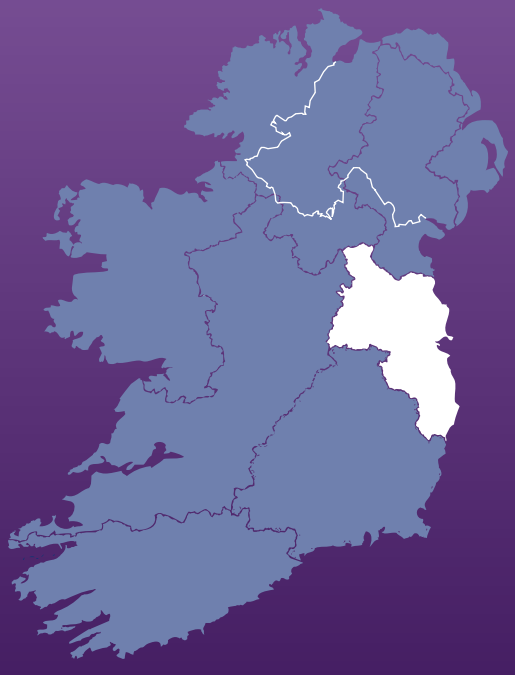
Dublin City
Baile Átha Cliath

Strategic Environmental Assessment for the Water Framework Directive River Basin Management Plans and Programmes of Measures - Eastern RBD

SEA Statement



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1 INTRODUCTION

This Strategic Environmental Assessment (SEA) Statement has been prepared as part of the SEA of the River Basin Management Plan (RBMP), and its associated Programmes of Measures (POM), for the Eastern River Basin District (RBD) in accordance with national and EU legislation. This document provides information on the decision-making process and documents how environmental considerations, the views of consultees and the recommendations of the Environmental Report and the assessment carried out under Article 6 of the Habitats Directive have been taken into account by, and influenced, the Plan. An Addendum to the Environmental Report is also provided at the end of this document showing how and where it has been updated since its publication in 22 December 2008.

The Plan and these associated documents have been prepared by the competent authorities for the Eastern RBD, which are Dublin City Council and the County Councils for South Dublin, Dún Laoghaire-Rathdown, Fingal, Meath, Kildare, Wicklow, Louth, Cavan, Westmeath, Offaly and Wexford. Dublin City Council is the statutorily designated coordinating authority for the Eastern RBD.

This SEA Statement has been prepared in accordance with Schedule 2, Section 16(2) of the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations (S.I. No. 435 of 2004). The adopted Plan, the SEA Environmental Report, the Habitats Directive Assessment Report and the SEA Statement are available for download on the website www.erbd.ie.

The structure of the SEA Statement is as follows:

1. Introduction
2. Summary of Key Facts
3. Summary of the SEA Process
4. Consultation
5. Key Issues Raised in the Submissions
6. How Environmental Considerations and Consultations have been taken into account in the Final Plan
7. Preferred Scenario and Reasons for Choosing the Final Plan
8. Measures to Monitor Significant Environmental Effects of the Implementation of the Adopted Plan
9. Conclusion and Next Steps
10. Addendum to the Environmental Report

2 SUMMARY OF KEY FACTS

Title of Plan:	Eastern River Basin District (RBD) River Basin Management Plan 2009 - 2015.
Purpose of Plan:	To fulfil the Water Framework Directive (WFD) 2000/60/EC and Article 13 of the Water Policy Regulations (S.I. 722 of 2003) (as amended) and set out how the aims and objectives of improving and protecting water quality and ecology in the waters of the Eastern RBD can be achieved by means of Programmes of Measures (POM).
Competent Authorities:	The Eastern RBD incorporates all or part of twelve Local Authorities. The ERBD includes all of Dublin City, Fingal, South Dublin and Dún Laoghaire-Rathdown, much of Counties Meath, Kildare and Wicklow as well as smaller portions of Counties Louth, Cavan, Westmeath, Offaly and Wexford. These are the competent authorities for the ERBD as required by Annex VII (A)(10) of the WFD and provided in Article 6 of S.I. 722 of 2003. Dublin City Council is the statutorily designated co-ordinating authority for the ERBD. It should also be noted that the EPA is the competent authority for the ERBD concerning reporting to the European Commission and for other tasks assigned in the regulations.
What prompted the Plan:	The EU Water Framework Directive requires the preparation of a management plan for all of the waters (including rivers, canals, lakes, reservoirs, groundwaters, protected areas (including wetlands and other water dependent ecosystems), estuaries and coastal waters) in an area called a River Basin District. This is the management plan prepared in response to that requirement for the Eastern RBD.
Subject:	Describes the actions that will be used to ensure the necessary protection of the waters of the Eastern RBD.
Period covered:	The first RBMP and POM will cover the period from 2009 up to 2015. In certain circumstances the RBMP considers the timeline horizons of 2021 and 2027, being the end of the second and third 6-year Plan cycles, respectively. These longer-term horizons are necessary where good status or good potential or indeed less stringent objectives (LSO) cannot be achieved by 2015 or where measures to achieve these are deemed technically infeasible or disproportionate in cost.
Frequency of updates:	An interim review will be carried out after three years. Updates will be carried out in 2015 and 2021 prior to the start of the second and third 6-year Plan cycles.
Area of Plan:	The RBMP and POM applies to the Eastern RBD, which covers about one tenth of the entire country and has a land

