and impact of under-sink food waste disintegrators and take appropriate actions. - Investigate fats/oils/grease influent concentrations and take actions to reduce FOG entering the collection system.	218	40
S2	Impose development controls where there is, or is likely to be in the future, insufficient capacity at treatment plants.	331	50
S3	Initiate investigations into characteristics of treated wastewater for parameters not presently required to be monitored under the urban wastewater treatment directive.	198	22
S4	Initiate research to verify risk assessment results and determine the impact of the discharge.	331	35
S5	Use decision making tools in point source discharge management.	180	12

Remediate			
S6	Where necessary to achieve water quality objectives install secondary treatment at smaller plants where this level of treatment would not otherwise be required under the urban wastewater treatment regulations.	7	1
S7	Apply a higher standard of treatment (stricter emission controls) where necessary.	249	22
S8	Upgrade the plant to remove specific substances known to impact on water quality status	198	22
S9	Install ultra-violet or similar type treatment.	7	1
Relocate			
S10	Relocate the point of discharge.	249	22

Pollution from urban runoff and combined stormwater over flows needs further investigation due to the lack of existing data. Local authorities should increase investment in asset management. Water Service Strategic Plans, required under the Water Services Act, will be required to include for asset management studies focussing on the identification of discharges to waters from storm overflows and leaking underground sewers. Possible supplementary measures to reduce urban pressures include surveys, mapping, and research; codes of best practice or legislation (for example in relation to Sustainable Urban Drainage Systems (SUDS)); groundwater quality monitoring; improved infrastructure; and planning.

Review of industrial licences may necessitate supplementary measures for some discharges in order to meet new environmental quality standards. Supplementary measures will be determined after licence review and may address reduction and remediation of loading using the Best Available Techniques approach or consider relocation of discharge in a similar manner to waste water discharges measures.

Point and diffuse sources: landfills, quarries, mines & contaminated lands

Further investigation of landfill and quarry risks is needed before measures can be identified. Where investigations have identified waters impacted by mines or contaminated sites and associated urban areas, supplementary measures in the form of site-specific remediation schemes or closure plans are required to restore status. The supplementary measures to remediate these existing sites typically include pollution containment measures and monitoring requirements. The following sites have been identified as impacting status with assessment of appropriate remediation schemes required in the SWRBD:

- Contaminated lands/urban areas – an industrial area in Cork in the South Western District.

Point and diffuse sources: agriculture

There are a series of studies underway to evaluate the effectiveness of Ireland's *Good Agricultural Practice Regulations* in support of the Nitrates Directive. These studies include national water quality monitoring programmes to determine water quality impacts and trends and specific mini-catchment studies to determine the effectiveness of these basic agricultural control measures in a variety of settings. The National Action Programme will be reviewed in 2009 and every four years thereafter.

The review may identify new measures required at national level or measures targeted in some sensitive areas. If national measures are required, updated national regulation may reflect these as basic measures. If catchment specific measures are identified, these will be built into river basin management plans as supplementary measures.

Possible supplementary measures may include:

- Reducing** agricultural pollutant losses by creating buffer strips, fencing to prevent livestock access to watercourses, setting aside agricultural lands, reducing agricultural intensity, reducing levels of land reclamation or requiring nutrient management planning.
- Remediation** by targeted farmyard management system upgrades or rural environmental protection schemes/farm plans in priority catchments, requiring stricter storage or closed periods than the current Good Agricultural Practice Regulations.
- Relocation** by using digestors in areas of nutrient surplus or tankering in areas of nutrient surplus.

Point and diffuse sources: wastewater from unsewered properties



The proposed supplementary measures to support existing legislative measures include:

- enhanced inspection and enforcement and standardisation of procedures
- management of the process of site investigation for large systems
- development of a national register of Certified Site Assessors.

A supplementary budget may be established under the Water Services Investment Programme and Rural Water Programme to finance priorities identified in Water Services Strategic Plans.

Technical studies commissioned by local authorities estimate that the following on-site systems supplementary measures are required for numbers of on-site systems discharging to surface waters and groundwaters nationally and in the South Western District:

Table 9 Unsewered properties supplementary measures nationally and in the South Western District

Code	Supplementary Measure	National Numbers	South Western District
Reduce			
S1	Amend Building Regulations <ul style="list-style-type: none"> Code of Practice for single houses Code of Practice for large systems Certification of the construction of on-site wastewater treatment systems and percolation areas/polishing filters. 	All	All
S2	Establish: <ul style="list-style-type: none"> Certified national panel of experts for site investigation and certification of installed systems. A second panel of hydrogeologists is required for clusters and large systems. National group for formulating policies and coordination of consistent approach. A technical advice section or advisory group to coordinate and give advice on emerging and innovative technologies Installation and maintenance training by FAS. 	All	All
S3	For new developments: <ul style="list-style-type: none"> At planning assessment stage, apply the GIS risk mapping / decision support system and codes of practice Notice to planning authority required immediately prior to the installation of on-site effluent treatment systems including percolation areas and polishing filters. 	All	All
Remediate			
S4	Inspect existing systems in prioritised locations: <ul style="list-style-type: none"> Use the GIS risk mapping / decision support system to prioritise locations to be targeted in a programme of inspections and maintenance Use a database and action tracking system 	118,111 km ² surface water 25,460 km ² groundwater	4,870 km ² surface water 4,500 km ² groundwater
S5	Enforce requirements for percolation	35,433 km ² surface water 25,460 km ² groundwater	1,461 km ² surface water 1,350 km ² groundwater
S6	Enforce requirements for de-sludging	All	All
Relocate			
S7	Consider connection to municipal systems	Where feasible	Where feasible

Point and diffuse sources: forestry



Supplementary measures identified to ensure minimal impact on the aquatic environment include management instruments to ensure good governance and measures to mitigate acidification potential, nutrient enrichment and sediment loss. Some measures relating to hydromorphological impact and use of pesticides have also been identified. Recommendations have also been made for additional research and the trialling of some measures at catchment scale. These will lead to significant reduction in potential impact from forests and forestry practice into the future.

A suite of supplementary measures has been identified which should be considered for waters where the basic measures may not be sufficient to achieve the core objectives. More than one measure may apply to a forest source. Nationally the number of waters requiring remediation measures is: 89 acidification measures, 245 eutrophication measures and 308 sedimentation measures have been proposed (38, 79 and 83 measures respectively in the South Western District).

The number of waters where each of these supplementary measures need to be considered nationally and in the South Western District are as follows:

Table 10 Forestry supplementary measures nationally and in the South Western District

Code	Supplementary Measure	National Numbers	South Western District
Reduce			
S1	Management Instruments - Ensure regulations and guidance are cross referenced and revised to incorporate proposed measures.	All	All
S2	Acidification - Avoid or limit (to below critical thresholds) afforestation on 1st and 2nd order stream catchments in acid sensitive catchments	All	All
S3	Acidification - Revise the Acidification Protocol to ensure actual minimum alkalinities are detected (i.e. ensure sampling under high flow conditions) and revise boundary conditions for afforestation in acid sensitive areas.	All	All
S4	Eutrophication and Sedimentation - Avoid or limit forest cover on peat sites	All	All
S5	Eutrophication and Sedimentation - Change the tree species mix (e.g. broadleaves) on replanting	All	All
S6	Eutrophication and Sedimentation - Limiting felling coup size	All	All
S7	Eutrophication and Sedimentation - Establish new forest structures on older plantation sites (including riparian zones, drainage layouts, species mix, open areas)	All	All
S8	Hydromorphology - Audit existing drainage networks in forest catchments	All	All
S9	Pesticide Use - Reduce pesticide usage	All	All
S10	Pesticide Use - Pre-dip trees in nurseries prior to planting out	All	All
S11	Pesticide Use - Maintain registers of pesticide use	All	All
Remediate			
S12	Acidification - Restructure existing forests to include open space and structural diversity through age classes and species mix, including broadleaves	89	38
S13	Acidification - Mitigate acid impacts symptomatically using basic material (e.g. limestone or sand liming)	89	38
S14	Acidification - Manage catchment drainage to increase residence times and soil wetting, including no drainage installation in some areas	89	38
S15	Acidification - Implement measures to increase stream production – for example with native woodland in riparian zones.	89	38
S16	Eutrophication - Establish riparian zone management prior to clearfelling	245	79
S17	Eutrophication and Sedimentation - Enhance sediment control	245	79
S18	Eutrophication - Manage catchment drainage to increase residence times and soil wetting, including no drainage in some locations	245	79
S16	Sedimentation - Establish riparian zone management prior to clearfelling	308	83
S17	Sedimentation - Enhance sediment control	308	83
S18	Sedimentation - Manage catchment drainage to increase residence times and soil wetting, including no drainage in some locations	308	83
S19	Hydromorphology - Enhance drainage network management – minimise drainage in peat soils	All	All
S20	Pesticide Use - Develop biological control methods	All	All

Point and diffuse sources: dangerous substances & chemical pollution



The supplementary measures for chemical discharges will be identified after review of wastewater and industrial licences in accordance with the new environmental objectives for surface waters. These include standards for **specific pollutants** relevant in Ireland's waters and **priority substances** prioritised across Europe.

Technical guidance and training are currently being developed through the Water Services National Training Group to assist local authorities in the review and revision of discharge authorisations. Supplementary measures for point discharges will have to be considered for discharge authorisations on a case-by-case basis. Technical options might include reduction by source control, remediation by upgrade of treatment to remove substances from effluent or discharge relocation. For diffuse sources of substances, stricter controls on activities might be required to reduce discharges, losses and emissions.

Physical modifications



The supplementary measures considered to restore rivers impacted by physical modifications include soft engineering techniques such as creating pool and riffle sequences and more conventional remediation works such as adding fish passes to artificial weir structures. It is proposed that channelisation enhancement priorities be built into the existing River Enhancement Programme operated by the Office of Public Works with additional supplementary channelisation budgets established by Drainage District Authorities where appropriate. It is also proposed that The Department of Agriculture, Fisheries and Food should undertake a programme to rehabilitate rivers damaged through over-grazing. Local authorities should seek additional funding to remove artificial barriers impacting on fish migration.

Technical studies estimate that the following number of waters where physical modification supplementary measures are required nationally and in the South Western District:

Table 11 Physical modifications supplementary measures nationally and in the South Western District

Code	Supplementary Measure	National Numbers	South Western District
Reduce			
S1	Code of Practice	All	885
S2	Support voluntary initiatives	All	885
Remediate			
S3	Channelisation impact remediation schemes	11	0
S4	Channelisation investigation	529	8
S5	Over-grazing remediation	142	0
S7	Impassable barriers investigation	4,507	885

Many macroinvertebrates re-establish quite soon after river drainage, but impacted fish populations take longer to recover, so fish are key indicator of the impact of drainage. Similarly, fish are the key indicator that artificial weirs, bridge aprons, or culverts are barriers to migration. Therefore fish status is needed to identify appropriate areas for supplementary measures. Information on fish status is limited as it is a new monitoring requirement, but this dataset will improve with time. Measures will have to be reviewed as this information becomes available. Fish status monitoring and other surveys will be undertaken to confirm whether more waters where morphology risks have been identified are suitable for supplementary measures. It is also proposed that more detailed surveys of barriers to migration including fish surveys be undertaken on a catchment basis, so that the impact of these structures can be confirmed.

Abstractions



Technical studies have shown that habitat for salmonid fish in Irish rivers can be reduced by abstractions. 19 river stretches were assessed nationally using a model called PHABSIM. Generally, the effects are more significant in smaller rivers than in larger rivers. This research has been piloted and suggests that minimum instream flow requirements are needed to protect fisheries habitat.

The scientific understanding of the consequences of abstractions pressures on lake ecology is not well developed. **Potential impacts of abstractions to the ecological health of a lake are related to physical changes in the lake's water level and/or flushing rate.** Abstractions can increase water level fluctuation by increasing drawdown in a lake on a seasonal basis; **lower lake levels could impact shallow littoral zones by exposing them to wave action and desiccation.** These, in turn, can affect wetlands and sensitive species including spawning of fish such as the Arctic char and pike and the presence of Chara. A field assessment of 20 representative lakes (8 in South Western District) was carried out to ground-truth and verify data, to examine evidence of any effects of abstractions and lastly to help choose lakes suitable for future water level monitoring.

In the case of severe abstraction impacts, the volume withdrawn can exceed the ability of the lake's catchment to restore the water level to typical seasonal high levels resulting in the long-term lowering of the lake water level. Abstractions from the lake itself or the lake's catchment could decrease the flushing time, increasing the available time for nutrient uptake by algae, periphyton and macrophytes. Proliferating plant life is a common indication of eutrophication.

Over abstraction of groundwater resources can reduce baseflow to rivers and lakes, and can impact on the environmental supporting conditions for groundwater dependent ecosystems (wetland areas). While groundwater resources are generally in a good condition in Ireland, growing demands require that controls be implemented for future abstractions.

Further possible supplementary measures include:

- **Reducing** abstraction pressures by:
 - reducing water demand through measures such as:
 - implementing water conservation programmes,
 - supporting voluntary initiatives such as water conservation and rainwater harvesting schemes,
 - reducing leakage and unaccounted for water in distribution systems,
 - implementing more small schemes that distribute the demand on the resource,
 - establishing water metering and water charging programmes for residential users,
 - imposing restrictions on development if an abstraction is at its capacity
 - increasing the water available in the catchment through:
 - promoting reduction and/or infiltration of runoff (for example sustainable drainage schemes-SuDS)
 - reuse of grey water or treated wastewater effluent.
- **Remediation** schemes in priority areas including considering reducing current abstractions by altered abstraction timing, conjunctive use, additional storage
- **Relocation** by considering alternative sources.

