

8.0 OVERVIEW OF EXISTING WATER MANAGEMENT PRACTICES

8.1 Responses

‘Responses’, as defined in the Common Implementation Strategy guidance on the analysis of pressures and impacts for the Water Framework Directive, are the ‘measures’ taken to improve the state of a water body. The brief for the Initial Characterisation Report requires a review of the existing ‘measures’ in place within the South Eastern River Basin District. This Section provides a brief overview of the ‘measures’ or ‘actions’ required by the Water Framework Directive and the timescale involved for their implementation and also assesses existing national measures in place e.g. compliance with National legislation.

8.2 Water Framework Directive Requirements for Measures

One of the fundamental environmental objectives of the Water Framework Directive is to achieve ‘good’ surface and ground water status by 2015. Another key purpose of the Directive is to prevent further deterioration of, protect and enhance the status of water resources - where ‘good’ and ‘high’ water status already exists, it should be maintained. Good surface water status is defined as the status achieved by a surface water body when both its ecological status and its chemical status are at least ‘good’. High surface water status is the condition of water bodies that are substantially unaffected by human intervention, and is the reference condition for specific types of water body.

The Water Framework Directive requires a River Basin Management Plan to be produced for each river basin district including as a key element a ‘Programme of Measures’ which is the main mechanism of achieving the environmental objectives identified in Article 4 of the Water Framework Directive. The Programme of Measures, described in Article 11 of the Water Framework Directive, requires to at least ensure the implementation of the existing EU Directives identified in Article 10, Annex VI, IX and X amongst other requirements.

There is also a requirement to transpose the Water Framework Directive into National Law by 2003. A National Co-ordination Group and a series of working groups have been set up to co-ordinate and promote at National level the implementation of the Water Framework Directive. The River Basin Management Projects, funded by the DELG are the key step toward implementing the Water Framework Directive on a River Basin level. The organisations and their associated roles and functions in relation to the Water Framework Directive are identified in the EPA’s report ‘Review of Monitoring and Research to meet the needs of the EU Water Framework Directive’ Irvine K. et al (2002) and summarised in the Project’s Policy and Legislation Report which was prepared as part of Task 1 of the South Eastern River Basin District Project.

The Water Framework Directive defines two types of ‘measures’: Basic Measures and Supplementary Measures.

‘Basic Measures’ are the minimum requirements to be complied with and include the measures required under the existing EU legislation for the protection of water quality. Annex VI of the Water Framework Directive identifies eleven EU directives whose measures are to be included in the ‘Programme of Measures’ as ‘Basic Measures’ as listed below.

- (i) The Bathing Waters Directive (76/160/EEC)
- (ii) The Birds Directive (79/409/EEC)
- (iii) The Drinking Water Directive (80/778/EEC)
- (iv) The Major Accidents (Seveso) Directive (96/82/EC)
- (v) The Environmental Impact Assessment Directive (85/337/EEC)
- (vi) The Sewage Sludge Directive (86/278/EEC)
- (vii) The Urban Wastewater Treatment Directive (91/271/EEC)
- (viii) The Plant Protection Directive (91/414/EEC)
- (ix) The Nitrates Directive (91/676/EEC)
- (x) The Habitats Directive (92/43/EEC)
- (xi) The Integrated Pollution Control Directive (96/61/EC)

‘Basic Measures’ also include measures required under the legislation specified in Article 10 of the Water Framework Directive. Legislation referred to in Article 10, and not listed above, is identified in Annex IX and includes the following set of daughter directives of Directive 76/464/EEC related to the discharge of dangerous substances into the aquatic environment

- (i.) The Mercury Discharges Directive (82/176/EEC)
- (ii.) The Cadmium Discharges Directive (83/513/EEC)
- (iii.) The Mercury Directive (84/156/EEC)
- (iv.) The Hexachlorocyclohexane Discharges Directive (84/491/EEC)
- (v.) The Dangerous Substances Discharges Directive (86/280/EEC)

‘Basic Measures’ will also incorporate measures to eliminate pollution of surface waters by those specified in the list of Priority Substances in Annex X of the Water Framework Directive (Decision No. 2455/2001/EC). The list of Priority Substances is to replace the list of substances in the Commissions Communication of the Council of the 22nd June 1982 on Dangerous Substances which might be included in the List 1 of Council Directive 76/464/EC.

The requirements to carry out ‘measures’ under these Directives are generally set out in existing National legislation. However, it should be noted that the Water Framework Directive itself has yet to be transposed into Irish law. Regulations were recently made identifying the whole national territory

as the area for which an action programme will be established and applied in accordance with the Nitrates Directive. The Nitrates Directive must be implemented as an integral part of the 'Basic Measures' in the 'Programme of Measures'.

'Supplementary Measures' are those needed in addition to 'Basic Measures' to achieve the environmental objectives of the Water Framework Directive. Annex VI of the WFD provides a non-exclusive list of 'Supplementary Measures' as listed below.

- (i) Legislative Instruments
- (ii) Administrative instruments
- (iii) Economic or fiscal instruments
- (iv) Negotiated environmental agreements
- (v) Emission controls
- (vi) Codes of good practice
- (vii) Recreation and restoration of wetlands Areas
- (viii) Abstraction Controls
- (ix) Demand management measures, *inter alia*, promotion of adapted agricultural production such as low water requiring crops in areas affected by drought
- (x) Efficiency and reuse measures, *inter alia*, promotion of water-efficient technologies in industry and water-saving irrigation techniques
- (xi) Construction Projects
- (xii) Desalination plants
- (xiii) Rehabilitation projects
- (xiv) Artificial recharge of aquifers
- (xv) Educational projects
- (xvi) Research, development and demonstration projects
- (xvii) Other relevant measures

The Water Framework Directive requires the 'Programme of Measures' to be established for the River Basin Management Plan by 2009 with all the measures be made operational by 2012.

The 'Programme of Measures' required for the South Eastern River Basin District by the Water Framework Directive will be initiated by the South Eastern River Basin District Project and will also incorporate relevant legislation adopted at national level. It is a Project task to adopt an Environmental Management System approach which will ensure that the 'Measures' identified are continuously implemented, reviewed and assessed. The development of the 'Programme of Measures' for the South Eastern River Basin District is due to start September 2003 along with the development of an Environmental Management System which will continue beyond the lifetime of the Project.

Table 5.1 (Section 5) of the Project’s Policy and Legislation Report identifies the National Legislation in place to implement the EU directives referred to in the Water Framework Directive and the responsible bodies. In Ireland there are numerous statutory government organisations and agencies charged with management of the environment, for example Dúchas, which has environmental responsibilities for EU nature conservation designated sites. The key bodies responsible for implementing ‘measures’ to improve water quality and water quantity are the Local Authorities and the Environmental Protection Agency.

8.3 Compliance with Existing Legislation

Key National legislation related to water quality and which give effect to many of the EU Directives referred to above, to provide for the ‘Basic Measures’, is listed in Table 8.1. An assessment of compliance with these national regulations particular to the South Eastern River Basin District is presented below.

Table 8.1 Key National Legislation

Ref	Key National Legislation
8.3.1	Urban Wastewater Treatment Regulations (S.I. No. 254 of 2001)
8.3.2	Phosphorus Regulations (S.I. No. 258 of 1998)
8.3.3	The Local Government (Water Pollution) Act 1977 & (Amendment) Act 1990
8.3.4	The Environmental Protection Agency Act, 1992
8.3.5	Bathing Water Regulations (S.I. No. 155 of 1992)
8.3.6	Shellfish Water Regulations (S.I. No. 200 of 1994)
8.3.7	Drinking Water Regulations (S.I. No. 81 of 1988 & S.I. No. 439 of 2000 & Amendment Regulations)
8.3.8	Salmonid Regulations (S.I. No. 283 of 1988)
8.3.9	Dangerous Substances Regulations (S.I. No. 12 of 2001)
8.3.10	Waste Management (Use of Sewage Sludge in Agriculture) regulations (S.I. No. 148 of 1998)
8.3.11	Groundwater Regulations (S.I. No. 41 of 1999)
8.3.12	European Communities (Natural Habitats) Regulations, 1997
8.3.13	European Communities (Protection of Waters against Pollution from Agricultural Sources) Regulations, (S.I. No. 213 of 2003)

8.3.1 Urban Wastewater Treatment Plant Regulations, S.I. No. 254 of 2001

The Urban Wastewater Treatment Regulations specify required levels of treatment by particular dates depending on population equivalent of agglomerations. The requirements of the regulations in terms of treatment plants are summarised in Figures 8.1 and 8.2 and Table 8.4. These figures also identify the population centres within the South Eastern River Basin District with population equivalents (pe) greater than 500, their current pe and level of treatment. The towns in which current treatment is insufficient to satisfy the future requirements of the regulations are also highlighted i.e those requiring an upgrade of facilities.