	area of approximately 6,300 km^2 along with 350 km^2 of marine waters (see **Figures 2.1** and **2.2**).
Summary of nature/content of Plan:	The Eastern RBMP is comprised of; a summary document which provides an overview of the assessment and proposals for the Eastern River Basin District; a Programme of Measures; individual WMU power point presentations on the website; and the RBMS (River Basin Management System) which provides access to information on monitoring, classification, objectives and measures for each river, lake, transitional and coastal water body and groundwater body.
Date Plan came into effect:	15 July 2010
Main contact:	ERBD Project Coordinator Dublin City Council 4th Floor, 68-70 Marrowbone Lane Dublin 8 e-mail: comments@erbd.ie

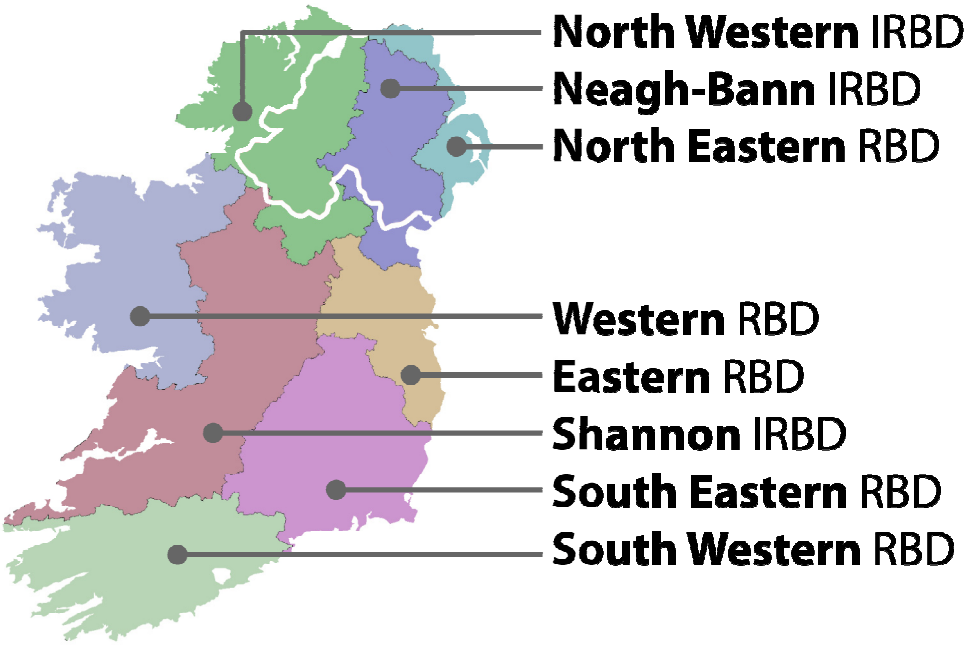

Figure 2.1 River Basin Management Areas of Ireland

Figure 2.2 Eastern River Basin District

3 SUMMARY OF THE SEA PROCESS

The RBMP and associated POM for the Eastern RBD has been subject to a process of SEA, as required under the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations (S.I. No 435 of 2004). This has included the key steps described in the following sections.

3.1 SCOPING AND STATUTORY CONSULTATION

Scoping was carried out to establish the level of detail appropriate for the Environmental Report. The scoping exercise included consultation with the three statutory consultees for SEA in Ireland as well as a number of non-statutory consultees. The three statutory consultees for the SEA in Ireland are the:

- Environmental Protection Agency (EPA);
- Department of Communications, Marine and Natural Resources (DCMNR) now the Department of Communications, Energy and Natural Resources (DCENR); and
- Department of Environment, Heritage and Local Government (DEHLG).