Additional data and monitoring is needed to improve the understanding of the effects of abstractions on surface waters and groundwaters, including information on:

- daily abstracted volumes
- groundwater level monitoring near sensitive receptors;
- environmental supporting conditions of wetlands;
- additional hydrometric stations in small (less than 20 km²) catchments
- daily water levels in lakes with existing abstractions suspected as causing an impact or for future abstractions above a certain threshold
- effects of abstractions on lake ecology
- determination of instream flow needs for rivers outside the central plain region (by modelling with the PHABSIM program).

This further investigation will be undertaken in waters at risk from abstractions enabling review or setting of compensation flow requirements and selection of the appropriate supplementary measures on a site specific basis.

Locally focussed and future issues



Possible supplementary measures generally necessitate focussed management and enforcement actions that will be coordinated at District level via the South Western District's local authorities. They include:

- climate change: all measures have been assessed to ensure that the plan adequately considers the potential impacts of climatic change
- aquaculture: proposing national standards, designating additional sites and developing shellfish pollution reduction plans
- invasive alien species: supporting measures being developed by the national alien species study and local investigations at District level
- protecting high quality areas developing national guidance on favourable conservation status, introducing a web-based register of designated sites and supporting voluntary initiatives (nature conservation projects) at District level
- eutrophication of lakes and estuaries: focused local management plans including programmes of measures.

Research



To improve our understanding of certain problems and to have a better chance of identifying solutions, we need to carry out more research at national level to:

- characterise effluents and leachates to give better data on the quantities of pollutants associated with these discharges in Ireland
- determine the effectiveness of forestry measures
- establish natural background levels of metals in Irish waters so that the impact of human activities can be identified
- establish links between ecology and morphology to increase confidence in status classification and in the effectiveness of morphology measures
- establish links between ecology and abstractions including the flow requirements for fish populations. Again, this would increase confidence in status classification and in the effectiveness of abstraction measures
- investigate the ecological potential of heavily modified waters to establish mitigation measures to achieve good ecological potential
- investigate chemical pollution to establish possible sources and appropriate measures.

Education



Public awareness is a cornerstone of the Water Framework Directive. Raising general awareness and providing information about specific waters issues and their solutions at national level will help with water management. This will encourage people to participate in reduction programmes and will garner support for implementing the measures in the plan. A national campaign is needed, supported by specific targeted messages for example on clearer product labelling. This complements the promotion of low phosphorus products (which currently operates in Ireland by national voluntary agreement) and is under consideration by the Commission as a Europe wide initiative.





STEP 7 - What will supplementary measures achieve?

So far in the planning process, basic measures have been identified and supplementary measures have been selected on the basis of technical feasibility, economic considerations and wider environmental impacts. Basic and selected supplementary measures together will ensure that, for most of our waters, we will achieve the following by 2015:

- achieve protected areas objectives
- prevent deterioration
- restore good status
- reduce chemical pollution.


Supplementary measures focus on the objectives of restoring status and reducing chemical pollution. As well as addressing our objectives, basic and supplementary measures together will also address our key water issues.

Step 7 begins, then, by reviewing what supplementary measures will achieve. That achievement, added to what the basic measures will have achieved, will show the total progress expected by 2015.

However, we have to allow for the nature or uses of certain artificial or heavily modified waters, or to take account of new physical modifications or sustainable developments. Furthermore, in some impacted surface waters or groundwaters it will take several years before objectives are achieved.

When there are such technical, economic, environmental or recovery constraints, we redefine core objectives by setting **alternative objectives** for the waters in question. Improvements may be phased over further river basin planning cycles if these constraints mean we can't meet objectives within the first river basin planning cycle. We look in a little more detail at the circumstances in which alternative objectives might be required; then at Step 8 we apply the principles in setting alternative objectives for the South Western District.

Note that in all cases where alternative objectives apply, all actions that are technically feasible and not disproportionately expensive should still be taken to reach the best status possible. And alternative objectives cannot be set for protected areas, all of which must, by 2015, achieve the core objectives and the more stringent standards that support protected areas.

 Further information can be found on (www.wfdireland.ie).

What we expect supplementary measures to achieve

The issues for which we considered that supplementary measures might be needed were:

Point and diffuse sources of pollution

Wastewater and industrial discharges
Landfills, quarries, mines and contaminated lands
Agriculture
Wastewater from unsewered properties
Forestry
Dangerous substances & chemical pollution

Physical modifications

Abstractions

Locally focussed and future issues

Climate change
Aquaculture
Alien species
Protecting high quality areas
Eutrophication of estuaries & lakes

Research and education

Point and diffuse sources: wastewater and industrial discharges



The actions outlined in Step 6 would be expected to result in restoration of all waters where urban wastewater treatment plants and/or licensed industrial discharges are the primary cause of failure to achieve good status. However further actions may follow from industrial license reviews.

Point and diffuse sources: landfills, quarries, mines & contaminated lands



The actions outlined at Step 6 would be expected to result in the restoration of one of the currently impacted groundwaters to good status in the South Western District.

Point and diffuse sources: agriculture



As supplementary measures will not be decided until after the review of the National Action Programme in 2009, it is not possible to estimate what status benefits further measures would bring. However, it should be noted that various studies and surveys, including Teagasc's National Farm Surveys and a targeted catchment study for the Clarianna area, have provided evidence of the benefit of certain agri-environmental actions.

Point and diffuse sources: wastewater from unsewered properties



The actions outlined at Step 6 would be expected to result in restoration of a further 229 currently impacted waters to good status nationally.

Point and diffuse sources: forestry



Given the diversity of forested locations, potential impact from forests and forestry operations varies significantly. A suite of measures are proposed for each site as appropriate. Nationally 89 acidification measures, 245 eutrophication measures and 308 sedimentation measures have been proposed and would be expected to restore 89 waters to good status and protect a further 271. Research into the effectiveness of these measures is critical.

Point and diffuse sources: dangerous substances & chemical pollution



As supplementary measures will not be decided until after the review of wastewater and industrial licences, it is not possible to estimate what status benefits further measures would bring. Measures taken against dangerous substances will also reduce chemical pollution.

Physical modifications



The actions outlined at Step 6 would be expected to result in restoration of a further 153 currently impacted waters to good status nationally (however none of these are in the South Western District). Further improvements would come in waters where status impacts are confirmed by investigations.

Abstractions



As supplementary measures will not be decided until after detailed abstraction investigations, it is not possible to estimate what status benefits further measures would bring.

Locally focussed and future issues



The actions outlined in Step 6 will increase the focus management and enforcement actions on locally important issues. These actions will be coordinated at District level via the South Western District's public authorities group.

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Research



The actions outlined at Step 6 will further our understanding of problems and status impacts and help to direct further water management activities.

Education



The actions outlined at Step 6 will help to raise awareness of water management issues, letting people make more informed decisions about their activities and how these can have an effect on water status. The awareness programme will also help to gain support for the actions in the river basin management plan.

Alternative objectives – heavily modified waters and artificial waters

Some surface waters have been substantially changed in character to allow uses such as navigation, water storage, public supply, flood defence and land drainage. To recognise that the benefits from such modifications need to be retained, these waters are designated as heavily modified. The same reasoning applies to artificial waters (for example canals) created for human activities.

Heavily modified and artificial waters are expected to achieve good ecological potential, which recognises their important uses while making sure that ecology is protected or improved as far as possible. The designation of, and standards for, artificial and heavily modified waters were established using a detailed screening process.



Further information is available in our artificial and heavily modified background document (www.wfdireland.ie).

We have set the objective that all of these waters will meet good ecological potential standards by 2015; we have included in our action plan the investigations and mitigation measures needed to achieve that. Assessment of further candidate waters for designation may be undertaken before the plan is finalised.

Alternative objectives – new modifications or development

Alternative objectives can also be set for waters where it is known that a new modification or development, including tailored objectives, will take place during the plan. Such development proposals must have over-riding social and economic benefits and new developments must still allow waters to achieve good status. Proposals have to be assessed on a case by case basis and have to satisfy a series of tests of sustainability. Options have to be examined, such as alternative locations and different scales or designs, to ensure that all practicable steps are taken to mitigate adverse impacts. However, in the South Western District, no such physical modifications or sustainable development options have been proposed.

Alternative objectives – timescales

We expect to achieve our first two core objectives (achieve environmental conditions suitable to support protected areas and prevent deterioration) in full by 2015. Alternative objective timescales are considered only for non protected waters where the combination of basic and supplementary measures will not fully achieve the other two objectives: restoring good status and reducing chemical pollution (in cases where our key water issues are causing problems).

In most cases, the alternative objective is an extension of the timescale for achieving the core objectives. The extension is usually of one planning cycle (that is six years, to 2021) but may be of two cycles (to 2027). If the objective cannot be met by then, a less stringent objective is set which means that the waters won't achieve good status before 2027.

Technical, economic, environmental or recovery constraints that may mean an extended timescale is required: The time to reach good status may also have to be extended where we need longer to investigate problems to gain a better understanding of how to tackle them.

The overall timescale for waters to achieve good status will be dictated by the slowest response to basic and supplementary measures. For example, even if a treatment plant is installed in the first plan cycle, it may take a further cycle for the waters to show improvement in gley soil areas with high soil nutrient levels that are also impacted by agricultural activities.

Based on expert experience and judgement and a review of research evidence, we set out below the reasons for which the timescales for achieving objectives in some waters will have to be extended.

Point and diffuse sources: wastewater and industrial discharges



There are rivers where further investigation is needed to provide scientific evidence concerning the impact of point source discharges and to identify the most appropriate measure. In these cases deadlines will be extended by one cycle. Further actions will be identified for industries following license review which will be completed by 2012. Objectives should be revised during the first planning cycle once solutions are established.

Point and diffuse sources: landfills, quarries, mines & contaminated lands



Where substantial impact has taken place (for example groundwaters below urban areas or polluted by historical contaminated lands or mining activities), recovery takes many years and the objectives may be either extended by one or more cycles or a less stringent objective set. We have proposed a small number of likely less stringent objectives for mine impacted sites as the timescales and costs of restoring these groundwaters will probably extend beyond 2027. More detailed economic tests will be applied to confirm these likely less stringent objectives.

Point and diffuse sources: agriculture



In some areas it is expected that it will take time for soil nutrient levels to reduce after changing agricultural practices (for example lowering stock levels or fertilizer application rates) and therefore nutrient losses to waters may persist. The timescale to achieve the objectives in these areas of heavy gley and wet soils should be extended by one cycle.

Point and diffuse sources: wastewater from unsewered properties



Where investigation of pathogens risks to surface waters from on-site system remediation works is required, objectives should be extended by one cycle.

Point and diffuse sources: forestry



Investigation of the effectiveness of acidification measures is required. Consequently the objective timescale is extended by two cycles in waters at risk from this impact to allow investigations to take place.

Point and diffuse sources: dangerous substances & chemical pollution



Pollution reduction programmes will be put in place by 2012 to help restore waters and reduce chemical pollution. However, where chemical pollution problems have been identified, resulting supplementary measures will take time to investigate and implement. Where appropriate, objectives should be extended by one cycle.

Physical modifications



It will take at least one cycle for status to recover after rehabilitation works, so deadlines should be extended by one cycle in these waters. There are gaps in our knowledge of the status of certain waters experiencing morphological pressures, and of the fish that are key indicators of morphological status. We have recommended investigations of the natural condition of these waters and of the technical feasibility of measures before overall status, objectives and measures are decided. If these waters are impacted by morphological pressures but there are no technically feasible measures, alternative objectives may have to be considered.

Abstractions



There are also gaps in our knowledge of the status of certain waters experiencing abstraction pressures. Further studies and investigations have been recommended in waters at risk from these pressures. The rate of recovery in lake and river systems varies depending on the previous effects and measure implemented. Simple measures, like setting and maintaining a minimum instream flow, will benefit most organisms quite quickly, except for rebuilding natural salmon populations which could take many years. Similarly, lakes whose shorelines have become denuded may require active (as opposed to letting natural processes take their time) restoration including wetland plants or restocking and rebuilding fish populations (for example in char lakes). It may take at least one cycle for status to recover after remediation works. The requirements for extended deadlines should be re-examined following the investigations of flow requirements

Locally focussed and future issues



The actions identified to focus on these issues within the District are all expected to be effective within the first cycle.

Research & Education



These actions will not directly result in alternative objectives being set for any waters.

Tabl: 12 Overview of alternative timescales (Nationally and in the South Western District)

Key Issue	2015	2021	2027 or likely LSO cases
Wastewater	Majority of waters	Nationally 46 rivers where investigations are in place by 2015 (2 in the South Western District).	
Industrial discharges	Majority of waters	Nationally 52 rivers where investigations are in place by 2015 (1 in the South Western District).	
Landfills, quarries, mines and contaminated lands	Majority of waters	Majority of waters	Nationally 5 groundwaters at risk from mine impacts (these will be tested during 2009 as likely less stringent objectives)
Agriculture	Majority of waters	Nationally 19 rivers where recovery timescales are longer (gley soils with agricultural pressures and elevated soil nutrients) (None in the South Western District).	
Wastewater from unsewered properties	Majority of waters	Nationally 173 rivers where investigations of pathogen losses to surface waters are in place by 2015 (13 in the South Western District).	
Forestry	Majority of waters	Majority of waters	Nationally 25 rivers where investigation of acidification measures is required (15 in the South Western District)
Dangerous substances & chemical pollution	Majority of waters	Nationally 3 rivers where investigations are in place by 2015 (None in the South Western District).	
Physical modifications	Majority of waters	Nationally 23 rivers where remediation schemes are in place by 2015 (None in the South Western District).	
Abstractions	Majority of waters		

STEP 8 - What are our objectives in the South Western District?

We have examined the effects of applying the basic measures and selected the most cost-effective combination of supplementary measures - measures that are technically feasible, environmentally sustainable and economically justified. At Step 7 we discussed the possibility that, in some waters, the combination of basic and supplementary measures might not be adequate or that investigations and recovery would take longer than one cycle: alternative objectives might be needed for those waters.