Appropriate treatment is required by 2005 for discharges of population equivalent less than 2,000 discharging to freshwaters or estuaries and less than 10,000 discharging to coastal waters. Secondary treatment or an equivalent is required by 2005 for agglomerations greater than 2,000 discharging to freshwaters or estuaries and greater than 10,000 discharging to coastal waters. A more stringent treatment is required for agglomerations discharging to waters designated 'sensitive' under the regulations. The waters in the South Eastern River Basin District which have been designated 'sensitive' are listed in Part 2 of the third schedule of the regulations - discharges to 'Sensitive Waters' listed in Part 2 must receive more stringent treatment by 2008.

There are 95 agglomerations within the South Eastern River Basin District with population equivalents greater than 500 as summarised in Table 8.2.

Table 8.2 SERBD Wastewater Treatment Plant Summary Table (i.e pe>500)

Population Equivalent (pe)	500-2,000	2000-9,999	10,000-50,000	>50,000	Total (≥500)
Number of WWTPs in SERBD	58	22	5	1	86
Number of Agglomerations without WWTPs in the SERBD	0	4	4	1	9
Total Number of Agglomerations	58	26	9	2	95

There are 9 towns in the district, with population equivalent's greater than 2000, without wastewater treatment plants, these mainly coastal/estuarine towns are Waterford City, Wexford town, Dungarvan, Tramore, New Ross, Carrick on Suir, Rosslare Harbour, Dunmore East and Ardmore. Provision of treatment at all 9 agglomerations is being progressed.

The Design, Build and Operate (DBO) Contract documents have been prepared for the WWTP for Waterford City. The Contract for the new WWTP at Dungarvan is also Design Build and Operate and is at tender evaluation stage. Construction of a new WWTP in Tramore is due to commence in Summer 2003. Secondary treatment is proposed. The WWTP for Wexford town is under construction and due for completion in 2003. The proposed level of treatment is Secondary Treatment with Nutrient Removal and UV disinfection. A preliminary report has recently been prepared for a new WWTP in New Ross with recommendations for Secondary Treatment and a provision for Nutrient removal. Contract Documents for a Design, Build and Operate (DBO) Contract, to provide a new WWTP for Rosslare Harbour and extend the existing collection system, have been prepared and are awaiting approval from the DELG. Funding has been allocated so no delays are expected. The Design population equivalent for the proposed Secondary plant is approximately 8500. A Preliminary Report for a 'Group Villages Scheme', which includes the towns of Dunmore East and Ardmore, has been submitted to the DELG for approval. Secondary Treatment is recommended for both plants. The WWTP for Carrick on Suir is at construction stage and due for completion in 2003. The proposed level of treatment is Secondary Treatment with Nutrient Removal.

The UWWT regulations designate certain water bodies as ‘Sensitive’ and WWTPs with population equivalents >10,000 discharging into these waters require a more stringent treatment than Secondary, usually Nutrient removal (as the regulations specify emission limit values for Total Phosphorus and Total Nitrogen). The waters in the South Eastern River Basin District designated ‘Sensitive’ are listed in Table 3.12. Towns in the South Eastern River Basin District with population equivalent’s greater than 10,000 and discharging to ‘Sensitive Waters’ include Carlow town (Mortarstown), Portlaoise, Thurles, Wexford Town, Enniscorthy, Kilkenny (Purcellsinch) and Clonmel. All seven agglomerations already have or have plans to provide for Nutrient removal.

The WWTP for Carlow town has recently been upgraded to include for Nutrient Removal. The WWTP in Clonmel is due to bring Nutrient removal on line in 2003. Kilkenny and Enniscorthy are due to be upgraded and are at preliminary report stage, Nutrient removal has been recommended for both WWTPs. Nutrient Removal is also proposed for the existing WWTP at Portlaoise, which is undergoing a major upgrade but already includes for Nutrient Removal. As previously stated the new WWTP for Wexford town will incorporate Nutrient removal and tertiary treatment. A summary of the treatment requirements as outlined in the regulations is provided below.

Table 8.3 SERBD Treatment Requirement Summary (i.e pe greater than 500)

	SENSITIVE WATERS		NON-SENSITIVE WATERS	
	Number of Agglomerations (>10,000 pe)	No. to be Upgraded or New WWTP required	Number of Agglomerations (≥500)	No. to be Upgraded or New WWTP required
<2000 pe (i.e 500-1,999)	N/A	N/A	58	24
2000-10,000 pe	N/A	N/A	26	8
>10,000 pe	7	5	4	4
Total	7	5	88	36

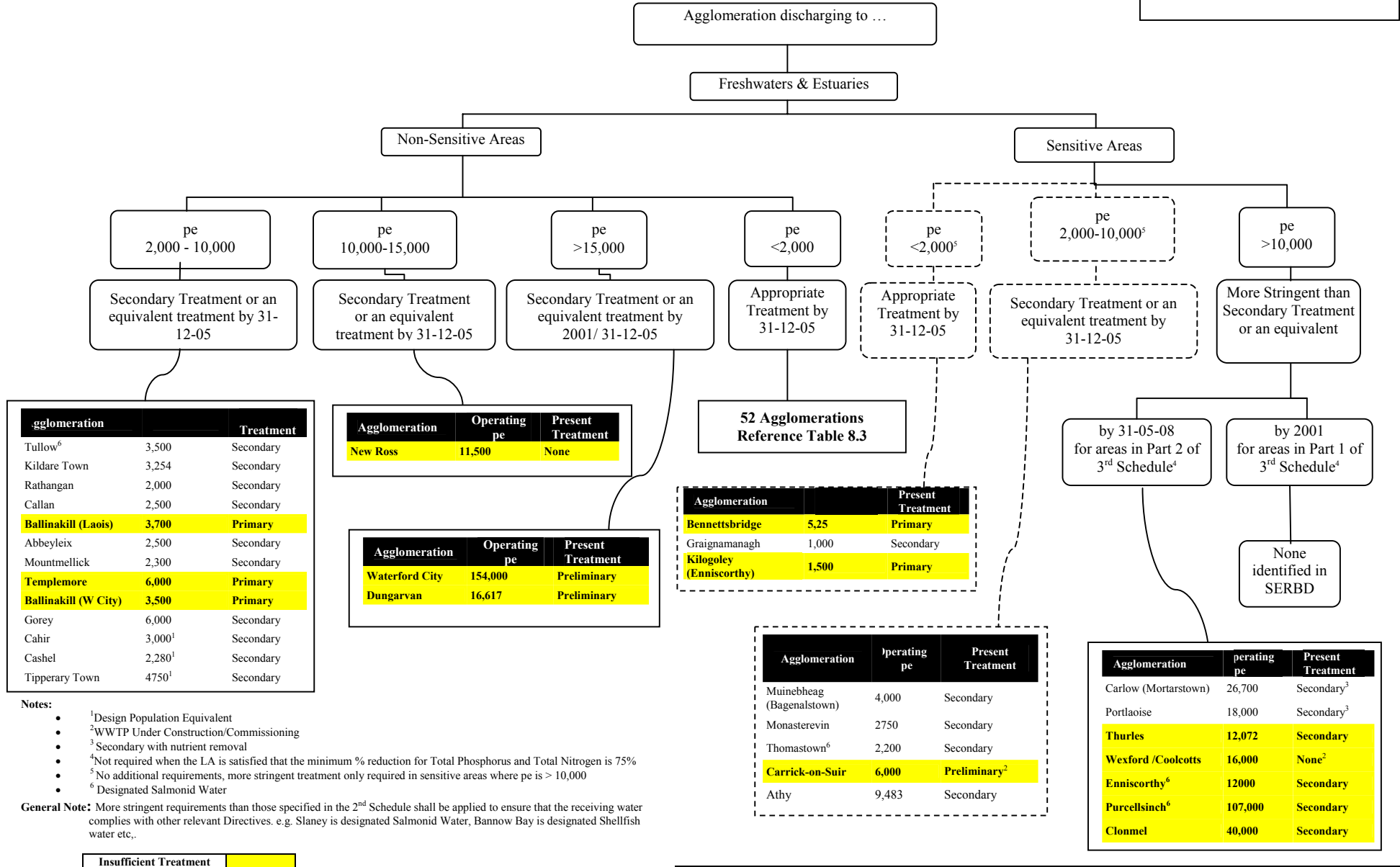
Total No. of agglomerations greater than or equal to 500 pe = 7 + 88 = 95

Total No. of agglomerations greater than or equal to 500 pe requiring a New WWTP or a WWTP upgrade = 36 + 5 = 41

Table 8.3 indicates that 43% of agglomerations, with a pe ≥500, within the South Eastern River Basin require a new WWTP or a WWTP upgrade.