Scoping was carried out specifically for the Eastern RBD as well as individually for each of the other seven River Basin Districts on the island. Comments received on the Eastern RBD together with comments applicable from any of the other seven RBDs were considered for the Eastern RBD. All of the environmental topics listed in the SEA Directive were scoped in for the assessment of the RBMP and POM for the Eastern RBD.

3.2 ENVIRONMENTAL ASSESSMENT AND ENVIRONMENTAL REPORT

The preparation of an Environmental Report on the likely significant effects on the environment of the RBMP and POM for the Eastern RBD included consideration of:

- Baseline data relating to the current state of the environment;
- Links between the RBMP and POM and other relevant strategies, policies, plans, programmes and environmental protection objectives;
- Key environmental problems affecting the Eastern RBD;
- The likely significant effects of the RBMP and POM for the Eastern RBD on the environment (both positive and negative);

- Measures envisaged for the prevention, reduction and mitigation of any significant adverse effects;
- An outline of the reasons for selecting the alternatives chosen; and
- Monitoring measures to ensure that any unforeseen environmental effects will be identified, allowing for appropriate remedial action to be taken. These have been aligned with the existing WFD monitoring programme where possible in order to ensure monitoring programme efficiency and ease of data gathering.

3.3 HABITATS DIRECTIVE ARTICLE 6 ASSESSMENT

In addition to the SEA, there was a requirement under the EU Habitats Directive (92/43/EEC) to assess whether the RBMP and POM for the Eastern RBD has the potential to impact negatively on a Natura 2000 site, which includes Special Protection Areas (SPAs) for birds and Special Areas of Conservation (SACs) for habitats and species. Article 6 is one of the most important articles of the Habitats Directive in determining the relationship between conservation and site use. Article 6(3) requires that,

> "*Any plan or project not directly connected with or necessary to the conservation of a site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives*."

An assessment of the RBMP and POM for the Eastern RBD was carried out under Article 6 of the EU Habitats Directive (92/43/EEC) (termed the HDA) in conjunction with the SEA and Plan making processes, with the findings of the HDA used to guide the development of the alternatives considered as part of the SEA. Consultation on the methodology of approach took place with the National Parks and Wildlife Service (NPWS) throughout the HDA process.

3.4 SEA STATEMENT

The main purpose of the SEA Statement is to provide information on the decision-making process for the RBMP and POM in order to illustrate how decisions were taken, making the process more transparent. In doing so, the SEA Statement documents how the recommendations of both the Environmental Report and the HDA[1] Report, as well as the views of the statutory consultees and other

[1]Recent guidance (2010) from National Parks and Wildlife Service in Ireland has replaced terms such as HDA with *Appropriate Assessment of Natura 2000 Sites* and the output is now referred to as a *Natura Impact Statement (NIS).*

submissions received during consultation, have influenced the preparation of the final RBMP and POM for the Eastern RBD. The SEA Statement also provides information on the arrangements put in place for monitoring and mitigation. The SEA Statement is available to the public, along with the Environmental Report, the HDA Report and the adopted Plan and POM.

The information outlined in **Table 3.1** is provided in the SEA Statement based on the requirements of the legislation and guidance.

Table 3.1 Information Summarised in SEA Statement

Requirement of SEA Legislation (S.I. 235/2004)	Section of SEA Statement
How environmental considerations have been integrated into the plan or programme, or modification to a plan or programme (Article 16(2)(b)(i)).	Section 6.1 and Table 6.1
How the Environmental Report prepared pursuant to Article 12 has been taken into account during the preparation of the plan or programme, or modification to a plan or programme (Article 16(2)(b)(ii)(I)).	Section 6.2 and 6.3
How the submissions and observations made to the competent authority in response to a notice under Article 13 has been taken into account during the preparation of the plan or programme, or modification to a plan or programme (Article 16(2)(b)(ii)(II)).	Section 1.2, Section 3, Section 4, Section 5 and Section 6.4
How any consultations under Article 14 have been taken into account during the preparation of the plan or programme, or modification to a plan or programme (Article 16(2)(b)(ii)(III)).	N/A
The reasons for choosing the plan or programme, or modification to a plan or programme, in light of the other reasonable alternatives dealt with (Article 16(2)(b)(iii)).	Section 7
The measures decided upon to monitor, in accordance with Article 17, the significant environmental effects of the plan or programme, or modification to a plan or programme (Article 16(2)(b)(iv)).	Section 8