At Step 8 we show the combined results of the process so far, applying the principles in setting objectives for the waters of the South Western District:

- we show the proportions of each water type (rivers and canals, lakes and reservoirs, estuaries, coastal waters, groundwater) for which we expect to achieve the **core objectives** in full
- we also show the proportions for which we recommend **alternative objectives**, with extended timescales or less stringent objectives.

Local authorities are responsible for proposing the objectives in the draft river basin management plan. This section highlights the waters where exemptions are proposed and also summarises the overall environmental objectives proposed in the South Western District.



We are seeking your views on these proposed objectives. What is your view about our proposals to:

- designate heavily modified and artificial waters?
- extend deadlines or set likely less stringent objectives for certain waters?
- are these proposals appropriate? Have we missed something important?

Core objectives: full achievement

- Our core objectives are:
- achieve protected areas objectives
 - prevent deterioration
 - restore good status
 - reduce chemical pollution.

Objectives have been established for all waters in the South Western District.

Achieve protected areas objectives

Our core objective is to ensure that the status of waters supporting our protected areas is protected and (where necessary) improved by 2015. These waters require greater protection because they contain rare and vulnerable habitats or wildlife or because of their beneficial uses or the need to protect human health. They include drinking water sources, shellfish water areas, bathing areas, nutrient-sensitive areas and nature conservation sites.

In one case only, time extensions have been permitted for investigations in protected areas. This relates to potential localised on-site system pathogen impacts in protected waters only where the protected area will not be impaired (that is the extension excludes protected drinking waters).

Large transitional and coastal waters can contain small protected areas. In some cases the discharges to these waters will not impact on their protected areas because of the remoteness of the discharge from protected areas and the large dilutions available. Therefore, the impact of these discharges will be investigated to determine the appropriate levels of treatment. This will not impact on the objective of achieving protected area objectives and no time extension has been set.

We have been taking measures to ensure we achieve the objectives for these protected areas for many years. Further actions considered necessary to strengthen the implementation of the basic measures are outlined at Step 9 of this draft plan.

1

What are our key water issues?

2

What is the status of our waters?

3

What do we plan to achieve?

4

What measures must we take?

5

What will basic measures achieve?

6

What further measures can we take?

7

What will supplementary measures achieve?

8

What are our objectives in the South Western District?

9

What is our action plan for the South Western District?

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Prevent deterioration

For surface waters, our core objective is to prevent deterioration, and in particular maintain high or good status; for groundwaters, the core objective is to limit pollution inputs and prevent deterioration.

For our surface waters and for groundwaters that already meet good or better standards, we are confident that the strengthened basic measures in this plan will provide sufficient protection to enable these waters to maintain their satisfactory condition beyond 2015.

Restore good status

Our core objective for surface waters and groundwaters that are less than good status is to restore them to at least good status by 2015, where it is feasible and not disproportionately expensive to do so (some waters will take longer to reach their target).

We have considered basic and supplementary measures to restore these waters to at least good status by 2015; most of them will be restored by 2015. However, alternative objectives (extended deadlines, likely less stringent objectives) have been applied in some limited circumstances.

Reduce chemical pollution

Our core objective for surface waters is to progressively reduce chemical pollution. For most waters, the objective is expected to be achieved by 2015, but in some waters we need to investigate the sources of dangerous substances and to develop appropriate measures accordingly. Measures taken against dangerous substances will also reduce chemical pollution.

Alternative objectives - heavily modified waters and artificial waters

There are six artificial (one) or heavily modified (five) surface waters in the South Western District.

The artificial waters are:

- **Lismore Canal:** this canal is a 2.3 km long canal cut by-passing a section of the River Blackwater in west Co. Waterford. No monitoring data was available in order to identify if the canal currently meets its equivalent potential standard and, therefore, no measures are currently identified.

The heavily modified waters are:

- **Carrigrohid and Inniscarra Reservoirs** were created between 1953 and 1957 when two hydroelectric dams were constructed in the Lee valley upstream of Cork City. They are identified as two separate heavily modified lake water bodies. Carrigrohid has an area of approximately 5.9 km² whilst Inniscarra's area is 4.9 km². Both are identified as not currently reaching their equivalent potential standard. As the reservoirs are located along the same river system, actions and measures towards achieving the required standard by 2015 are identified to apply to both lakes in unison. The recommendation is, during the cycle of this, the first plan, to undertake a study to investigate the impacts of the two schemes on the ecological potential and identify opportunities for measures to be implemented in later plan cycles.
- **Lee (Cork) Estuary Lower:** this estuarine water body was identified due to the presence and scale of port and shipping related operations at and approaching Cork City Quay and at Tivoli Dock. The water body area is 0.9 km². It has been identified as not currently reaching its equivalent potential standard. The measures assigned towards achieving the required standard by 2015 are the investigation of any obsolete structures' impacts and their removal if required and feasible, the investigation of propeller bed scouring impacts and its elimination if feasible and ensuring steps are taken to minimise the impacts of dredging such as the suspension of silt.
- **Lough Mahon:** this estuarine water body was identified due to the impacts of shipping traffic and the frequency of maintenance dredging undertaken in the shipping channel. The water body area is 12.2 km². It has been identified as not currently reaching its equivalent potential standard. The measures assigned towards achieving the required standard by 2015 are similar to those in the upstream modified water body of the Lee (Cork) Estuary Lower; it is recommended that any obsolete structures should be removed and all feasible steps should be taken to minimise the impacts of dredging.
- **Cork Harbour:** this coastal water body was identified due to the presence and scale of port and shipping related operations at Ringaskiddy and Cobh. The water body area is 27.8 km². The measures assigned towards achieving the required standard by 2015 are identical to those recommended for Lee (Cork) Estuary Lower: the removal of any obsolete structures, identification of impacts and opportunities for eliminating bed scouring by ship propellers and implementation of any measures feasible and the minimisation of dredging impacts such as silt suspension.

Table 13 Heavily Modified and Artificial Waters

	Rivers and Canals length km ² (%)	Lakes and Reservoirs area km ² (%)	Estuaries area km ² (%)	Coastal area km ² (%)
Artificial Waters	2.3 (<0.1%)	0 (0%)	0 (0%)	0 (0%)
Heavily Modified Waters	0 (0%)	11 (15%)	13 (8%)	28 (0.8%)

Assessment of further candidate waters for designation may be undertaken before the plan is finalised.

Alternative objectives - timescales

For some waters, we do not expect to be able to restore good status fully by 2015. These are waters that do not support protected areas and that are currently at less than good status. In most of those cases, we are proposing extended deadlines, but in a few cases we propose less stringent objectives where it is likely that application of disproportionate costs tests early in 2009 will confirm this assessment.

The extended deadlines relate mainly to waters where further investigations are required for impacts from on-site systems, wastewater and industrial discharges; afforestation acidification measures and chemical status failures. Similarly extensions have been proposed for some waters where recovery from agricultural nutrient losses or morphology enhancement will take several years to recover. A small number of likely less stringent objectives have been proposed to some waters impacted by mine discharges or contaminated land/urban impacts.

Table 14: Alternative objectives

	Rivers and Canals Number (%)	Lakes and Reservoirs Number (%)	Estuaries Number (%)	Coastal Number (%)	Groundwaters Number (%)
Extended Deadline to 2021	15 (1.7%)	0 (0%)	0 (0%)	0 (0%)	-
Extended Deadline to 2027	15 (1.7%)	0 (0%)	0 (0%)	0 (0%)	-
Likely Less Stringent Objective	0 (0%)	0 (0%)	0 (0%)	0 (0%)	-
Total as % of All Waters	1.4%	0%	0%	0%	-

The overall picture

Table 15 summarises the target timescales established for the South Western District's surface waters and groundwaters. We believe that, by implementing the measures proposed in this draft plan, we will be able to achieve the objectives in 98% of our river waters and, 100% in our lakes, marine and groundwaters by 2015. Further improvements may be achieved during the second and third river basin plans.

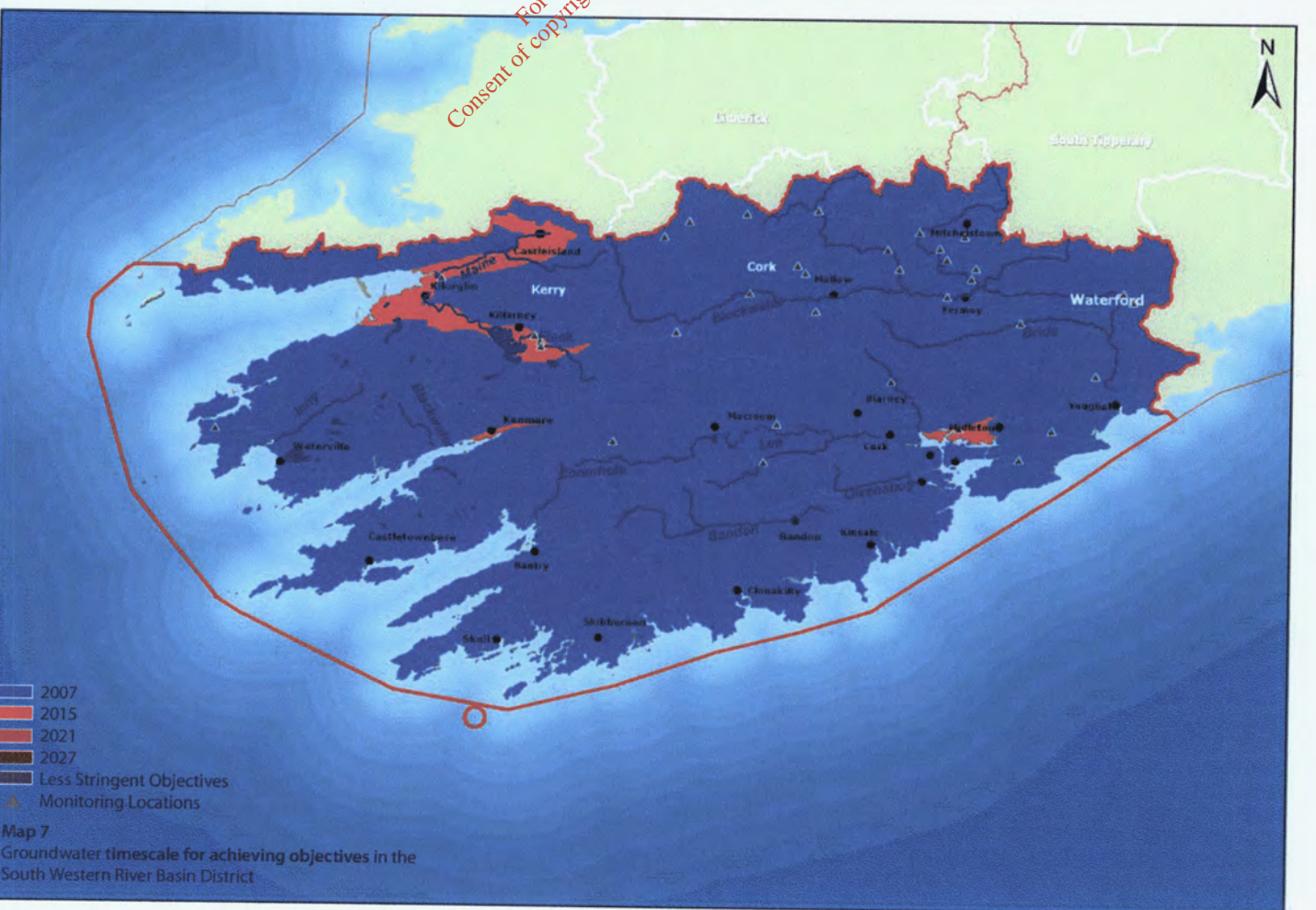
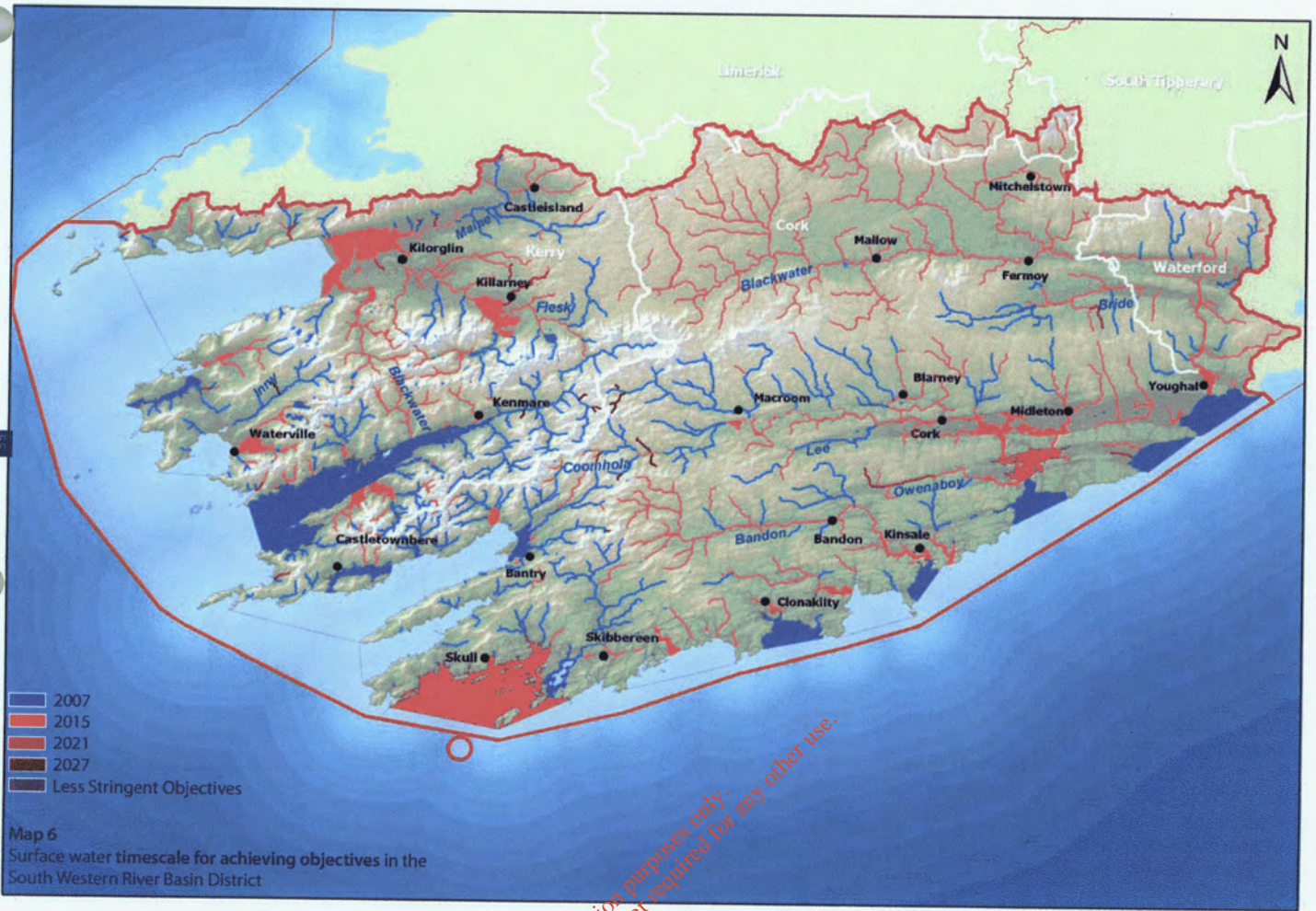
Table 15 Timescale for Achieving Surface Water and Groundwater Objectives