The sampling frequency stipulated in the UWWT regulations is set out in Table 8.5 and is dependent on the size of agglomeration and the past compliance record of the treatment plant. The regulations also require flow proportional sampling or time based 24-hour sampling. Grab sampling is not sufficient to establish compliance.

Figure 8.1



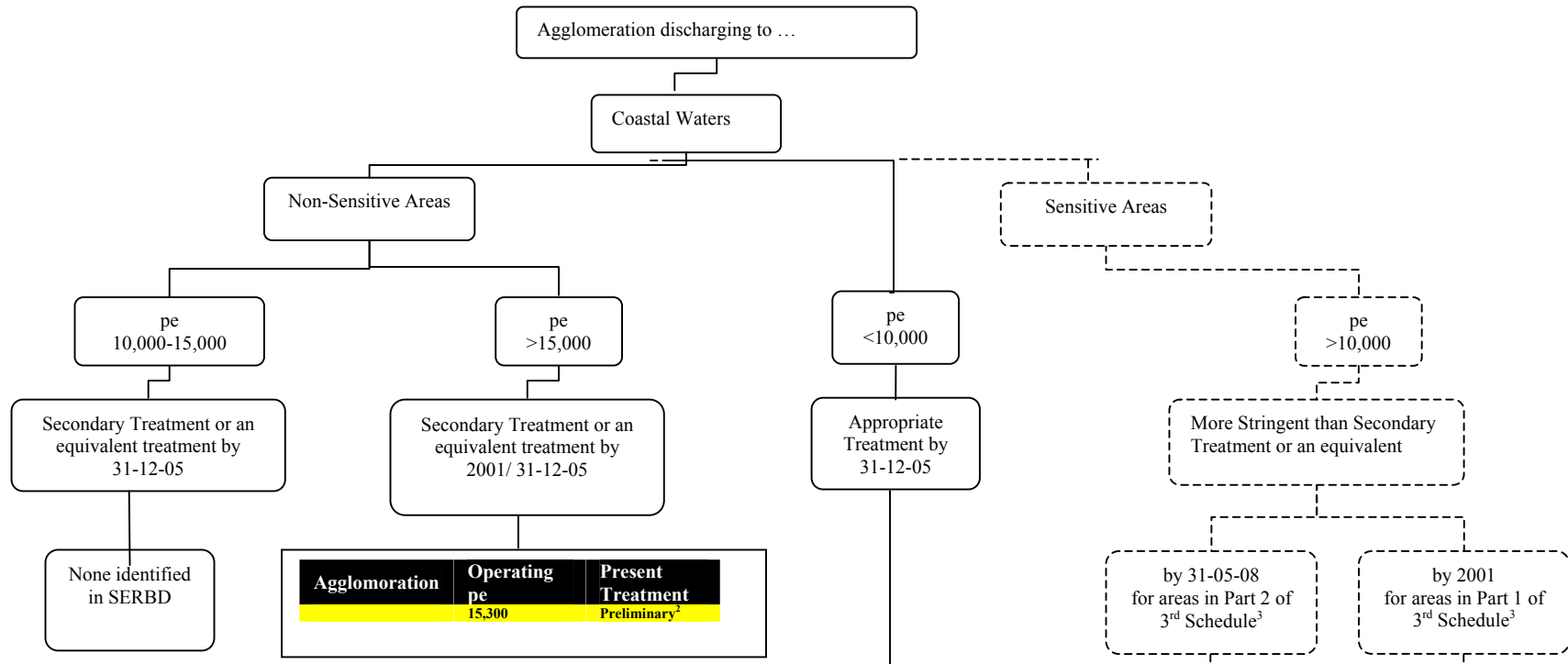
Notes:

- ¹Design Population Equivalent
- ²WWTP Under Construction/Commissioning
- ³Secondary with nutrient removal
- ⁴Not required when the LA is satisfied that the minimum % reduction for Total Phosphorus and Total Nitrogen is 75%
- ⁵No additional requirements, more stringent treatment only required in sensitive areas where pe is > 10,000
- ⁶Designated Salmonid Water

General Note: More stringent requirements than those specified in the 2nd Schedule shall be applied to ensure that the receiving water complies with other relevant Directives. e.g. Slaney is designated Salmonid Water, Bannow Bay is designated Shellfish water etc..

Insufficient Treatment

Figure 8.2



Agglomeration	Operating pe	Present Treatment
	15,300	Preliminary ²

Agglomeration	Operating pe	Present Treatment
Ardmore	2215	Preliminary
Dunmore East	5406	Preliminary
Ring/Helvick/Ballinagoul	600 ¹	Primary
Duncannon	600	Primary
Kilmore Quay	800	Primary
Rosslare Strand	5000	Secondary
Rosslare Harbour	4300	None
Courtown	6000	Secondary

Notes:

- ¹Design Population Equivalent
- ²WWTP Under Construction/Commissioning
- ³Not required when the LA is satisfied that the minimum % reduction for Total Phosphorus and Total Nitrogen is 75%

General Note: More stringent requirements than those specified in the 2nd Schedule shall be applied to ensure that the receiving water complies with other relevant Directives. e.g. Slaney is designated Salmonid Water, Bannow Bay is designated Shellfish water etc..

Insufficient Treatment

Table 8.4 Agglomerations with population equivalent between 500 and 2000

Agglomeration	County	Operating PE	Type of Treatment
Borris	Carlow	584	Secondary
Hacketstown	Carlow	628	Secondary
Tinnahinch	Carlow	600	Secondary
Castledermot	Kildare	1120	Primary
Brownstown (Curragh Camp)	Kildare	1193	Secondary
Coill Dubh	Kildare	800	Primary
Derrinturn	Kildare	700	Secondary
Suncroft	Kildare	500	Primary
Nurney	Kildare	500	Secondary
Oldtown	Kilkenny	760	Primary
Castlecomer	Kilkenny	1400	Secondary
Moneenroe	Kilkenny	700	Secondary
Freshford	Kilkenny	784	Secondary
Gowran	Kilkenny	600	Secondary
Mooncoin	Kilkenny	1046	Primary
Paulstown	Kilkenny	500	Secondary
Piltown	Kilkenny	943	Secondary
Urlingford	Kilkenny	1000	Secondary
Ballylinan	Laois	644	Primary
Ballyroan	Laois	600	
Borris-in-Ossary	Laois	654	Primary
Durrow	Laois	1526	Primary
Stradbally	Laois	1560	Primary
Borrisoleigh	North Tipperary	1000	Secondary
Littleton	North Tipperary	700	Secondary
Two Mile Borris	North Tipperary	500	Secondary
Daingean	Offaly	600	Secondary
Ardfinnan	South Tipp	827	Primary
Fethard	South Tipp	1920	Secondary
Killenaule	South Tipp	864	Secondary
Ballduff Lower/ Kilmeaden	Waterford	605	Primary
Kilmacthomas	Waterford	951	Primary
Portlaoise	Waterford	1250	Secondary
Stradbally	Waterford	503	Primary
Islandview, Knockboy	Waterford City	1100	Primary
Adamstown	Wexford	535	Secondary
Blackwater	Wexford	1400	Secondary
Bridgetown	Wexford	500	Secondary
Bunclody	Wexford	1500	Primary
Campile	Wexford	500	Secondary
Castlebridge	Wexford	1400	Secondary
Clonroche	Wexford	650	Secondary
Ferns - Nth	Wexford	900	Primary
Ferns - Sth	Wexford	900	Secondary
Fethard-on-Sea	Wexford	1650	Primary
Kilmuckridge	Wexford	1200	Secondary
Piercetown	Wexford	800	Tertiary
Taghmon	Wexford	1100	Secondary
Baltinglass	Wicklow	1500	Secondary
Carnew	Wicklow	700	Secondary
Lugatryna, Dunlavin	Wicklow	700	Primary
Tinahealy	Wicklow	1,000	Primary

Insufficient Treatment	
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Table 8.5 Required Sampling Frequencies

Agglomeration Size	Mandatory Annual No of Samples	No. of WWTPs in the SERBD (2002)	No. of WWTPs with monitoring data for 2001	No. of WWTPs with 12 samples or more (2001)
2,000 - 9,999	12*	22	20	2 <i>(13 WWTPs with 4 or more samples)</i>
10,000 - 49,000	12	5	5	3
>50,000	24	1	1	0
Total		28	26	5

*Four samples in subsequent years if it can be shown that water during the first year complies with the regulations. If one of the four samples fails, 12 samples must be taken in the year that follows.