3.5 ADOPTION OF THE PLAN

The River Basin Management Plan for the Eastern RBD and its associated Programmes of Measures was adopted by each of the competent authorities by the statutory deadline of 30 April 2010 either through reserved or executive function. Subsequently, the EPA reviewed the final RBMP and POM for the Eastern RBD and submitted a report to the Minister for Environment, Heritage and Local Government. Following review of the EPA report and inclusion of amendments by the Minister, the final RBMP and POM came into effect on 15 July 2010.

As required under the WFD, an interim report describing progress in the implementation of the planned programmes of measures set out in the plans will be submitted to the EU Commission within three years of adoption of the Plan.

4 CONSULTATION

4.1 INTRODUCTION

In the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations (S.I. No 435 of 2004), consultation is specifically required at the scoping stage with the nominated environmental authorities, and then the wider public when the Environmental Report and the draft Plan are put on public display. Finally, the SEA Statement and the adopted Plan are required to go on public display at the end of the Plan-making process. This section describes the statutory and non-statutory consultation that has taken place over the course of the SEA process.

4.2 FIRST PHASE – INITIAL CONSULTATION

To begin the process of scoping the SEA for the RBMP and POM for the Eastern RBD, an initial consultation (including a draft Scoping Report) was held with the Statutory Authorities, as designated by the relevant SEA legislation and listed in **Table 4.1**. Following the statutory consultation, it was considered best practice to include a number of relevant non-statutory consultees in the scoping process; these are also listed in **Table 4.1**. In addition, the Draft Scoping Report was also published on the Eastern RBD website in February 2008 to encourage further participation by stakeholders and the public in the consultation process.

Table 4.1 Consultees in the SEA Scoping Process

Consultee	Statutory / Non-Statutory
Environmental Protection Agency	Statutory
Minister for Environment, Heritage and Local Government	Statutory
Minister for Communications, Energy and Natural Resources	Statutory
River Basin District Coordinators	Non-Statutory
River Basin Advisory Councils	Non-Statutory
River Basin Management Groups	Non-Statutory
River Basin Steering Groups	Non-Statutory

The comments received in relation to the Draft Scoping Report generally consisted of:

- Information on potential sources of baseline information;
- Comments on the proposed assessment methodology;
- Additional SEA Objectives to be considered;

- Additional pressures to be considered; and
- Additional types of impacts to be considered.

All of the comments received are included with the Final Scoping Report, which is available at www.erbd.ie.

4.3 SECOND PHASE – CONSULTATION ON THE DRAFT PLAN, ENVIRONMENTAL REPORT AND HDA REPORT

Statutory consultation on the draft Plan, SEA Environmental Report and the Habitats Directive Assessment (HDA) Report took place from 22 December 2008 to 22 June 2009. This was in accordance with consultation required under Article 14(2) of the Water Framework Directive (as transposed in Article 14 of the Water Policy Regulations (S.I. 722 of 2003) (as amended)) and Article 13 (1 and 2) of the SEA Regulations (S.I. 435 of 2004), with all three documents placed on public display in hard copy and online for review and comment. A notice was published in the Irish Independent on 22 December 2008 inviting written submissions in relation to the draft RBMP and POM, Environmental Report and HDA Report. A comprehensive programme of Public Information Days was also held during the consultation period. These were advertised through a notice in the Irish Independent and a national radio campaign. The date and location of each ERBD Information Day is listed in **Table 4.2**. Representatives from the both the Plan team and the SEA/HDA teams attended all of these events in order to answer questions on the draft Plan, SEA Environmental Report and the HDA Report as well as how the processes were integrated during the plan-making process.

Table 4.2 Public Information Day Locations and Dates

Location	Date
Dublin City Civic Offices, Dublin	06-May-09
Solstice Centre, Navan	11-May-09
Aras Chill Dara, Naas	12-May-09
County Library, Tallaght	13-May-09
County Buildings, Wicklow County Council, Wicklow	14-May-09
County Buildings, Fingal County Council, Swords	12-Jun-09

Section 5 of this document contains an overview of the key issues raised in the written submissions made in response to the draft RBMP and POM for the Eastern RBD, and its associated Environmental Report and HDA Report, as well as comments made at the Public Information Days. The content of all written submissions and verbal comments were considered during the finalisation of the RBMP and POM for the Eastern RBD. Written submissions were made by the individuals/organisations listed in

Table 4.3 on the following page. Please note some organisations/ individuals submitted more than one set of comments.