	Rivers and Canals Number (%)	Lakes and Reservoirs Number (%)	Estuaries Number (%)	Coastal Number (%)	Groundwaters Number (%)
Objective Achieved 2007	454 (51%)	73 (81%)	6 (14%)	8 (30%)	-
Objective Achieved 2015	855 (97%)	90 (100%)	43 (100%)	27 (100%)	-
Objective Achieved 2021	870 (99%)	90 (100%)	43 (100%)	27 (100%)	-
Objective Achieved 2027	885 (100%)	90 (100%)	43 (100%)	27 (100%)	-
Likely Less Stringent Objective	0 (0%)	0 (0%)	0 (0%)	0 (0%)	-

Graphs 1 – 5 illustrate how we expect the trends in status to improve for rivers and canals, lakes and reservoirs, marine waters and groundwaters over the Water Framework Directive management cycles. A summary of the environmental objectives for the surface waters and groundwaters in the South Western District is provided in maps 6 and 7.

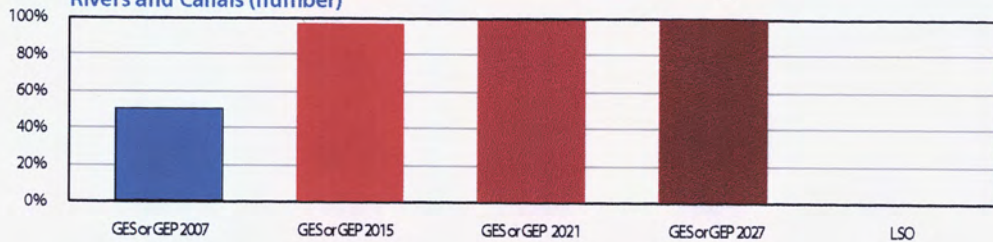


More information is available in our objectives background document and our web-based interactive map (www.wfdireland.ie).

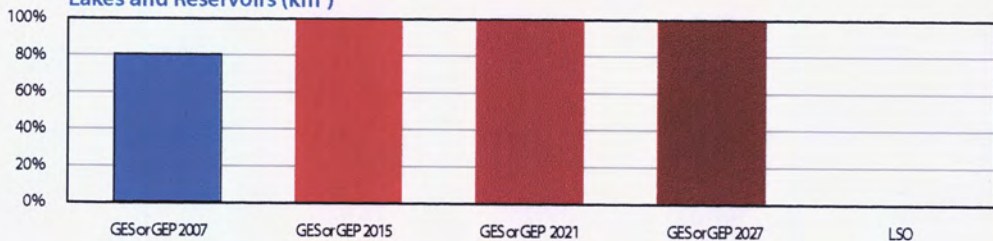


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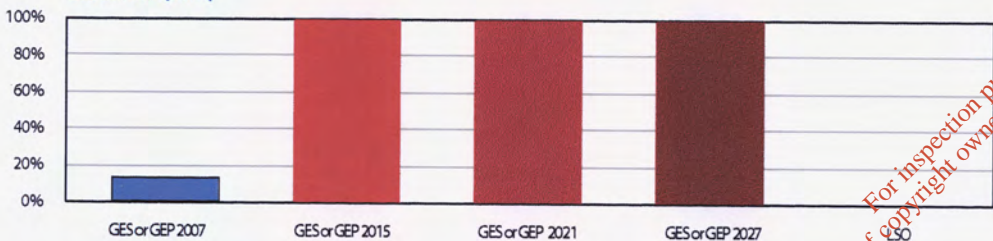
Rivers and Canals (number)



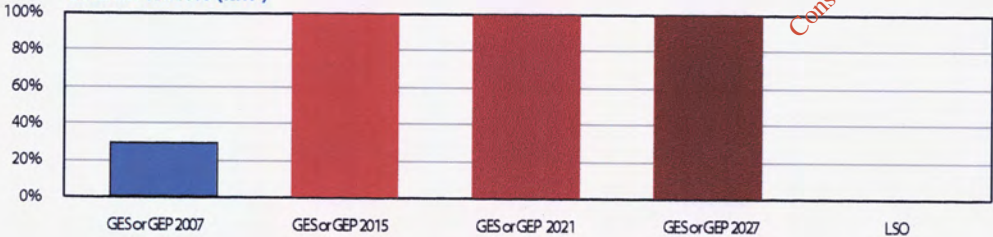
Lakes and Reservoirs (km²)



Estuaries (km²)



Coastal Waters (km²)



STEP 9 - Our Action Plan for the South Western District

The outcome of this planning process is a tailored action plan for the South Western District, a plan that has been proposed by the District's local authorities.

This actions plan sets out the basic measures plus the most cost-effective combination of selected supplementary measures. Ireland's suite of basic measures has strengthened existing laws with new and updated controls and with supporting plans and programmes. Technical studies and monitoring programmes have identified the waters where supplementary measures need to be focused for maximum benefit.

The proposed measures and their supporting actions for the South Western District are summarised in this Step. The action plan identifies:

- what the measure is,
- where and when it will be taken and
- who will take action.

i Our interactive map (www.wfdireland.ie) shows proposed objectives and measures for individual rivers and canals, lakes and reservoirs, coastal and estuarine waters and groundwaters.

? We are seeking your views on this proposed action plan.
Are these proposals appropriate?
Have we missed something important?

We have also looked outwards in this Step at how the river basin plan relates to broader planning issues and action themes.

Firstly, following from the summary of water protection measures in Step 4, we have identified all relevant legislation along with corresponding implementing plans and programmes in the South Western District. We have highlighted the integration of river basin plans with land use planning, climate change and wider environmental issues.

i A register of the water protection plans and programmes that will influence and gradually align with our river basin management plan is presented in our links to plans and programmes background document at (www.wfdireland.ie).

? We are seeking your views on this register.
Is it complete?
Have we missed some important plans or programmes?

Secondly, we have revisited the wider action themes identified during public participation events and consultations to test whether this draft action programme addresses these themes:

- joined-up thinking
- resources to improve response to water problems
- use of economic tools
- education and awareness campaigns
- political commitment
- public participation.

? We are seeking your views on our action themes.
Have we addressed all the themes?
Have we missed something important?

- 1 What are our key water issues?
- 2 What is the status of our waters?
- 3 What do we plan to achieve?
- 4 What measures must we take?
- 5 What will basic measures achieve?
- 6 What further measures can we take?
- 7 What will supplementary measures achieve?
- 8 What are our objectives in the South Western District?
- 9 What is our action plan for the South Western District?

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COORDINATION/SUPPORT ACTIONS/INSTRUMENTS

What will happen	Who Leads	When and Where
Align river basin plans with other plans and programmes: <ul style="list-style-type: none"> Land use and spatial plans Conservation plans Water Services Strategic Plans Pollution Reduction Plans including National Action Plan, IPPC Programme, Local Authority Discharge Authorisation Programmes, Groundwater and Surface Water Pollution Reduction Programmes, Shellfish Waters Pollution Reduction Programmes, Bathing Waters Management Plans Sludge Management Plans Major Accident Emergency Plans Forest Management Plans Heritage Plans Forthcoming Flood Risk Management Plans 	Public authorities	2009 – 2015 National
Implement Water Framework Directive obligations <ul style="list-style-type: none"> secure resources for enforcement and plan implementation and update 	DEHLG, Local Authorities and other public authorities	2009 – 2015 Whole RBD
Implement Water Framework Directive obligations <ul style="list-style-type: none"> coordination and reporting to Europe 	EPA	2009 – 2015 National
Coordinate plan implementation via a staffed River Basin District Unit	Local Authorities	2009 – 2015 Whole RBD
Support ongoing public participation and River Basin District advisory council	Local Authorities	2009 – 2015 Whole RBD

RESEARCH AND EDUCATION

Public awareness and targeted education campaigns	DEHLG	2009 – 2015 National
National research campaign including: <ul style="list-style-type: none"> Characterise effluents and leachates, determine the effectiveness of forestry measures, establish natural background levels, establish links between ecology and morphology and ecological flow requirements. Investigation of the ecological potential of heavily modified waters and chemical pollution. 	EPA	2009 – 2015 National

BASIC MEASURES

What will happen	Who Leads	When and Where
BATHING WATERS DIRECTIVE		
Actions: Quality of Bathing Waters Regulations: <ul style="list-style-type: none"> Identify bodies of water used as bathing areas. Undertake bathing water monitoring programmes. Adhere to bathing water quality standards. Classify Bathing Waters. Develop Bathing Water Profiles. Investigate causes of pollution potentially affecting Bathing Waters. Develop Bathing Waters Management Plans with active involvement from users of the bathing areas. Increase provision of information on quality and management of bathing areas to the public. Report annually to the EPA with respect to bathing water identification, monitoring and assessment. Report annually to the Commission with respect to bathing water identification. Where necessary, provide advice, recommendations and directions with respect to bathing waters. Where necessary, provide general policy directions with respect to bathing waters. 	Local Authorities EPA DEHLG	2009 – 2015 Designated Sites
BIRDS AND HABITATS DIRECTIVES		
Actions: Natural Habitats Regulations: <ul style="list-style-type: none"> Include all water-dependant species and habitats in the WFD Register of Protected Areas. Ensure that appropriate assessment is carried out in relation to activities which are likely to impact on designated sites. Manage land use planning and development activities within and upstream of designated areas in such a way as to allow achievement of conservation objectives. Where necessary, enter into management agreements with owners, occupiers or lessees of land within or adjacent to designated sites e.g. Farm Plans. Ensure that appropriate assessment is carried out before granting licences to operations/planning permission to developments that are likely to have a significant impact on designated sites. Implement Freshwater Pearl Mussel Sub-basin Plans. Incorporate the protection of designated sites in all plans and programmes e.g. development plans. Where necessary, control damaging activities within and outside designated sites that are likely to impact on designated sites. Designate sites hosting habitats and species of European importance for inclusion in the Natura 2000 network. Establish monitoring and surveillance programmes. Develop conservation measures within management plans to ensure that designated sites meet favourable conservation status. Where necessary, regulate damaging activities within and outside that are likely to impact on designated sites. Require owners, occupiers or users to restore land where an operation or activity has impacted on a designated site. License dealers of listed fauna. Prohibit purchase, sale or damage of listed flora. Introduce measures necessary to protect listed flora and fauna. Establish a system to monitor the incidental capture of listed fauna and undertake research and conservation measures as required. Introduce measures to ensure that the allowable taking of listed flora and fauna will allow the achievement of favourable conservation status. Where necessary, introduce derogations to allow non-compliance with the Regulations as long as favourable conservation status is maintained. Report on implementation to the Commission every 6 years. Introduce compensatory measures to ensure the coherence of the network of designated sites if damaging activities are allowed to go ahead. Promote research, education and information supply. Reintroduce native species where research shows it would benefit conservation status. 	Local Authorities Local Authorities, EPA, An Bord Pleanála All public authorities NPWS, DEHLG	2009 – 2015 Designated Sites
DRINKING WATER DIRECTIVE		
Actions: Drinking Water Regulations: (see also Protection of Drinking Water Sources) <ul style="list-style-type: none"> Ensure compliance with the Regulations. Issue guidelines on monitoring, implementation, enforcement and remedial actions if required. 	EPA	2009 – 2015 Designated Sites

- Prohibit water supplies considered to pose a potential danger to human health.
- Monitor drinking water quality to ensure that drinking water meets the quality standards in the Regulations. Ensure that action is taken in relation to non-compliances due to water distribution systems in commercial or public premises. Ensure that action is taken in relation to non-compliances due to water distribution systems in private premises. Maintain a register of water supplies and records of monitoring. Facilitate public access to information. Audit water supplies. Immediately investigate non-compliances. Inform consumers of non-compliances and remedial actions. Introduce measures where water supplies pose a potential danger to human health having regard to the risks associated with interruption of supply or restriction of use. Prepare Action Programmes where the quality of water does not meet the required standards. Require persons responsible for pollution to prepare and implement Action Plans to prevent and mitigate pollution. Ensure that any measures introduced under the Regulations do not allow deterioration in drinking water quality.