Monitoring data for 2001 was available for 26 WWTPs in the South Eastern River Basin District with population equivalents greater than 2,000. The WWTP compliance (Table 6.43) identifies these plants (along with plants with population equivalents between 500 and 2000) and highlights compliances with the WWTP effluent standards set out in the regulations.

The EPA recommends that a minimum of 6 samples per year should be taken at all treatment plants where the population equivalent exceeds 1000 but these recommendations are not statutory.

The UWWT regulations require that for most treatment plants, BOD₅, COD and TSS require monitoring. Where the treatment plant discharges to 'sensitive waters', Total Phosphorus and Total Nitrogen also require monitoring. The Second schedule of the regulations identifies the parameters and concentration limits with which the discharges from the treatment plants are required to comply. The limits are shown in the Tables 8.6 and 8.7.

Table 8.6 Emission limit Values for WWTP Discharges

Parameter	Concentration Limit	Minimum Percentage Reduction
Biochemical Oxygen Demand (BOD ₅)	25 mg/l O ₂	70 - 90
Chemical Oxygen Demand (COD)	125 mg/l O ₂	75
Total Suspended Solids	35 mg/l O ₂	90

Table 8.7 Emission limit Values for WWTP Discharges to Sensitive Waters

Parameter	Concentration Limit	Minimum Percentage Reduction
Total Phosphorus	2 mg/l P (10,000-100,000 p.e.)	80
	1 mg/l P (more than 100,000 p.e.)	
Total Nitrogen	15 mg/l N (10,000-100,000 p.e.)	70-80
	10 mg/l N (more than 100,000 p.e.)	

20 out of the 22 WWTPs (with population equivalents between 2,000 and 9,999) carried out monitoring in 2001. 13 out of the 20 plants had taken 4 samples or more. 4 of the 13 treatment plants (i.e. with 4 or more samples) complied with the concentration limits for BOD₅, COD and TSS as set out in the regulations.

All 5 WWTPs in the South Eastern River Basin District with population equivalents between 10,000 and 49,000 submitted monitoring data for 2001. 3 of the 5 WWTPs complied with the required sampling frequency set out in the regulations i.e 12 or more. 2 of the treatment plants complied with the concentration limits for BOD₅, COD and TSS. All 5 plants discharge to sensitive waters but none complied with the Total Nitrogen and Total Phosphorus limits set out in the regulations.

There is only one existing WWTP in the South Eastern River Basin District with a population equivalent greater than 50,000. The data available suggests there was insufficient monitoring undertaken in 2001.

All Local Authorities within the South Eastern River Basin District are actively progressing the upgrading and construction of WWTPs to comply with the UWWT regulations. There is a need to improve the frequency of monitoring at wastewater treatment plants in the South Eastern River Basin District to comply with the requirements set out in the UWWT regulations and apply flow proportional sampling.

The Project will require accurate monitoring of flows along with concentration to calculate loads in order to determine the sectoral contribution of WWTPs to total load, the Project's monitoring requirements therefore can be over and above the requirements of the regulations.

8.3.2 Phosphorus Regulations (S.I. No. 258 of 1998)

To address the prevalent problem of eutrophication of freshwater the Phosphorus Regulations provide for specified improvement in water quality conditions based on phosphorus concentration or related water biological quality classifications by 2007. The regulations require that water quality be maintained where the water quality is deemed unpolluted and that the water quality be improved to target status where water quality is deemed unsatisfactory. The Local Authorities and the EPA are required to take all the steps necessary to secure compliance with the quality standards outlined in the regulations.

The regulations also require periodic reporting from the Local Authorities and the EPA. Local Authorities were required to submit a report to the EPA in July 1999 setting out measures to be taken to achieve the water quality objectives set out in the regulations. A 1999 measures report was prepared by all of the Local Authorities in the South Eastern River Basin District. The Project has not sought information from Cork because of the small amount of land area in the South Eastern River Basin District and has reviewed reports from the remaining 12 Local Authorities in the South Eastern River Basin District.

Implementation reports are required every two years commencing in July 2000 until July 2008 to highlight progress on achieving the water quality targets in the regulations. The first implementation report was required in July 2000 and 9 of the 12 Local Authorities in the South Eastern River Basin District submitted completed reports to the EPA (2 counties submitted incomplete reports). To-date the 2002 Implementation Report has been prepared by the 12 Local Authorities in the South Eastern River Basin District (Table 8.8). The EPA was required to prepare and publish a National report on the implementation regulations by April 2001 and every two years thereafter. In compliance with the regulations the first Phosphorus Regulations, National Implementation report was published by the EPA in 2001, the next report is currently under preparation and due in 2003.

Table 8.8 Phosphorus Regulations Implementation

SERBD Local Authority	1999 Measures Report	2000 Implementation Report	2002 Implementation Report	% Stations complying with the regulations Baseline Biological Status (1995-1997)**	% Stations complying with the regulations from 1998-2000 EPA Biological Survey)**	% Stations complying with the regulations from 2001-2003 EPA Biological Survey)**
Carlow	✓	✓	✓	49%	66%	Information not yet available
Kildare	✓	✓	✓	18%	31%	
Kilkenny	✓	✓	✓	40%	59%	
Laois	✓	✓*	✓	48%	51%	
Limerick	✓	✓	✓	47%	53%	
North Tipperary	✓	✓	✓	40%	58%	
Offaly	✓	✓	✓	44%	50%	
South Tipperary	✓	✓	✓	61%	50%	
Waterford City	✓	✓	✓	See Waterford County		
Waterford	✓	✗	✓	75%	51%	
Wexford	✓	✓	✓	40%	53%	
Wicklow	✓	✓*	✓	74%	57%	

✓ Report submitted to EPA

✓* Incomplete Report submitted to EPA

✗ No report submitted to EPA

** % Stations meeting Biological Targets of Regulations only – Taken from EPA Phosphorus Regulations National Implementation Report, 2001

Table 8.9 highlights the more significant ‘Measures’ identified by the Local Authorities in their Phosphorus Regulations Measures and Implementation reports.

Table 8.9 Phosphorus Measures Summary - Measures identified in 1999 Measures Report, 2001 Implementation Report & 2002 Implementation Reports where available

SERBD Local Authority	Carlow	Kildare	Kilkenny	Laois	Limerick	North Tipperary	Offaly	South Tipperary	Waterford City	Waterford	Wexford	Wicklow
Upgrade/Construct WWTP/Sewerage Schemes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Issue/review of Section 4 licences	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Issue/review of Section 16 licenses	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Enforcement of Licensing with audit procedure		-			-			-				-
Farm Surveys (Programmed)	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Agricultural/Source protection Bye-laws	✓	✓*	✓		✓*	✓*	✓*	✓		✓	✓	
Nutrient Management Planning	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LA to review licensed land spreading					✓			✓				✓
Review/Increase surface water monitoring	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Review/Increase Ground water monitoring	✓	✓							✓		✓	
Review/Increase Hydrometric Monitoring		✓						✓		✓		-
Review/Increase Monitoring of WWTPs	✓	✓						✓		✓	✓	✓
Review/Increase Monitoring of Industries	✓	✓		✓	✓			✓	✓	✓		✓
Establish catchment phosphorus budgets/loads	✓	✓		✓			✓	✓				✓
Undertake pilot/hot spot catchment studies	✓	✓		✓				✓		✓		✓
Development/use of GIS	✓	✓	-	✓	✓	✓	-	✓	✓	✓	✓	✓
Prepare/Implement/Review Sub-catchment programmes	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓
Groundwater/Aquifer protection plan	✓	-	✓	✓	✓	✓	-	✓	✓	✓	✓	✓
Implement Source protection plans					✓		✓					
Implement sludge management plans		✓		✓	✓	✓	✓	✓				
Establish Environmental Management System		✓		✓				✓				

* Byelaws Implemented outside the SERBD

✓	Measure identified	■	Implemented	■	Implementation On Going	-	On Going but not originally defined as a measure
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The upgrading and construction of wastewater treatment plants and sewerage schemes is a Measure identified by all of the Local Authorities in the South Eastern River Basin District. The twelve Local Authorities are continually implementing this ‘Measure’ by reviewing their wastewater treatment plants and actively upgrading and constructing wastewater treatment plants within the constraints of their budgets. The frequency of wastewater treatment plant sampling would need to be increased by most Local Authorities in the South Eastern River Basin District. Only 57% of treatment plants with population equivalents greater than 2000 complied with the required sampling frequency set out in the UWWTP regulations. 21% of the treatment plants complied with the BOD, COD and TSS limits set out in the regulations (only those with adequate sampling frequency were assessed). The monitoring of nutrients at treatment plants discharging to sensitive waters would also need improvement to comply with the regulations. (Section 8.3).