Actions: Water Services Act:

- Facilitate the provision of safe and efficient water services and water service infrastructure. Supervise and monitor the performance of water services authorities and issue guidelines where necessary. Plan and supervise the investment programme for water services under the Water Services Investment Programme. Issue compliance notices specifying corrective actions in the event of non-compliances with the Act. Develop detailed guidance on the preparation of Water Services Strategic Plans under the guidance of a technical sub-group of the Water Services National Training Group.
- Take account of all other relevant principles, plans, programmes, strategies, guidelines, codes of practice and regulations.
- Provide water services for domestic and non-domestic requirements. Take measures necessary to adhere to drinking water standards. Ensure that no measure will have the effect of allowing any deterioration in drinking water quality or increase in pollution of waters used for the provision of drinking waters. Establish monitoring programmes and maintain water services records. Communicate derogations and non-compliances with drinking water standards to the population concerned along with reasons, actions and advice. Supervise provision of water services by other parties. Prohibit or restrict a water supply that poses a potential threat to human health or the environment. Require remedial actions to be taken where there is a potential threat to human health or the environment. Require owners of premises to undertake works on their internal distribution systems to ensure that drinking water standards are met. Prohibit or restrict certain water uses if there is a deficiency of supply. Monitor both public and private supplies to ensure compliance. Prepare and implement Water Services Strategic Plans with measures to meet the requirements of the Act while supporting proper planning and sustainable development. Review and revise Water Services Strategic Plans every 6 years. Implement the Rural Water Programme to ensure water supplies in rural areas.
- Implement licensing system for the Group Water Scheme sector.
- Monitor compliance with drinking water standards and enforce compliance. Issue advice, directions, guidance or recommendations to water services authorities as necessary.

Local Authorities, HSE

Local Authorities

DEHLG

DEHLG, Local Authorities, EPA

Local Authorities

Local Authorities

EPA

MAJOR ACCIDENTS AND EMERGENCY DIRECTIVE

Actions: Control of Major Accident Hazards Involving Dangerous Substances Regulations:

- Prepare on-site emergency plan identifying major accident hazards and specifying measures to be taken to prevent major accidents and to limit their potential consequences.
- On notification of activities prepare off-site Emergency Plans for action outside the establishment in relation to possible major accidents. Enter into agreements with operators to take action to inform the public in the event of an accident.

Manufacturers

Local Authorities

2009 – 2015
Qualifying Sites

- Require written notification of activities involving the use or storage of specified dangerous substances at least 6 months before commencement of the activity. Require operators to demonstrate safe operation and storage at their establishments. Organise system of inspections or other measures of control for relevant establishments. Supply information on major accidents to public authorities. Require operators to investigate their operations in the event of major accidents.

Actions: Planning and Development Act:

- Ensure that adequate controls are in place for relevant new developments.

DETE

Local Authorities

ENVIRONMENTAL IMPACT ASSESSMENT DIRECTIVE

Actions: Environmental Impact Assessment Regulations:

- Require certain developments, either by the private or public sector, to prepare Environmental Impact Assessments for consideration before planning permission is granted (taking account of WFD objectives). Make Environmental Impact Assessments available.
- Provide guidance on the preparation of Environmental Impacts Statements.

Local Authorities

EPA

2009 – 2015
National

SEWAGE SLUDGE DIRECTIVE

Actions: Use of Sewage Sludge in Agriculture Regulations:

- Supervise the supply and use of sludge in agriculture and ensure that it is used in accordance with Nutrient Management Plans. Maintain a register of sludge biosolids movements and use and make available to the public. Regularly provide users with the results of sludge analysis. Ensure adherence to the code of practice in relation to the use of biosolids in agriculture.
- Issue recommendations to Local Authorities regarding their duties under the Regulations.

Local Authorities

DEHLG

DAFF

Local Authorities

2009 – 2015
National

Actions: Waste Management Act:

- Ensure enforcement of the Act.
- Prepare Sludge Management Plans for the management of wastewater sludge taking full account of the water quality objectives established in river basin management plans. Licence waste operators. Require measures to be taken in relation to the holding, recovery or disposal of waste in order to prevent or limit environmental pollution, where necessary. Request land owners to prepare nutrient management plans, where necessary.

URBAN WASTEWATER TREATMENT DIRECTIVE

Actions: Urban Wastewater Treatment Regulations:

- Provide collection systems and treatments plants to meet the requirements in the Regulations. Meet more stringent requirements with respect to quality of receiving waters as specified in other Directives. Design, construct, operate and maintain treatment plants to ensure sufficient performance, taking seasonal variations of load into account. Choose discharge points so as to minimise impact on the environment. Monitor effluent discharges. Take all steps necessary to ensure compliance with the water quality objectives established in river basin management plans. Ensure that sewage sludge can be disposed of safely.

Local Authorities

2009 – 2015
National

Actions: Water Services Act:

- Plan and supervise provision of wastewater services under the Water Services Investment Programme. Supervise and monitor the performance of water services authorities. Prepare and implement Water Services Strategic Plans to support sustainable provision of wastewater services.

Local Authorities

PLANT PROTECTION PRODUCTS DIRECTIVE

Actions: Authorisation, Placing on the Market, Use & Control of Plant Protection Products Regulations:

- Authorise plant protection products for use or sale subject to controls in relation to the nature of the products themselves, plus their packaging and labelling. Search, inspect, seize, retain and remove substances where non-compliances are found and cancel authorisations as required.
- Prepare an annual list of plant protection products authorised in the State.
- Notify the DEHLG of all new information on potentially dangerous effects of authorised plant protection products on human or animal health, the environment or groundwater. Provide notification of import and export of plant protection products.

Pesticide Control Service

2009 – 2015
National

DEHLG

Relevant persons

NITRATES DIRECTIVE

Actions: Good Agricultural Practice for the Protection of Waters:

- Develop a National Action Programme in consultation with all interested parties. Ensure implementation of the National Action Programme.
- Undertake monitoring and evaluation programmes in relation to farm practices to determine the effectiveness of measures. Maintain a register of all farm holdings to be available to the EPA and Local Authorities.
- Issue reports on implementation to the DEHLG every four years. Carry out monitoring as necessary for the purposes of the Regulations. Provide recommendations and direction to Local Authorities with respect to monitoring, inspections and measures to be introduced for the purposes of the Regulations.
- Carry out monitoring to establish the extent of pollution in surface and groundwaters attributable to agriculture and determine trends in the occurrence and extent of such pollution. Carry out farm inspections as necessary for the purposes of enforcing the Regulations and coordinate with other farm inspection programmes. Maintain a register of farm inspections.
- Grant derogation from nitrogen application limit (170 kg/ha/yr) up to a maximum of 250 (kg/ha/yr) to applicant land owners where strict specified conditions are met. Carry out mini-catchments studies to demonstrate the effectiveness of the National Action Programme.

DEHLG

2009 – 2015
National

DAFF

EPA

Local Authorities

DAFF, EPA

INTEGRATED POLLUTION PREVENTION CONTROL DIRECTIVE

Actions: EPA Acts and Licensing Regulations:

- Ensure that operators of certain industrial and agricultural installations obtain IPPC licences in relation to their activities. Set license conditions based on BAT. (Best Available Techniques) Take account of all relevant plans, policies, objections, EIAs and submissions when considering a licence application. Enforce licence conditions including monitoring. Maintain a register of licences and make available to the Commission and to the public. Undertake reporting as necessary. Undertake reviews of existing licences periodically (taking account of WFD objectives).
- Give consent to discharges from IPPC operations to sewers.

EPA

2009 – 2015
National

Local Authorities, EPA

COST RECOVERY FOR WATER USE AND PROMOTION OF EFFICIENT AND SUSTAINABLE WATER USE

Actions: National Water Pricing Policy Framework:

- Charge non-domestic customers for water and waste water services. Ensure that all non-domestic supplies are metered by the end of 2008.

Local Authorities

2009 – 2015
National

- Cover domestic capital costs from the Exchequer. Cover domestic operational costs through the Local Government Fund.

Actions: National Water Conservation (Leakage Reduction) Programme:

- Establish and maintain GIS-based water management systems. Establish an ongoing leakage control programme. Rehabilitate and replace defective water supply networks. Develop water conservation public awareness campaigns.
- Provide project-specific funding designed to meet specific leakage reduction targets.

Actions: Water Services Act

- Facilitate the provision of efficient water services.
- Meter and charge non-domestic customers for water services. Rehabilitate and repair water works. Develop Water Services Strategic Plans to achieve the objectives of the Act and support proper planning and sustainable development.
- Ensure that water distribution systems are in a fit state and free from leaks.

Local Authorities, DEHLG

Local Authorities

DEHLG

DEHLG

Local Authorities

Premise owner/occupier

PROTECTION OF DRINKING WATER SOURCES

Actions required: (see also Drinking Waters Directive)

- Identify and protect all surface and groundwater bodies that are used, or may be used in the future, as sources of drinking water for more than 50 people or where the rate of abstraction is > 10m³ per day. Establish monitoring programmes for bodies of water providing >100 cubic metres as an average. Ensure that there is no deterioration of quality in identified bodies of water so as to reduce the level of purification treatment required. Adopt a water safety plan approach i.e. risk assessment, effective operational monitoring and effective management. Consider the designation of safeguard zones around current and future abstractions under the Drinking Water Regulations.

DEHLG

2009 – 2015
Proposed Designated Sites

ABSTRACTION AND IMPOUNDMENTS

Actions required: abstractions and impoundments

- Develop new abstraction regulations to update and extend existing abstraction legislation creating a registration and authorisation system for abstractions and impoundments.

Actions: Water Pollution Acts:

- Maintain registers of abstractions and make available to the public.

DEHLG

2012 – 2015
National

Local Authorities

POINT SOURCE & DIFFUSE SOURCE DISCHARGES

Actions: Water Pollution Acts and regulations:

- License discharges to surface waters and sewers from small scale industrial and commercial sources. Review licences at intervals of not less than 3 years. Keep registers of discharge licences and make them available to the public.
- Serve notices or directions on persons requiring measures to be taken in order to prevent or control pollution of waters, where necessary.
- Notify Local Authorities of accidental discharges and spillages of polluting materials which enter, or are likely to enter, waters.

Local Authorities

2009 – 2015
National

Local Authorities,
Fisheries Boards, NPWS

Relevant persons

Other actions: Urban Wastewater Treatment Plants:

- Measures for improved management: keep register of plant capacity and update annually; install facilities to monitor influent loads and effluent discharges in accordance with Environmental Protection Agency guidelines and best practice; put auditable procedures in place to monitor compliance of licensed discharges; implement training procedures for staff involved with licensing of discharges; monitor receiving water quality upstream and downstream of the point of discharge.
- Optimise treatment plant performance by the implementation of a performance management system.
- Revise existing Water Pollution Act industrial licence conditions and reduce allowable pollution loading.
- Review existing Industrial Pollution Prevention Control licence conditions and reduce allowable pollution load.
- Investigate contributions to the collection system from unlicensed discharges.
- Investigate contributions to the collection system of specific substances known to impact ecological status resulting from licensed and unlicensed discharges and issue or revise licences to reduce or remove such specific substances in the discharge.
- Upgrade plant to increase capacity where necessary.
- Upgrade plant to provide nutrient removal treatment where necessary.

Local Authorities

Local Authorities

Local Authorities

Local Authorities

Local Authorities

Local Authorities

Local Authorities

Local Authorities

Actions: Wastewater Discharge Authorisation Regulations:

- License large Local Authority WWTPs and certify smaller WWTPs and all associated outfalls, CSOs etc. as specified in the Regulations (taking account of WFD objectives). Review licences at intervals not less than 3 years. Enforce compliance with WWTP licensing conditions. Maintain a register of WWTP licences and certificates and make available on request. Inform other relevant public authorities when an application or review is received.

EPA

Actions: Water Services Act:

- Prepare and implement Water Services Strategic Plans.
- Duty of care on owners of premises to ensure that treatment systems for wastewater are kept in good condition.

Local Authorities

Premise owner/occupier

Actions: Minerals Development Act:

- Grant Prospecting Licences for exploration of specified minerals in specified areas subject to conditions. Grant Minerals or Mining Licences with respect to State owned minerals. Grant Mining Permissions to work substances in small quantities. Grant Unworked Minerals Licences with respect to unworked minerals. Grant Preservations of support orders to the purpose of securing sufficient support for buildings, may impose restrictions on mining. Securely fence off abandoned State owned mines to prevent accidents.

DETE

Actions: Energy Act:

- Prepare Mine Rehabilitation Plans for the long-term rehabilitation of mine sites where it is considered necessary for the purpose of public or animal health or the environment.

Local Authorities, DCENR

Actions: Planning and Development Act (unsewered systems)

- Permit on-site waste water treatment systems subject to site suitability assessment.

Local Authorities.

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Other actions: Unsewered Systems:

- Amend Building Regulations to give effect to new codes of practice for single houses and large systems.

DEHLG

Actions: Forestry Act, grant support system and Aerial Fertilisation Regulations:

- Regulate forestry. Promote forestry with financial incentives. License forestry activity and where necessary, attach additional conditions in sensitive areas.
- Encourage sustainable, commercial, afforestation. Ensure that participants comply with guidance and codes of practice.
- Grant aerial fertilisation licences with conditions, insert new conditions, revoke licences or refuse an application. Inform the appropriate local authority, fisheries board and River Basin District if it appears that a proposed application might have significant effects in relation to water quality. Carry out investigation to enable granting, refusal or to revoke an aerial fertilisation licence. Carry out investigation to ascertain adherence to an aerial fertilisation licence, guidelines and good forest practice.

Forest Service

Forest Service

Forest Service

Actions: Strategic Plan for the Development of Forestry:

- Adhere to Forest Management Plans and ensure that Irish forestry practice conforms to the principles of sustainable forest management.
- Ensure implementation of the National Forestry Standard. Ensure adherence to the code of best forest practice.

All stakeholders

Forest Service

Actions: Shellfish Waters Regulations:

- Ensure that designated shellfish water areas conform with quality standards. Undertake monitoring programmes and maintain records in relation to shellfish waters. Establish Action Programmes to ensure conformity with quality standards including all necessary steps.
- Investigate the reasons for non-conformity with the quality standards.

Local Authorities

Local Authorities, DEHLG

Actions: Environmental Objectives (Surface Water) Regulations:

- Ensure surface water bodies comply with the Environmental quality standards set out in the regulations. Establish appropriate measures to achieve the environmental objectives and quality standards set out. Consult, co-operate and liaise with other public authorities within the river basin district where appropriate to co-ordinate compliance.
- Set out emission limits when authorising discharges to water that aim to achieve the environmental objectives taking account of emissions controls based on BAT and best environmental practice. Review existing licences to take into account the new environmental quality standards.
- Prepare programmes for the examination and review of authorisation under relevant Acts. Prepare programmes for the monitoring and inspection of farmyard installations to verify compliance.
- Classify waters based on the results of a monitoring programme and make it available in GIS. Assign a status of less than good where environmental objectives for a protected area are not met.
- Establish an inventory of emissions discharges and losses of priority substances, priority hazardous substances and other pollutants and publish a summary of the inventory. Direct other public authorities to collect and transfer data required. Prepare guidance on the development of inventories. Prepare a plan for the progressive reduction of pollution by priority substances and the ceasing or phasing out emissions, discharges and losses of priority hazardous substances.
- Establish a National Implementation Committee to provide oversight of the preparation of the inventories and the pollution reduction plans.

Public Authorities

Local Authorities, EPA

DEHLG

EPA

Coordinating Local Authority for the RBD

DEHLG

AUTHORISATION OF DISCHARGES TO GROUNDWATERS

Actions required: groundwater discharges

- Transposition of the Groundwater Directive including a general prohibition on direct discharges of pollutants into groundwater except where they are subject to a specified system of prior authorisation and provided the discharges don't compromise the achievement of the objectives established for that body of groundwater.

DEHLG

2009 – 2015
National

Actions: Wastewater Discharge Authorisation Regulations:

- Authorisation of Local Authority WWTPs effluent discharges discharging to groundwater.

EPA, Local Authorities

PRIORITY SUBSTANCES

Actions: Chemicals Act:

- Administration and enforcement of the European Registration, Evaluation and Authorisation of Chemicals regulations (REACH).

Health and Safety
Authority

2009 – 2015
National

- Identify and manage risks linked to the chemicals manufactured or imported and registration of chemicals produced or imported in quantities > 1 tonne.

Manufacturers or
Importers of chemicals

Actions: European Pollutant Release and Transfer Register Regulations:

- Submit required data in relation to releases of pollutants and off-site transfers of pollutants and waste.

Operators

- Provide for electronic collection, assessment of data and report data to the EU Commission in relation to releases of pollutants and off-site transfers of pollutants and waste. Enforce regulations.

EPA

Actions: Environmental Objectives (Surface Water) Regulations:

- Prepare a plan for the progressive reduction of pollution by priority substances and the ceasing or phasing out emissions, discharges and losses of priority hazardous substances. Establish and inventory of emissions discharges and losses of priority substances, priority hazardous substances and other pollutants and publish a summary of the inventory. Direct other public authorities to collect and transfer data required.

Coordinating Local
Authority for the RBD

- Prepare guidance on the development of inventories.

EPA

- Establish a National Implementation Committee to provide oversight of the preparation of the inventories and the pollution reduction plans.

DEHLG

PHYSICAL MODIFICATIONS

Actions required: physical modifications:

- Develop new morphology regulations creating a registration and authorisation system.

DEHLG

2009 – 2015
National

Actions: Planning and Development Act:

- Consider the morphological implications of developments as part of the planning process.

Local Authorities

OTHER ACTIVITIES IMPACTING ON WATER STATUS

Actions required: alien species:

- Introduce new regulations under the Wildlife Act to control introduction or possession of any species of flora or fauna which may be detrimental to native species.

These actions are under
consideration by DEHLG

2009 – 2015
National

PREVENTION OR REDUCTION OF THE IMPACT OF ACCIDENTAL POLLUTION INCIDENTS

Actions: Framework of Major Emergency Management

- Prepare Major Emergency Plans with supporting plans, procedures, arrangements and initiate major emergency development programme for the implementation of the Major Emergency Plans. Carry out risk assessments, mitigate risk, promote resilience and review annually in respect to major emergencies. Co-ordinate the inter-agency aspects of major emergency preparedness and management in assigned regions. Review site and event specific emergency plans.

Local Authorities, An
Garda Síochána, HSE

2009 – 2015
National

- Ensure and promote implementation of the Framework.

Dept of Justice, Equality
& Law Reform, Dept of
Health & Children, DEHLG

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SUPPLEMENTARY MEASURES

Options under consideration	Who Leads	When and Where
POINT AND DIFFUSE SOURCES: WASTEWATER		
Measures intended to reduce loading to the treatment plant: - Limit or cease the direct importation of polluting matter (e.g. liquid wastes, landfill leachate, sludges). - Investigate the extent of use and impact of under-sink food waste disintegrators and take appropriate actions. - Investigate fats/oils/grease influent concentrations and take actions to reduce FOG entering the collection system.	Local authorities	2009 – 2015 Prioritised Sites
Impose development controls where there is, or is likely to be in the future, insufficient capacity at treatment plants.	Local authorities	2009 – 2015 Prioritised Sites
Initiate investigations into characteristics of treated wastewater for parameters not presently required to be monitored under the urban wastewater treatment directive.	Local authorities	2009 – 2015 Prioritised Sites
Initiate research to verify risk assessment results and determine the impact of the discharge.	Local authorities	2009 – 2015 Prioritised Sites
Use decision making tools in point source discharge management.	Local authorities	2009 – 2015 Prioritised Sites
Where necessary to achieve water quality objectives install secondary treatment at smaller plants where this level of treatment would not otherwise be required under the urban wastewater treatment regulations.	Local authorities	2009 – 2015 Prioritised Sites
Apply a higher standard of treatment (stricter emission controls) where necessary.	Local authorities	2009 – 2015 Prioritised Sites
Upgrade the plant to remove specific substances known to impact on water quality status	Local authorities	2009 – 2015 Prioritised Sites
Install ultra-violet, disinfection, filtration or similar type treatment.	Local authorities	2009 – 2015 Prioritised Sites
Relocate the point of discharge.	Local authorities	2009 – 2015 Prioritised Sites
Additional measures to be determined following assessment of urban areas	Local authorities, EPA	2012 – 2015 Prioritised Sites
POINT AND DIFFUSE SOURCES: INDUSTRIAL DISCHARGES		
To be determined following review of industrial licences	Local authorities, EPA	2012 – 2015 Prioritised Sites
POINT AND DIFFUSE SOURCES: LANDFILLS, QUARRIES, MINES & CONTAMINATED LAND		
Further investigation of quarries and landfills and assessment of remediation schemes for mines and contaminated urban sites	Local authorities, GSI, EPA	2009 – 2015 Prioritised Sites
POINT AND DIFFUSE SOURCES: AGRICULTURE		
To be determined following review of the Nitrates Action Plan	DEHLG in consultation with DAFF and other parties	2009 – 2015 National
POINT AND DIFFUSE SOURCES: WASTEWATER FROM UNSEWERED PROPERTIES		
Amend Building Regulations Code of Practice for single houses Code of Practice for large systems Certification of the construction of on-site wastewater treatment systems and percolation areas/polishing filters.	DEHLG, Local Authorities	2009 – 2012 National
Establish: Certified national panel of experts for site investigation and certification of installed systems. A second panel of hydrogeologists is required for clusters and large systems. National group for formulating policies and coordination of consistent approach. A technical advice section or advisory group to coordinate and give advice on emerging and innovative technologies. Installation and maintenance training by FAS	Local authorities	2009 – 2015 National
For new developments: At planning assessment stage, apply the GIS risk mapping / decision support system and codes of practice Notice to planning authority required immediately prior to the installation of on-site effluent treatment systems including percolation areas and polishing filters.	Local authorities	2009 – 2015 National
Inspect existing systems in prioritised locations: Use the GIS risk mapping / decision support system to prioritise locations to be targeted in a programme of inspections and maintenance Use a database and action tracking system	Local authorities	2009 – 2015 National
Enforce requirements for percolation	Local authorities	2009 – 2015 National
Enforce requirements for de-sludging	Local authorities	2009 – 2015 National
Consider connection to municipal systems	Local authorities	2009 – 2015 National
POINT AND DIFFUSE SOURCES: FORESTRY		
Management Instruments - Ensure regulations and guidance are cross referenced and revised to incorporate proposed measures.	Forest Service	2009 – 2012 National
Acidification - Avoid or limit (to below critical thresholds) afforestation on 1st and 2nd order stream catchments in acid sensitive catchments	Forest Service	2009 – 2015 Prioritised Sites *
Acidification - Restructure existing forests to include open space and structural diversity through age classes and species mix, including broadleaves	Forest Service	2009 – 2015 Prioritised Sites
Acidification - Revise the Acidification Protocol to ensure actual minimum alkalinities are detected (that is ensure sampling under high flow conditions) and revise boundary conditions for afforestation in acid sensitive areas.	Forest Service	2009 – 2015 Prioritised Sites

Eutrophication and Sedimentation - Avoid or limit forest cover on peat sites	Forest Service	2009 – 2015 Prioritised Sites
Eutrophication and Sedimentation - Change the tree species mix (for example broadleaves) on replanting	Forest Service	2009 – 2015 Prioritised Sites
Eutrophication and Sedimentation - Limiting felling coup size	Forest Service	2009 – 2015 Prioritised Sites
Eutrophication and Sedimentation - Establish new forest structures on older plantation sites (including riparian zones, drainage layouts, species mix, open areas)	Forest Service	2009 – 2015 Prioritised Sites
Hydromorphology - Audit existing drainage networks in forest catchments	Forest Service	2009 – 2015 Prioritised Sites
Pesticide Use - Reduce pesticide usage	Forest Service, Pesticide Control Service	2009 – 2015 Prioritised Sites
Pesticide Use - Pre-dip trees in nurseries prior to planting out	Forest Service	2009 – 2015 Prioritised Sites
Pesticide Use - Maintain registers of pesticide use	Forest Service, Pesticide Control Service	2009 – 2015 National
Acidification - Mitigate acid impacts symptomatically using basic material (e.g. limestone or sand liming)	Forest Service	2009 – 2015 Prioritised Sites
Acidification - Manage catchment drainage to increase residence times and soil wetting, including no drainage installation in some areas	Forest Service	2009 – 2015 Prioritised Sites
Acidification - Implement measures to increase stream production – for example with native woodland in riparian zones.	Forest Service	2009 – 2015 Prioritised Sites
Eutrophication and Sedimentation - Establish riparian zone management prior to clearfelling	Forest Service	2009 – 2015 Prioritised Sites
Eutrophication and Sedimentation - Enhance sediment control	Forest Service	2009 – 2015 Prioritised Sites
Eutrophication and Sedimentation - Manage catchment drainage to increase residence times and soil wetting, including no drainage in some locations	Forest Service	2009 – 2015 Prioritised Sites
Hydromorphology - Enhance drainage network management – minimise drainage in peat soils	Forest Service	2009 – 2015 Prioritised Sites
Pesticide Use - Develop biological control methods	Forest Service	2009 – 2015 National
POINT AND DIFFUSE SOURCES: DANGEROUS SUBSTANCES & CHEMICAL POLLUTION		
To be determined following review of wastewater and industrial licences	Local authorities, EPA	2009 – 2015 Prioritised Sites

PHYSICAL MODIFICATIONS

Code of Practice	Competent authority to be designated	2009 – 2015 National
Support voluntary initiatives	Local Authorities	2009 – 2015 Prioritised Sites
Channelisation impact remediation schemes	Office of Public Works, Drainage Authorities	2009 – 2015 Prioritised Sites
Channelisation investigation	Central Fisheries Board	2009 – 2015 Prioritised Sites
Over-grazing remediation	DAFF	2009 – 2015 Prioritised Sites
Impassable barriers remediation schemes	Local Authorities	2009 – 2015 Prioritised Sites
Impassable barriers investigation	Local Authorities, Central Fisheries Board	2009 – 2015 Prioritised Sites

ABSTRACTIONS

To be determined following further investigation enabling review or setting of compensation flow requirements and selection of the appropriate supplementary measures on a site specific basis	DEHLG	2009 – 2015 Prioritised Sites
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LOCALLY FOCUSED AND FUTURE ISSUES

Climate change: all measures have been assessed to ensure that the plan adequately considers the potential impacts of climatic change	DEHLG, EPA	2009 – 2015 National
Aquaculture: proposing national standards, designating additional sites and developing shellfish pollution reduction plans	DEHLG	2009 – 2015 Designated Sites
Invasive alien species: supporting measures being developed by the national alien species study and local investigations at District level	NPWS, Local authorities	2009 – 2015 National
Protecting high quality areas developing national guidance on favourable conservation status, introducing a web-based register of designated sites and supporting voluntary initiatives (nature conservation projects) at District level	NPWS, Local authorities	2009 – 2015 Designated Sites
Eutrophication of lakes and estuaries: focused local management plans including programmes of measures		

Integrating this plan with other plans and programmes

Our river basin management objectives can only be achieved if plans and programmes in other water protection policy areas are coordinated and integrated. Other relevant plans and programmes include:

- land use and spatial plans
- conservation plans: habitat and species protection plans
- water services strategic plans
- pollution reduction plans (including surface water pollution reduction plans and groundwater controls, the National Action Programme, discharge authorisation programmes under the Water Pollution Acts and Environmental Protection Agency Act, shellfish waters pollution reduction programme and bathing waters management plans)
- sludge management plans
- major accident emergency plans
- forest management plans
- flood risk management plans.