The issuing and review of Section 4 and 16 licenses is a key point source control ‘Measure’ proposed and implemented by the 12 Local Authorities. All of the Local Authorities in the South Eastern River Basin District are issuing/reviewing the licenses but the enforcement of these licenses is not progressed in all of the Local Authorities. South Tipperary Co Co has well documented management procedures and programmes in place for auditing, monitoring and enforcement of the licence conditions and has observed an improvement in the implementation of the licence requirements from various industries. Enforcement of these licences, through regular auditing, is a recommended measure. Section 4 licensed industries are dealt with further in Section 8.3.3.

All of the Local Authorities in the South Eastern River Basin District with the exception of Waterford City proposed carrying out farm surveys as part of their Phosphorus Measures. Six of the Local Authorities, Kildare, Laois, North Tipperary, South Tipperary and Kilkenny are implementing this measure and Wicklow is about to start on their farm surveys programme. Some of the Local Authorities ceased the surveys during 2001 during the Foot and Mouth crisis. Kildare commenced farm surveys in the River Graney catchment, which is a subcatchment of the Barrow in 2002 as it showed deterioration in water quality since 1997 according to EPA biological surveys. Kildare’s 2002 Implementation Report outlines that significant progress has been made in this subcatchment with a number of farms having been identified as serious threats to water pollution.

North Tipperary, Limerick, Cork and Offaly County Councils have introduced Byelaws under the Local Government (Water Pollution Act) to control agricultural activities. These Byelaws relate to individual catchments outside the South Eastern River Basin District with the exception of Offaly’s drinking water sources, which are also protected by Byelaws. Nine of the Local Authorities in the South Eastern River Basin District have proposed Byelaws as a Measure in the Phosphorus Regulations reports.

Seven of the Local Authorities proposed Nutrient Management Planning to address water quality problems. The National Implementation Report, 2001 reported that the EPA considers effective

nutrient management planning as a key measure to meet the targets in the regulations. North Tipperary is implementing Nutrient Management Planning through the Introduction of agricultural Byelaws (in areas outside the South Eastern River Basin District). Nutrient management planning is also being applied by encouraging participation in REPS.

Eight of the Local Authorities in the South Eastern River Basin District contract the EPA laboratory in Kilkenny to carry out annual physico-chemical monitoring of surface waters. The monitoring programme is designed to reflect the needs of each Local Authority and to meet the requirements for monitoring under the various EU and National legislation. The monitoring programme is well established and the various Local Authorities review this programme with the EPA in Kilkenny regularly.

South Tipperary, North Tipperary, Waterford, Wexford and Wicklow County Councils actively review their WWTP monitoring programme. Wexford carries out extensive monitoring and provided results for 49 WWTPs for 2001, the Project's baseline year.

Six local Authorities in the SERBD have proposed to monitor phosphorus loads from point sources such as licensed industries and WWTPs. To-date Laois and Offaly authorities have implemented this 'measure'.

A number of Local Authorities have identified the establishment of pilot studies as part of their 'Measures'. Two Special study Areas, the Ara and the Clonmore were set up in South Tipperary and North Tipperary as part of the Three Rivers Project. A study of the Ballyshonnock lake catchment was conducted by Waterford County Council in conjunction with the Three Rivers Project. Two mini catchment studies (grassland and tillage) have been established by Laois i.e. the Donaghmore and the Guilie.

Even though this 'measure' was not documented in all the Phosphorus Measures reports, all of the Local Authorities in the South Eastern River Basin District are establishing and using Geographical Information Systems to aid in data management. Eight Local Authorities in the South Eastern River Basin District have installed Labinfo developed by the Local Government Computer Services Board to assist in management of their water quality data. Laois, South Tipperary, North Tipperary, Wexford, Wicklow, Kildare, Offaly and Limerick have installed Labinfo.

Eleven of the South Eastern River Basin District local authorities identified the Preparation, Implementation and Review of subcatchment programmes as a measure in their Phosphorus Measures Report. To-date subcatchment programmes have been implemented by Laois, North Tipperary, South Tipperary, Waterford and Kildare. Laois has adopted the approach of catchment management to the surface water monitoring been carried out in the Council. Currently a three year programme on the River Nore and River Barrow catchments is being implemented by Laois. Their programmes

comprises three main work areas; water quality sampling; farm surveys and educational awareness. The Barrow Catchment programme commenced in February 2002 and the Nore Catchment Programme in April 2002.

The preparation/implementation of a groundwater protection plan is a 'measure' proposed by the majority of Local Authorities in the South Eastern River Basin District. To-date plans or draft plans have been prepared for 8 Local Authorities including Kilkenny, Laois, South Tipperary, Wicklow, North Tipperary, Offaly, Kildare and Waterford County. Waterford City's abstraction points are referenced in the report for Waterford County. Wexford is currently preparing a Groundwater Protection Plan for the County.

Sludge Management Plans have been prepared for all of the Local Authorities within the South Eastern River Basin District. Over 50% of the Sludge Management Plans are in Draft format. The implementation of recommendations in the Sludge Management Plans was not identified as a 'measure' by most of the South Eastern River Basin District Local Authorities.

Summary of Good Practices

- *Local Authorities are actively involved with environmental educational projects and public awareness campaigns. Some authorities have produced leaflets on water pollution and for schools environmental education projects.*
- *South Tipperary has well documented management procedures and programmes in place for auditing, monitoring and enforcement of Section 4 and 16 licenses industries. Wicklow, Kildare, Waterford County, Waterford City and Limerick also undertake regular audit monitoring.*
- *Offaly has introduced Bye-laws throughout the county to protect its Drinking water sources.*
- *Kildare, South Tipperary, Kilkenny, Waterford County and Laois are actively carrying out farm surveys. Wicklow is due to commence its new farm survey program in early 2003.*
- *Wexford carries out extensive monitoring, providing results for over 40 WWTPs for 2001*
- *Laois has adopted subcatchment programmes with surface water monitoring being carried out in the Council. Currently a three year program on the River Nore and River Barrow catchments is being implemented by Laois. Their program comprises of three main work areas; water quality sampling; farm surveys and educational awareness.*
- *To-date Catchment Management Plans have been implemented by Laois, North Tipperary, South Tipperary, Waterford County and Kildare.*
- *All the local Authorities in the SERBD are actively progressing their GIS databases.*
- *Carlow has a groundwater monitoring programme in place.*

8.3.3 Local Government (Water Pollution) Act, 1977

The Local Government (Water Pollution) Act provides for the control of water pollution and for other matters connected with water pollution. Under this Act, Local Authorities have been assigned the primary responsibility for the control of pollution to waters.

The issuing, review and enforcement of trade and sewage effluent licences (both to waters and sewers) is a statutory requirement of Local Authorities under the Water Pollution Act. All of the Local Authorities in the South Eastern River Basin District have issued and are reviewing licences but the enforcement of these licences (i.e. check/audit monitoring of the discharge effluent to confirm compliance with licence conditions and follow up procedures) is not progressed in all of the Local Authorities. There are two distinct types of monitoring, licensee compliance monitoring and Local Authority check/audit monitoring. Where check/audit monitoring and enforcement of the licence conditions is being undertaken, it is proving successful in the improvement of effluent quality. For example, South Tipperary has a well documented management programme in place for audit monitoring and enforcement of the licence conditions which has led to an improvement in the implementation of the licence requirements from some industries.