The relationship between river basin management plans and other water protection plans and programmes is two-way. Each must influence the others' objectives. For example, this coordinated approach could mean prioritising investment (under the Water Services Investment Programme) to eliminate known impacts on protected habitats (for example a Special Area of Conservation) where wastewater discharges are inadequately treated. The Department of the Environment, Heritage and Local Government will provide guidance on preparing Water Services Strategic Plans which will prioritise upgrades under the Water Services Investment Programme.

The problems that our waters face today may worsen in the future. River basin management gives us an opportunity to plan a long-term programme of water improvement. River basin management plans have strong links to the land use planning process as many pressures, such as population growth, development demand and land use changes will increase as our economy continues to grow. In addition, we must consider the possible impacts of climate change. We have used the best information available about population growth, development predictions and climate change assessment when proposing the measures in this draft plan. We must also consider the river basin plan in the context of the wider environment to ensure its overall sustainability and in the context of forthcoming plans in particular flood risk management planning.

Land use planning

The impacts of future development on waters will be mitigated by properly incorporating the objectives established in this plan into development plans so that they will ensure sustainable development. At strategic level Ireland's National Spatial Strategy alongside elements of the National Development Plan are the key mechanisms to ensure a balance between social, economic and development needs. At regional and local levels, the potential risks to water objectives posed by future developments must be subject to Strategic Environmental Assessment when preparing statutory development plans:

- regional planning guidelines
- development plans and local area plans and
- planning schemes in respect of strategic development zones.

In addition, planning authorities must consider potential risks to water objectives during the detailed development proposal stages using the Environmental Impact Assessment procedure.

The first river basin management plans will be adopted by local authorities, after public consultation, in 2009 and reviewed every six years thereafter. All regional planning guidelines will be reviewed by 2010 and every six years thereafter. All development plans and local plans must take account of these regional guidelines and must be reviewed every six years. Guidance on integrating development planning and river basin planning will be issued by the Department of the Environment, Heritage and Local Government in due course.

Planning for climate change

Our plan must be adaptable to changing conditions resulting from climate change which could affect the condition of our waters and the success of the measures we are proposing. We are trying to ensure that our measures are sustainable into the future by taking account of potential changes (in temperature, sea-level rise, floods and droughts).

The impacts of climate change are difficult to predict, consequently the proposed measures are not fully 'climate-proofed' but, in accordance with EU guidance, they have been 'climate checked' against present knowledge on the subject.



The assessment of the consequences of climate change for this draft plan and programme of measures, which was prepared by the Western River Basin District, is available in our climate change background document (www.wfdireland.ie).

The current predictions for Ireland indicate that climate issues may be relatively significant for measures related to:

- protected areas,
- abstractions, and
- physical modifications to river and marine morphology.

The assessment also highlighted some considerations for point source discharges and diffuse landuse pressures (such as agriculture, forestry and unsewered systems), whereas sensitivity for dangerous substances pressures is likely to be low. The study concluded that the programme of measures is sufficiently flexible and adaptable to potential future climate change, in terms of temperature, storm surge, floods and droughts.

Planning for the wider environment

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, needs to be assessed. A screening study concluded that the plans and their measures needed to be subjected to Strategic Environmental Assessment, a system that integrates plans and programmes with wider environmental considerations in order to provide a high level of protection of the environment. Strategic Environmental Assessment must be applied to plans and programmes that set the framework for future development consent for projects.

A scoping study (available on www.wfdireland.ie) was undertaken in 2007 during the development and consultations on the significant water management issues booklet **Water Matters – Have Your Say!** It identified the areas of the wider environment where the impacts of the plan and measures would need to be considered; scoping consultations helped to identify environmental issues that should be considered in developing detailed measures. While the programme of measures and draft plan were being developed, the Strategic Environmental Assessment reviewed the technically feasible measures to ensure that they were environmentally acceptable. The assessment identified any positive or negative impacts on other issues including biodiversity, flora and fauna, human health and population, air quality, climatic factors, soil, material assets, cultural heritage and landscape. The assessment refined the programme of measures by developing possible mitigations.

Strategic assessment was undertaken of over 90 measures with less than 10 identified as having a possible overall negative impact on other aspects of the environment (for example cultural heritage or air quality). Mitigation measures, such as undertaking more detailed assessment at design stage, were recommended for 80% of the measures assessed (including all of those with potential negative impacts).



The wider environmental impacts of the objectives and programme of measures proposed in this draft plan are presented in an independent Environmental Report which is also available via our website (www.wfdireland.ie).

The environmental report reviews the effect of the proposed actions, including any impacts on climate change, providing the following information:

- Introduction: background to the District and strategic environmental assessment
- Methodology: guidance and key steps in the strategic environmental assessment process including links to appropriate assessment under the Habitats Directive
- Description of the draft plan: current situation, planning steps and priorities
- Consultation: scoping, environmental assessment and environmental report phases
- Baseline environment: current state of the environment, relevant environmental problems and evolution of the environment in the absence of the plan
- Policies, plans and programmes: review of relevant water management controls
- Strategic environmental objectives, targets and indicators: development of objectives, targets and indicators
- Alternatives
- Assessments
- Mitigation and monitoring.

Comments on the draft plan and environmental report will help to refine the plan and programme of measures. In 2009 a Strategic Environmental Assessment Statement will accompany the final river basin management plan. It will confirm whether the plan has been correctly assessed and will demonstrate how the strategic environmental process has integrated wider environmental concerns.

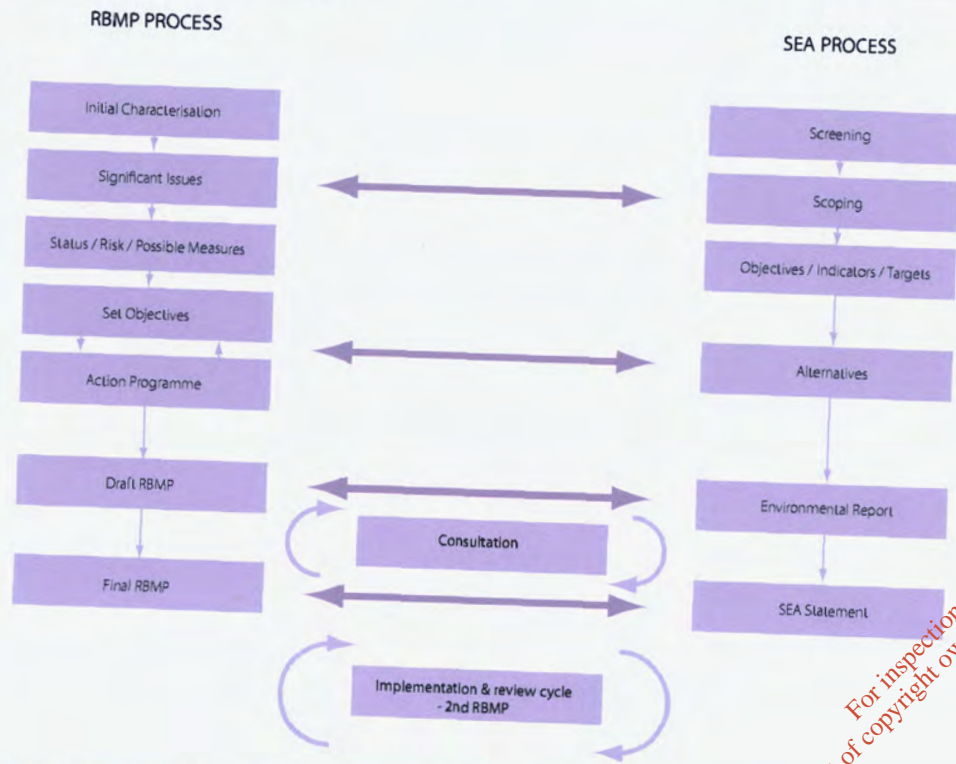


Figure 1 Integration between river basin planning and strategic environmental assessment

Flood Risk Management Plans

The report of Ireland's Flood Policy Review Group, approved by Government in 2004, set out a new policy on the management of flood risks. This included the preparation of catchment-based Flood Risk Management Plans that will set out the long-term strategy and a prioritised set of measures for managing flood risks, both structural and non-structural. The development of such plans is also a requirement of the Floods Directive, which came into force in November 2007, with transposition required by November 2009. Implementation of the Water Framework Directive and the Floods Directive must be coordinated, with certain aspects of their implementation based on consistent information.

Action themes

Early consultations with the South Western District's public participation and authorities groups recommended action themes to overcome the shortcomings in current water management. The themes (joined-up thinking, resources, economics, education and politics) were set out in our *Water Matters - Have Your Say!* booklet. During recent consultations, participants reiterated those action themes and also expressed concern about public participation. In this section of the draft plan we show how our proposed action plan, and the arrangements that have been put in place to support river basin planning, will address those action themes.

Joined-up thinking

Participants gave examples of new development allowed ahead of infrastructure, noting the need to integrate spatial plans with river basin plans. The Department of the Environment, Heritage and Local Government will address this by issuing specific guidance on aligning river basin and development planning processes. Both types of plan will influence each other to ensure sustainable development is achieved. In addition public authorities will continue to work together through a coordinated river basin management unit to implement the river basin plan in a joined-up manner.

Resources to improve response to water problems

There was widespread concern about resource limitations, particularly in local authorities, and the need to secure adequate resources and funding to enforce existing controls and to implement the plan. The responsible government authorities in Ireland have so far successfully met all the Water Framework Directive's early milestones and are among the Member States showing the highest level of compliance to date. This success has been largely due to substantial government investment, through river basin district projects and commitment of public authority resources. Resources to strengthen enforcement of existing controls, for example extra funding for the Environmental Protection Agency's enforcement team, have already been secured. The plan will ensure that local authority activities (such as water quality surveys, farm and on-site systems inspections) are targeted to optimum effect.

Use of economic tools

A number of public participants stated that water charging should be introduced for all users and queried whether grants for upgrading on-site systems and installing alternative water sources would be available. All non-domestic customers are charged for water and wastewater services; domestic costs are recovered via the local government fund. This is in line with the polluter pays principle and is permitted under the Water Framework Directive. In 2008, the Programme for Government also set out a commitment to introduce a scheme of grant support for the replacement and upgrade of septic tanks older than fifteen years with newer systems. Details of the scheme are being developed.

Education and awareness campaigns

Participants noted the general public's lack of awareness of water's value and called for a campaign on water and its importance. As part of our action programme, consideration will be given to developing an awareness campaign and to implementing targeted education programmes.

Political commitment

The need for political support to underpin the ethos and commitment to the Water Framework Directive was expressed from the very start of consultations about the Directive. Ireland's efforts and success to date and the ongoing resourcing, funding, administrative and legislative commitments demonstrate that water is a key environmental priority. In addition, the adoption of the first river basin management plan, in 2009, will affirm the commitment of the local authorities in the South Western District to sustainable water management.

Public participation

Several participants stated that effective public participation is essential for successful water management. Public participation is one of the Water Framework 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. To encourage active involvement, public participation and authorities groups have been established in the South Western District. Efforts to encourage public participation will be strengthened during the consultations on the draft plan, as it is important to help individuals and stakeholders to buy in to the river basin planning process.

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What happens next?

There is still some important work to complete before this river basin management plan is adopted. This will include some further technical and scientific planning work as well as recording, assessing and, where appropriate, taking on board comments received during consultations on the draft plan and strategic environmental assessment.

Date	Milestone
22nd December 2008	Publication of draft river basin management plan
22nd June 2009	End of statutory consultation
22nd December 2009	Publication of river basin management plan
December 2009 – 2015	First 6 year planning cycle

2009

Between now and finalising the first plan, four strands of activity will be occurring at the same time:

- finalising programmes of measures and action plans
- strengthening environmental enforcement activities
- assessing environmental impacts
- the consultation process, of which this document is a part.

Finalising programmes of measures and action plans

During 2009 the Environmental Protection Agency will update its interim status assessments to include the most recent monitoring results. In addition, any further environmental standards (for example new flow standards or fish classification schemes) or protected area designations brought forward between the draft and final plans will also be incorporated in the plan.

There are two particular issues for which measures will be further progressed and incorporated into the first river basin management plan. The sub-basin plans for freshwater pearl mussel protected areas will be developed and further consulted on during 2009. In addition the review of the Good Agricultural Practice Regulations during 2009 will form the basis for considering any additional supplementary measures that may be required for agriculture. Local authorities will also undertake more detailed assessment of the costs and effectiveness of the proposed measures and will apply forthcoming economic guidance on disproportionate costs to fine-tune supplementary measures and ensure that the cost of these measures is not significantly greater than the benefits gained.

Any changes resulting from updates to status, standards, designations or measures will be reflected in updated objectives and measures where necessary. Differences between the draft and final plans will be highlighted and consulted on before the final plan is adopted.

Strengthening environmental enforcement activities

The river basin management plan requires public authorities to work together to achieve the Water Framework Directive's objectives. Relevant public authorities are responsible for the implementation of the detailed action programme and the Environmental Protection Agency has a supervisory role in relation to these public authorities.

Local authorities use a strategic and systematic approach to enforcement through the production of environmental inspection plans in line with the European Union's Recommendation on Minimum Criteria for Environmental Inspections. The purpose of these inspections is to check and promote compliance with relevant national and EU environmental legal requirements and to monitor the impact of controlled installations on the environment. The inspection plan's scope encompasses all local authority environmental inspections (waste, water and air) across a range of industrial sectors including agriculture. The inspection plan should direct inspection time and resources based on defined priorities and should be based on environmental risk.

Inspection plans produced by the relevant public authorities must:

- define the time period and geographical area to which the plan relates;
- define specific sites or types of installations covered by the plan;
- include a programme for routine environmental inspections;
- include procedures for dealing with complaints, accidents and incidents;
- provide a means to coordinate actions with other Public Authorities; and
- define the mechanism for revision of the plan.

Site visits made under the inspection plan must be recorded in a report which provides findings on the compliance status of the facility or activity being visited and draws conclusions on further actions required. These actions may include enforcement proceedings, a requirement for a new or revised licence or a requirement for additional inspections. On completion of an inspection report, the authority should communicate the conclusions of the report to the operator of the activity.

The integration of inspection and enforcement activities provides for:

- more efficient management of common resources,
- meeting international requirements through improved co-ordination with other authorities,
- more coherent resource planning,
- a means of collating and disseminating enforcement effort locally and nationally.

To ensure integration of river basin management plans and inspection plans, each authority should take account of the river basin management plan and its programme of measures and other departmental plans when preparing their inspection plan. Each authority should explicitly state a high level commitment to the implementation of the plan and the appropriate Directors of Service from each local authority in the District should collectively agree the priorities and targets set out in the inspection plan and internalise these objectives and targets within their own local authority.


These inspection plans should set out the inspection and enforcement activities to implement:

- the Good Agricultural Practice Regulations,
- drinking and aquifer source protection,
- discharge authorisations to waters and sewers,
- the relevant pollution reduction programmes,
- protection of sensitive areas or protected areas, such as designated freshwater pearl mussel populations, designated bathing waters and shellfish waters,
- other inspections to maintain and improve water quality objectives.

However not all measures from the river basin management plan are applicable to the inspection plans, for example upgrading of Wastewater Treatment Plants, and planning development controls fall outside of the scope of the inspection plan.

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, will be subject to a Strategic Environmental Assessment.

 The wider environmental impacts of the objectives and programme of measures proposed in this draft plan are presented in an independent Environmental Report which is available via our website (www.wfdireland.ie).

Consultations on the Environmental Report will run in parallel to the draft plan consultations; a Strategic Environmental Assessment statement will be published alongside the finalised river basin management plan in December 2009.

The consultation process

This first river basin management plan will be adopted and come into effect in 2009; after a six-month period of consultation. Consultation activities will include a variety of meetings, briefings and information sessions. Once the plan and programme of measures are adopted, they become legal requirements. The plan will have an effect on every individual in the South Western District. The change that just one person can make can help to improve our waters.

2009 – 2015 Implementing the management plan

Coordinated implementation of the Directive in the South Western District has been facilitated by Ireland's National Development Plan. The task of implementing the management plans will fall, mainly, to the statutory authorities. In the case of the South Western District, it is envisaged that a unit will be set up by Cork County Council to coordinate the work of the statutory authorities.

In Ireland, implementation of the river basin management plans will be coordinated by a National Implementation Group, established by the Department of the Environment, Heritage and Local Government and involving representatives from public authorities responsible for plan delivery.

More information online

i The Department of the Environment, Heritage and Local Government has produced guidance for making river basin management plans. It is available with our background documents if you want to read more about it (www.wfdireland.ie).

The following series of public participation documents have encouraged interested parties to have their say regarding various aspects of the implementation process to date:

- "A Future For Our Waters", summary characterisation report published by the SWRBD.
- "Timetable and Work Programme for Making a River Basin Management Plan for the South Western River Basin District"
- "Water Matters – Have Your Say", consultation on the significant water management issues published by the SWRBD
- Digest of responses to "Water Matters – Have Your Say"
- Draft Environmental Quality Standards published by the EPA
- Strategic Environmental Assessment scoping report

i These documents, along with a series of other background documents published both nationally and by the South Western District to facilitate understanding of the Water Framework Directive, can be found at www.wfdireland.ie.

These background documents include technical studies into our key water issues, our register of protected areas and documents detailing monitoring programmes and status development, economics, objectives, programmes of measures and links to plans and programmes, climate change and Strategic Environmental Assessment.

i A list of the South Western District's relevant authorities and stakeholders can also be found at www.wfdireland.ie. Our interactive webmap viewing tool can also be accessed at www.wfdireland.ie.

Making comments

It is really important that you consider this draft plan and how it will affect you. This document has given an overview of the planning process and the proposed objectives and programme of measures. 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 **help us plan!**

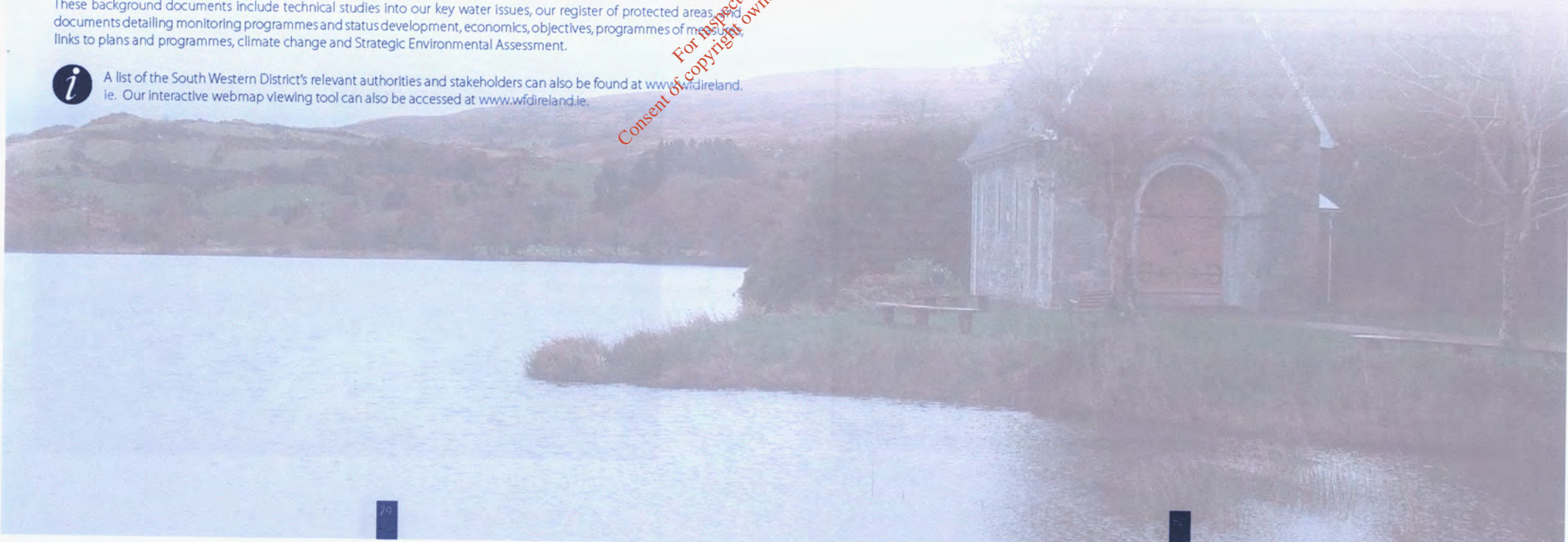
Please send your comments and views before 22 June 2009 to:

Seán Ó'Breasail
South Western River Basin District Project
Cork County Council
Environment Department
Inniscarra
Co Cork
Sean.OBreasail@CorkCoCo.ie

Early responses would be appreciated to allow more time to clarify and resolve issues that may arise.

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: if you do, 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.swrbd.ie).

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Attachment G.1

Compliance with Council Directives

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G.1 COMPLIANCE WITH COUNCIL DIRECTIVES

G.1.1 Dangerous Substances Directive 2006/11/EEC

Refer to Section F.1. The Dangerous Substances Regulations S.I. No. 12 of 2001 give effect to the Dangerous Substances Directive 2006/11/EC. The Regulations set out the main polluting substances, such as pesticides, solvents and metals, which are likely to impair the environment.

The waste water in the Rosemount Agglomeration is domestic in nature. It is therefore unlikely to have significant quantities of dangerous substances.

The main polluting substances emitted from the WWW serving the Rosemount Agglomeration are BOD, SS and nutrients.

There is therefore no requirement for a programme of improvements to ensure that emissions from the agglomeration or any premises, plant, methods, processes, operating procedures or other factors which affect such emissions will comply with, or will not result in the contravention of the Dangerous Substances Directive 2006/11/EC.

G.1.2 Water Framework Directive 2000/60/EEC

The Water Framework Directive 2000/60/EC seeks to ensure "high" status for all waters within member states by 2015.

Refer to Section F.1. The WWW serving the Rosemount Agglomeration discharges through the primary discharge point to groundwater. The associated percolation bed is located close to the Glennamought River. Reference to the Lower Lee Owenboy WMUAP shows the Glennamought River indicated as being of "moderate" overall status with an overall objective of "restore". A copy of the Lower Lee Owenboy WMUAP can be seen at Attachment F.1.

A draft river basin management plan has been prepared for the SWRBD. A copy of this report can be seen at Attachment F.1.

The refurbishment of the WWTP serving the Rosemount Agglomeration will take place before 2015. This would assist in meeting the deadline set out under the Directive.

Refer to Section B.9 where it is seen that funding is being sought for the refurbishment of the WWTP.

There is therefore no programme of improvements currently available to ensure that emissions from the agglomeration or any premises, plant, methods, processes, operating procedures or other factors which affect such emissions will comply with, or will not result in the contravention of the Water Framework Directive 2000/60/EC.

G.1.3 Birds Directive 79/409/EEC

SPAs have been designated as a result of the Birds Directive 79/409/EEC in order to protect certain habitats. There are no SPAs affected by emissions from the Rosemount Agglomeration.

There is therefore no requirement for a programme of improvements to ensure that emissions from the agglomeration or any premises, plant, methods, processes, operating procedures or other factors which affect such emissions will comply with, or will not result in the contravention of the Birds Directive 79/409/EEC.

G.1.4 Groundwater Directives 80/68/EEC & 2006/118/EEC

The Groundwater Directives 80/68/EEC & 2006/118/EEC seek to prevent and control pollution of groundwater. It is proposed to refurbish the WWTP serving the Rosemount Agglomeration. Refer to Section B.9. There is therefore no requirement for a programme of improvements to ensure that emissions from the agglomeration or any premises, plant, methods, processes, operating procedures or other factors which affect such emissions will comply with, or will not result in the contravention of the Groundwater Directives 80/68/EEC & 2006/118/EC.

G.1.5 Drinking Water Directive 80/778/EEC

Refer to Section F.1. There is no drinking water abstraction point downstream of the WWTP serving the Rosemount Agglomeration. There is therefore no requirement for a programme of improvements to ensure that emissions from the agglomeration or any premises, plant, methods, processes, operating procedures or other factors which affect such emissions will comply with, or will not result in the contravention of the Drinking Water Directive 80/778/EEC.

G.1.6 Urban Waste Water Treatment Directive 91/271/EEC

The Urban Waste Water Treatment Directive 91/271/EEC requires that appropriate levels of waste water treatment are achieved by defined dates for municipalities of defined PE where the effluent discharges to freshwaters or estuaries. In the case of Rosemount, where the PE is less than 2,000, secondary treatment was required by 31st December 2005.

Refer to Section C.1 where it is seen that secondary treatment is provided at the WWTP serving the Rosemount Agglomeration. It is also seen at Section C.1 that the WWTP does not have sufficient capacity to treat any further development within the Agglomeration.

Refer to Section B.9 where it is seen that plans to refurbish the existing WWTP are in progress.

There is therefore a requirement for a programme of improvements to ensure that emissions from the agglomeration or any premises, plant, methods, processes, operating procedures or other factors which affect such emissions will comply with, or will not result in the contravention of the Urban Waste Water Treatment Directive 91/271/EEC. However, this programme is being advanced and funding is being sought.

G.1.7 Habitats Directive 92/43/EEC

SACs have been designated as a result of the Habitats Directive 92/43/EEC in order to protect certain habitats. There are no SACs affected by emissions from the Rosemount Agglomeration.

There is therefore no requirement for a programme of improvements to ensure that emissions from the agglomeration or any premises, plant, methods, processes, operating procedures or other factors which affect such emissions will comply with, or will not result in the contravention of the Habitats Directive 92/43/EEC.

G.1.8 Environmental Liabilities Directive 2004/35/EEC

The Environmental Liabilities Directive 2004/35/EEC seeks to hold polluters liable for the cost of remedying their pollution.

Cork County Council attempts to limit pollution by the routine inspection and maintenance of the WWTP serving the Rosemount Agglomeration. Cork County Council has also sought funding for the refurbishment of the exiting WWTP serving the Rosemount Agglomeration.

The combined approach of maintenance, monitoring and replacement where required reduces risk of pollution.

Refer to Section G.1.6 above where it is seen that there is a requirement for a programme of improvements to ensure that emissions from the agglomeration or any premises, plant, methods, processes, operating procedures or other factors which affect such emissions will comply with, or will not result in the contravention of the Environmental Liabilities Directive 2004/35/EEC. However, this programme has been delayed due to lack of funding.

G.1.9 Bathing Water Directive 76/160/EEC

There are no designated bathing waters in the Glennamought River. There is therefore no requirement for a programme of improvements to ensure that emissions from the agglomeration or any premises, plant, methods, processes, operating procedures or other factors which affect such emissions will comply with, or will not result in the contravention of the Bathing Water Directive 76/160/EEC.

G.1.10 Shellfish Waters Directive 79/923/EEC

There are no designated shellfish waters in the Glennamought River. There is therefore no requirement for a programme of improvements to ensure that emissions from the agglomeration or any premises, plant, methods, processes, operating procedures or other factors which affect such emissions will comply with, or will not result in the contravention of the Shellfish Waters Directive 79/923/EEC.

Attachment G.3

Impact Mitigation

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G.3 IMPACT MITIGATION

Refer to Section F.1 where it is stated that there are no known significant effects arising from the direct discharge of treated effluent from the WWW serving the Rosemount Agglomeration to the receiving groundwater. There is therefore no programme of improvements required to ensure that discharges from the Carrignavar Agglomeration will not result in significant environmental pollution.

Also refer to Section B.9 where it is seen that there are plans to refurbish the existing WWTP.

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