A Local Authority is required to maintain a register of Section 4 (licensing of discharges to waters) and Section 16 (licensing of discharges to sewers) licensed industries under the Local Government (Water Pollution Act, 1977). All of the South Eastern River Basin District Local Authorities kept registers of Section 4 and 16 licensed industries. Most of the registers were up to date but there were incidences where registers contained industries no longer in operation. The South Eastern River Basin District Project has now prepared a complete digital register to assist local authorities maintain an up-to-date register.

There are 128 Section 4 industries in the South Eastern River Basin District and monitoring data for 2001 was received for only 33 industries indicating that a significant proportion of licensed industries within the SERBD are not complying with the required self monitoring frequency set out in their licences.

Assessing the monitoring data received (either Local Authority check monitoring or monitoring received from licensed industries) only 10 of the 33 industries complied with the frequency of monitoring set out in their Licences. Only two of the industries out of the 10 complied with the limits set out in their licence. The performance and compliance of Section 4 industries is discussed in Section 6.0. South Tipperary and Wicklow carry out regular audit monitoring of their licensed industries in the South Eastern River Basin District. Some Local Authorities are pro-actively reviewing their licences. Others do not have the resources to enforce their licences. Where follow up actions have been taken there has been improvements in effluent discharge.

The Environmental Bulletin, August 2002 published by the DELG reported that Local Authorities maintained a high level of enforcement activity in 2000 in relation to the protection of water quality. The Water Pollution control activities highlighted in the report are summarised below for the South Eastern River Basin District.

Table 8.10 Water Pollution Control Activities 2000 (DELG Environmental Bulletin August 2002)

SERBD Local Authority	S3 Investigations	S4 Investigations	Formal Notices Section 12s	Advice/ Warnings
County Carlow	*	*	*	*
County Kildare	196	98	24	387
County Kilkenny	218	12	14	253
County Laois	*	*	*	*
County Limerick	70	21	15	26
North Tipperary	389	10	24	35
County Offaly	80	0	14	80
South Tipperary	272	10	4	193
Waterford City	3	1	1	0
County Waterford	0	0	0	0
County Wexford**	196	*	12	*
County Wicklow	64	14	2	78

* No Information submitted

** Results for 2002 directly from Wexford Co.Co.

Section refers to the appropriate section of the Water Pollution Act, 1977

Section 3 – entry of polluting matter to waters

Section 4 – licensing of trade and sewage effluents

Section 12 – local authority’s power to require measures to be taken to prevent water pollution

Local Authorities are required to maintain a register of Abstractions from Waters in its functional area under the Local Government Water Pollution Act, 1977. Extensive information was available on Public Water Schemes (PWS) and Group supply schemes (GWS) in all Local Authorities. In most cases it was found that abstraction registers are maintained by different contacts within the Councils and not consistently updated. A complete list of the abstraction points i.e. borehole abstraction points, surface water points etc. was not available in most of the authorities. A complete abstraction register maintained in electronic format containing all the sources of PWS, GWS and Private wells (when the information is available to the Council) is required.

8.3.4 The Environmental Protection Act, 1992 (including Integrated Pollution Control licensing)

It is the responsibility of the EPA to monitor environment quality and to publish periodic reports. The EPA periodically produce reports on drinking water, urban wastewater treatment, bathing water, groundwater and surface water quality.

The EPA also implements a national hydrometric programme as required under Section 64 of the EPA Act, 1992.

The EPA's waste licensing duties started to come into effect in 1997. Up to then, the original functions of the EPA in national waste management were contained in Section 62 of the EPA Act 1992. The latter required the publication of procedures for the selection, management, operation and termination of landfill sites for domestic and other wastes. The EPA fulfilled this obligation with the production of its landfill manual series. Local Authorities are obliged by the legislation to apply the requirements of the manuals in the operation of their own landfill sites. Section 62 also required environmental monitoring data to be furnished to the EPA on request and stipulated that the EPA should regularly publish reports on the management and operation of Local Authority landfill sites. The first such report was published in 1998.

In May 1996, the Waste Management Act was enacted with the EPA's duties on the licensing of waste facilities commencing in May 1997 through Waste Management (Licensing) Regulations, 1997.

The EPA is responsible for Integrated Pollution Control (IPC) Licensing and regulation of large/complex industrial and other processes activities listed in the first schedule of the EPA Act 1992. They are required to issue, review, enforce and keep a register of all IPC licences.

The EPA has produced an annual report on progress regarding IPC licensing and control for the years 1998 to 2001. The latest report on IPC Licensing and Control, 2001 has been reviewed for the purposes of this report.

As highlighted in Table 8.11 the EPA do comply with their requirement to issue, review and enforce IPC licences. The EPA also keeps a full register of all IPC Licensed activities. A register of IPC licences is also maintained on the EPA web-site. The Project extracted a register of IPC licences for the South Eastern River Basin District from the EPA web-site register. The EPA is developing their register to improve access to up-to-date data.

The latest report on IPC Licensing and Control 2001 has been reviewed to assess the compliance of the various IPC Licensed Activities as required under the EPA Act, 1992 and EPA Regulations 1994.

Every IPC Licensed activity is required to submit an Annual Environmental report (AER) on the environmental performance of its facility. EPA inspectors assess the compliance of IPC facilities against the requirements of their licences on an ongoing basis. Where non-compliances are detected, the facility is notified and required to put in place corrective actions. Enforcement action is taken by the EPA if the non-compliance continues. Notification may be in the form of a Notification of Non-compliance (NONC) (issued when a non-compliance with licence conditions is detected) or a Section Notice (a notice under specific sections of the Air or Water Pollution Acts to require immediate work to be undertaken). In cases where significant or persistent non-compliance has been detected the EPA prosecutes licensees through the courts for breaches of the conditions of their licence, (under the 1992, EPA Act) or generally relating to pollution incidents.

Table 8.11 Enforcement Actions taken by the EPA in 2001 (Nationally)

Action	Number in 2001	Comment
No. of Licences Granted in 2001	48	There was a total of 522 IPC licences to the end of 2001
Reviews of existing licences	5	
Notification of Non-Compliance (NONC)	268	There were 178 issued to facilities
Section Notices	9	8 relating to water quality, 5 are within SERBD
Prosecutions	13	4 within SERBD

The EPA monitor and audit IPC licensed industries. Of the 59 audits undertaken at IPC facilities in 2001, 11 were fully compliant and 9 facilities were considered to be in serious breach of their licences. It is considered that “the audit continues to be an effective enforcement tool. Over 15% of prosecutions in 2001 were taken as a result of non-compliant audits”.

Local Authorities have reported difficulties in obtaining IPC licensed monitoring data from the EPA. Laois have reported in their 2002 Phosphorus Implementation Report that feedback to the Local Authorities from the EPA on IPC licences is minimal.

8.3.5 Bathing Water Regulations

(S.I. No 155 of 1992) Quality of Bathing Water Regulations

The Bathing Water Regulations (S.I. No 155 of 1992) give effect to Council Directive 76/160/EEC concerning the Quality of Bathing Waters. There are twelve designated bathing waters in the South Eastern River Basin District, six in County Waterford and six in County Wexford. The designated bathing water areas are Ardmore, Bonmahon, Clonea, Dunmore East - Main Strand, Dunmore East - Counsellors Strand, Tramore Ballymoney, Morriscastle, Curraclloe, Duncannin, Courtown and Rosslare Strand.

The regulations require Local Authorities to conduct sampling and monitoring of the designated bathing waters at a required frequency i.e intervals of not more than two weeks over the monitoring season (mid May – end of August). Local Authorities are also required to establish and maintain a register of sampling results which should be made available to the public. The designated bathing waters are required to meet the quality standards as specified in the EU Directive and national regulations. Where bathing waters fail to comply with the specified standards, Local Authorities are required to give public notice and to undertake the necessary measures to ensure compliance with the standards.

For the year 2001 the frequencies of monitoring of bathing waters in Waterford and Wexford were generally satisfactory. Waterford County Council and Wexford County Council are both maintaining a

register of bathing water quality. EU Mandatory and National Limit Values were satisfactory at all 12 designated bathing water areas. Table 6.39 presents details on the compliance of bathing water areas within the South Eastern River Basin District.

The EPA is required to collate the water quality results from each Local Authority and compile an annual report which is sent to the European Commission. The 2001 National report was sent to the European Commission in January, 2002 as required.

8.3.6 Shellfish Water Regulations

S.I. No. 200 of 1994. Quality of Shellfish Water Regulations, 1994

Council Directive 79/923/EEC on the quality required of shellfish growing waters was transposed into Irish legislation through S.I. No. 200 of 1994, Quality of Shellfish waters Regulations, 1994. The regulations prescribe quality standards for shellfish waters and designate the waters to which they apply, together with sampling and analysis procedures to be used to determine compliance with the standards. The Regulations give effect to council Directive 79/923/EEC on the quality required of shellfish waters.

The Amendment Regulations of the Quality of Shellfish Waters Regulations, 1994 (S.I. No. 459 of 2001) require the preparation and implementation of action programmes in respect of all designated shellfish waters, whereas before actions plans were only required in respect of waters failing to meet the prescribed standards.

Under S.I. No 200 of 1994 (and Directive 79/923) Bannow Bay in Co. Wexford is the only designated shellfish water within the South Eastern River Basin District. In accordance with S.I. No 200 of 1994 (and Directive 79/923/EEC) on the quality required of shellfish waters, the Department of the Communication, Marine and Natural resources, are statutory required to carry out a national monitoring programme for shellfish waters. The frequency of sampling required in the regulations is monthly for salinity and dissolved oxygen, quarterly for such parameters like pH, temp, suspended solids and colour and half yearly for metals and organo-halogenated substances. Information is not available at this stage to determine whether the monitoring complies with the requirements set out in the legislation.

The action programmes are required to be adopted by the Minister for Communications, Marine and Natural Resources, in consultation with the relevant Local Authorities. It will be the duty of the Local Authorities, on foot of the action programmes, to take all necessary steps to secure and maintain compliance with the prescribed standards. A National action plan for the designated shellfish waters was submitted to the European Commission late 2002 and included Bannow Bay.

8.3.7 Drinking Water Regulations

S.I. No. 81 of 1988. European Communities (Quality of Water intended for Human Consumption) Regulation, 1988 & S.I. No. 439 of 2000. European (Drinking water) Regulation, 2000.

The Water Framework Directive (WFD) identifies, the Drinking Water Directives (80/778/EEC) as amended by Directive (98/83/EC) as a 'basic measure' to achieve the objectives of the WFD. The Quality of Water intended for human consumption Regulations, 1988 give formal effect to the Drinking Water Directive (80/778/EEC) and requires that water intended for human consumption shall meet the standards specified in the regulations. These regulations cover a total of 53 bacteriological, chemical and physical parameters and specify maximum admissible concentration limits (MAC).

The task of providing good quality drinking water, distributing it and assessing its quality as it reaches the consumer is the responsibility of the local sanitary authority. The drinking waters produced and distributed by Local Authorities are termed public water schemes. Local Authorities carry out regular sampling and analysis of these supplies

The EPA has statutory responsibilities in regard to drinking water. Section 58 of the EPA Act, 1992, requires the EPA to prepare and submit to the Minister for the DELG an annual report on the monitoring by sanitary authorities of drinking water supplies and an assessment of the results.

The EPA Quality of Drinking Waters in Ireland, 2001 states that (Nationally) the overall level of compliance with the Drinking Water standards for public water supplies and group water schemes combined was 94.3 % in 2001. For public water supplies, overall compliance in 2001 was 96%. For Group water schemes overall compliance in 2001 was 89.5%. Parameters most frequently exceeded in 2001 were total coliforms, faecal coliforms, colour, odour, iron, manganese and aluminium.

The report states that the presence of coliforms in a drinking water sample suggests inadequate treatment, post treatment contamination or excessive Nutrients. It states that the coliform test is therefore an indicator of treatment efficiency and the integrity of the distribution supply. As outlined in Section 6.0, there are in excess of 1000 known water abstraction points for drinking water in the SERBD for PWS and GWS. Table 6.48 provides a summary of compliance for Faecal Coliforms in the SERBD.

The Sanitary authority shall take all steps to warn users where there is an unacceptable risk to public health and prepare an action programme for the improvement of water quality as soon as practicable. Regulations, S.I. No.177 of 2000 relate to the remedial measures to be taken in relation to certain private drinking water schemes that are deficient in quality. These regulations specify actions for the Local Authority when private supplies fail to meet the requirements of the regulations.

S.I. No. 439 of 2000 European (Drinking water) Regulations, 2000 give effect to the amended Directive (98/83/EC) and shall come into force in 2004.

The regulations prescribe 48 parameters which are classified as being microbiological, chemical or indicator parameters. New parameters include *E. coli*, *Enterococci*, acrylamide, benzene, benzo(a)pyrene, bromate, 1,2 dichloroethane, epichlorohydrin, polycyclic aromatic hydrocarbons, tetrachloroethene and trichloroethane, trichloroethene, trihalomethanes, vinyl chloride, *Clostridium perfringens*, tritium, and total (radioactive) indicative dose. The parameters specified for ammonium and fluoride are more stringent than those specified in the 1998 Directive. Parameters no longer specified are faecal coliforms (replaced by *E. coli*), barium, magnesium, organochlorine compounds, phosphorus, potassium, silver, surfactants, zinc, alkalinity, calcium, dry residues, hydrogen sulphide, Kjeldhal nitrogen, phenols, substances extractable in chloroform, suspended solids, temperature and total hardness.

There are procedures in place under the regulations when samples fail to meet the requirements.

8.3.8 Salmonid Regulations

(S.I. No 293 of 1988) European communities (Quality of salmonid waters regulations), 1988

The (S.I. No 293 of 1988) European communities (Quality of salmonid waters regulations), 1988 give effect to the EU Freshwater Fish Directive (No. 78/659/EEC)

The objective of the salmonid regulations is to protect and ultimately to improve 'salmonid waters'. Under the regulations, specified waters capable of supporting salmon (*Salmo salar*), trout (*Salmo trutta*), char (*Salvelinus*) and Whitefish (*Coregonous*) are designated 'Salmonid Waters'. The designated waters are required to meet the quality standards set out in the regulations i.e. for Temperature, Dissolved Oxygen, pH, Suspended Solids, BOD, Nitrites, Phenolic Compounds, Petroleum Hydrocarbons, Ammonia, Ammonium, Residual Chlorine, Zinc and dissolved Copper.

Local Authorities are responsible for the monitoring of 'Salmonid Waters'. The frequency of sampling required for the majority of parameters is monthly.

In the South Eastern River Basin District three rivers are designated 'Salmonid waters'. The main channels of the River Aherlow (Hydrometric area 16), River Nore (Hydrometric area 15) and the River Slaney (Hydrometric area 12) have all been designated as salmonid waters under European Communities (Quality of Salmonid Waters) Regulations (S.I. No. 293 of 1988).

The River Slaney flows through Wicklow, Wexford and Carlow, the River Nore flows through Laois and Kilkenny and the source of the River Aherlow starts in Limerick and flows through South Tipperary to the River Suir. All of the above Counties with the exception of Wicklow, who undertake their own monitoring, commission the EPA Laboratory in Kilkenny to carry out their physico-chemical

river monitoring. The sampling programme is designed so that the stations on the major rivers are sampled on a monthly basis which complies with the sampling requirements set out in the salmonid regulations. The monitoring programme was seriously disrupted by the Foot and Mouth crisis in 2001. As a result there were fewer samples taken in the Salmonid Rivers during the spring months of 2001. In general there was monitoring data available for 10 months of the year and for only 6 months in the upper Slaney.

The water quality in the River Slaney and the River Nore is generally satisfactory. The results from the River Aherlow were unsatisfactory' with the upper reaches, in Limerick, showing elevated levels of Ammonia and BOD. The River Suir Catchment Project Office in conjunction with South Tipperary and Limerick County Councils carried out a river bank survey during the July 2002 and identified 9 farms as potential sources of pollution. The report produced by the River Suir Catchment Project office in relation to the River Aherlow recommended that Section 12 Notices be issued and Nutrient Management Plans undertaken. Limerick County Council has just completed re-surveying the identified pollution sources with the view to taking appropriate action.

8.3.9 Dangerous Substances Regulations (S.I. No. 12 of 2001)

The Dangerous Substances Regulations, 2001 prescribe standards for certain pesticides, solvents and metals in surface waters.

The regulations require each Local Authority to prepare a Dangerous Substances Report, setting out the measures to be taken to ensure compliance with the specified standards for Dangerous Substances in line with the Water Quality (Dangerous Substances) Regulations 2001 (S.I. No. 12 of 2001). There was a requirement to submit this report to the EPA by July 2002. To-date 11 of the 12 Local Authorities in the South Eastern River Basin District have prepared Dangerous Substances Reports. These include Carlow, Kilkenny, Kildare, Waterford, Wexford, South Tipperary, Laois, Offaly, North Tipperary, Limerick and Wicklow. The project has not sought information from Cork because of the small amount of land area in the South Eastern River Basin District. Most of the Local Authorities identified Risk industries/areas within the county, South Tipperary has gone further and carried out sampling and analysis. Generally the levels of dangerous substances in South Tipperary were found to be very low. The survey carried out by South Tipperary sampled and analysed for 87 parameters including all 14 of the listed dangerous substances in S.I. No. 12 of 2001.

8.3.10 Sewage Sludge Regulations

S.I. No. 148 of 1998, The Waste Management (Use of Sewage Sludge in Agriculture) Regulations, 1998

The Waste Management (Use of Sewage Sludge in Agriculture) Regulations, 1998 (S.I. No. 148 of 1998) as amended by the Waste Management (Use of Sewage Sludge in Agriculture) (Amendment)

Regulations, 2001 prescribe standards for the use of sewage sludge in agriculture. The Regulations also require that sludge is used in accordance with a Nutrient Management Plan and sets limits on the amount of matter added to soil with limits based on absolute quantities of specified heavy metals.

8.3.11 Groundwater Regulations

S.I. No. 41 of 1999 The Protection of Groundwater Regulations

The Protection of Groundwater Regulations (S.I. No. 41 of 1999) require that a sanitary authority shall not cause or permit the direct discharge by or on behalf of the sanitary authority to an aquifer of an element which contains a harmful substance save under and in accordance with a licence issued by the Environmental Protection Agency. The EPA is required to carry out or cause to be carried out monitoring in relation to the effects on groundwaters of a discharge. To-date no Local Authority in the South Eastern River Basin District has been required to apply for a licence for such a discharge

The Local Government (Water Pollution) (Amendment) Regulations, 1999 concern the licensing by a Local Authority in respect of sewage effluent or trade effluent containing a harmful substance which is discharged to an aquifer. A Local Authority is required to carry out or cause to be carried out monitoring to determine the effects of a discharge on water in an aquifer.

8.3.12 European Communities (Natural Habitats) Regulations, 1997 & Wildlife Act, 1976

S.I. No. 94 of 1997. European Communities (Natural Habitats) Regulations, 1997

These National Regulations give effect to Council Directive 92/43/EEC (Habitats Directive). The Habitats Directive provides for the conservation of natural habitats and of wild fauna and flora, through the designation of Special Areas of Conservation.

Programmes for wildlife protection are provided in EU Directives, most notably The Birds Directive No. 79/409/EEC, which provides for the conservation of wild birds by, among other things, classifying important ornithological sites as Special Protection Areas.

There are 45 candidate Special Areas of Conservation (cSAC) and 14 areas designated as candidate Special Protected Areas (cSPA) within the South Eastern River Basin District. Special Areas of Conservation and Special Protected Areas are listed in Table 3.12. Designated species and habitats must be monitored, and reports made regularly by Member States to the EU.

Special Areas of Conservation and the Special Protected Areas collectively form part of 'Natura 2000' a network of protected areas throughout the European Union.

The Special Areas of Conservation and the Special Protected Areas are termed 'Candidate' as they have being submitted to Europe for approval but have yet to be ratified by Europe.

Measures required under the Habitats Directive are to be included within the programme of Measures for the WFD. As with the Habitats Directive, areas designated under the Wild Birds Directive must be identified as protected areas in the WFD.

8.3.13 European Communities (Protection of waters against pollution from agricultural sources) Regulations, (S.I. No. 213 of 2003)

These Regulations identify the national territory of Ireland as the area to which an action programme will be applied to protect water quality against pollution caused by Nitrates from agricultural sources. The Regulations give further effect to Council Directive 91/676/EEC (the Nitrates Directive) and Directive 2000/60/EC of the European Parliament and of the Council (the Water Framework Directive). The regulations were made on the 29th May 2003 and an action programme is being prepared.

8.4 Effectiveness of Current Management Practices

An overall recent improvement in river water quality is reported by the EPA nationally. The same trend has been reported for the South Eastern River Basin District. This improving trend has also been stated in the Phosphorus Regulations (S.I. 258 of 1998) Implementation reports submitted by the participating Local Authorities. The reports suggest that water quality improvements have been attributed to the provision of wastewater treatment facilities and enforcement of industrial licensing procedures which has resulted in improved discharge standards. While water quality improvements have been reported, there is a gap in knowledge i.e. sound scientific evidence to directly relate the improvements to one particular ‘measure’ or action. The Project through the implementation of the environmental management system will aim to relate measures (e.g agricultural and facility measures etc.) to water quality improvements.

The Phosphorus Regulations are a key, recent enactment requiring water quality related measures to be implemented. The measures identified by Local Authorities under the Phosphorus Regulations in practice encompass measures which arise under other regulations such as urban wastewater treatment plant upgrades and enforcement of water pollution acts.

The Phosphorus Regulations Implementation Reports attempt to link the measures laid down by the various Local Authorities with the water quality indicators as required by the regulations. However, to date the effectiveness of most management measures/practices has not been obvious in many of the Implementation Reports. According to the EPA’s Phosphorus Regulations National Implementation Report, 2001 “it is difficult at this early stage to assess the relative merits of particular measures. Many measures are at an early stage of implementation. Also it is likely that there would be some time lag before the effects of the measures implemented would be apparent from water quality monitoring results”. The time lag between measure and effect might be expected to vary with type of measure and

type of receiving water, e.g. river might be expected to respond faster than lakes, while improvement in wastewater treatment plant might be expected to show response more quickly than heterogeneous improvements in agricultural management practice dispersed over a wide area.

Although the 2002 Local Authority Phosphorus Regulations Implementation Reports have recently been prepared it is apparent from these reports that there is still, as yet, generally inadequate data to enable quantifiable assessment of the affect of specific measures. In particular, in some hydrometric areas, an update on the biological quality for each station is not yet available, some of the phosphate data gathered does not comply with the Phosphorus Regulations in relation to sampling frequency and some of the monitoring is not carried out at EPA river stations for which a baseline water quality status has been assigned under the Regulations (i.e. the baseline has been altered since the initial Phosphorus Regulations Measures Report).

Data gaps also exist in compliance monitoring under regulations other than the Phosphorus Regulations, as highlighted in Section 6.0. For example not all Local Authorities were able to provide flow monitoring for wastewater treatment effluents or in some cases river water quality samples upstream and downstream of effluent discharges and self monitoring of some licensed industries is inadequate and Local Authorities are unable to provide resources to conduct check monitoring or audits of these activities in some instances.

It is impossible to quantify the effectiveness of measures in the South Eastern River Basin District in the absence of monitoring data.

A number of initiatives are currently being implemented by the participating Local Authorities which will provide monitoring data to substantiate the effect of measures and therefore allow assessment of effectiveness and review of responses. These include agricultural catchment studies within the River Basin District in which Nutrient Management Plans or Farm Surveys are supported by specific river water quality sampling programmes (e.g. Laois, Waterford, North Tipperary, South Tipperary, Kildare County Councils) and River Bank Survey Programmes and Section 4 Licensed Industry formal audit procedures (South Tipperary County Council).

The Phosphorus Regulations adopt an Environmental Management System (EMS) approach whereby, in order to ensure that targets are achieved, Local Authorities are required to: design a list of measures to be taken to meet the prescribed water quality targets; undertake periodic review to check the relative success of measures chosen to meet the targets; and carry out an audit to allow review and fine tuning of the system so that changes or modifications can be made where necessary and additional required measures can be documented and devised.

The South Eastern River District Management System project will develop a programme of measures to achieve the objectives of the Water Framework Directive. These measures will be implemented and evaluated, reviewed and revised as part of the project's Environmental Management System.

Indicators will be identified during the development of the Environmental Management System, in the context of national and EU policy and legislation with respect to environmental quality objectives. National indicators are also currently being developed by the EPA. A monitoring system and GIS management system will be designed to collect the data in relation to indicators to allow assessment, review and adaptation of the measures to achieve the objectives of the Water Framework Directive.