A digest of submissions on the draft Plan has been prepared, which details the comments made and provides responses to these. In addition, a summary is provided of where the comments have been addressed in the preparation of the final Plan. The *Eastern River Basin District Water Framework Directive Submissions Digest Report 2009* is available at www.erbd.ie.

Table 4.3 Individuals/Organisations making written submissions

An Taisce	Industrial Heritage Association
Animal and Plant Health Association	Irish Concrete Federation
Arklow Town Council	Irish Creamery Milk Suppliers Association
Aughrim & District Trout Angling & Conservation Club	Irish Doctors' Environmental Association
Bord na Móna	Irish Farmers' Association
Bremore Ireland Port	Kildare County Council
Central Fisheries Board	Laois Irish Farmer's Association
Chambers Toxicological Consulting	Meath County Council
Clane Trout and Salmon Anglers	Meath Irish Farmers' Association
Coillte	Michael Gunn
Dept. of Agriculture, Fisheries and Food	Noel O'Hara
Dept. of Communications, Energy and Natural Resources	North Kildare Trout and Salmon Anglers
Dept. of Environment, Heritage and Local Government	NRA
Dodder Anglers Association	Offaly County Council
Dougal Cousins	OPW
Drogheda Port Company	Rathdrum Trout Anglers & Environment Club
Dublin City Council	River Varty Protection Society
Dublin Community Forum Housing and Residential Services	Shay Murtagh Ltd.
Dublin Irish Farmers' Association	SWAN
Dublin Port Company	Teagasc
Eastern Regional Fisheries Board	Thomas Deegan
Environmental Protection Agency	Tim Gleeson
ESB	Waterways Ireland
Failte Ireland	Water Supply Project – Dublin Region
Fingal County Council	Westmeath County Council
Geological Survey of Ireland	Wicklow Anglers Association
Heritage Council	Wicklow County Council
IBEC	Wicklow Irish Farmers' Association
Independent Farmers' Federation	William Hannon

5 KEY ISSUES RAISED IN THE SUBMISSIONS

The following sections highlight the key issues raised in the written submissions as well as comments received during the Public Information Days. The key issues raised are discussed below.

5.1 IMPLEMENTATION ISSUES

Key Issue: A number of submissions have highlighted the potential difficulties associated with implementation of such a complex and strategic plan, particularly as it will require actions by a number of different sectors and agencies/organisations. The submissions received also appear to suggest a lack of clarity among local authorities and stakeholders generally regarding the national strategy for implementation of the RBMPs in Ireland.

From a local authority perspective, the availability of financial as well as personnel resources for implementation of elements of the Plan for which they are responsible was raised as an area of concern. Local authority respondents expressed a hesitancy to commit to the deadlines laid out in the Plan without a guarantee that the required funding will be provided by central government.

Response – Implementation: The Water Framework Directive National Advisory Committee will oversee implementation of the plan at national level. It is chaired by the Department of Environment, Heritage and Local Government and involves representatives from the Department of Agriculture, Fisheries and Food, the Environmental Protection Agency, the City and County Managers Association (representing local authorities) and other Government Departments as appropriate. The establishment of this group will aid in providing cohesion and consistency in implementation across the RBDs as well as provide a forum for representatives from the different implementing bodies to bring their queries and concerns to be heard.

Response - Resources: Local authorities today face an immense challenge to meet an ever-increasing demand for services across all of their functions. They are required to work within tight resource constraints and depend heavily on funding provided by the Department of Environment, Heritage and Local Government for capital works and indeed day-to-day expenditure. Within the Plan it is acknowledged that implementation of the full POM across the entire Eastern RBD is a massive task requiring careful programme planning and management and the coordination of several state and semi state agencies and that it would require allocation of adequate budgets by each of the funding sources (mainly governmental) and the deployment of large numbers of staff resources by several organisations.

To be more cost effective, the Plan recommends a strategy of focussing on delivering the most effective measures in as many waters as possible (see Section 10.4.1 of the final Plan). It is

recognised in the Common Implementation Strategy (CIS) developed by the Member States that all problems facing the water environment cannot be addressed within a single planning cycle; the Directive allows for this by incorporating the use of exemptions to allow for prioritisation of actions to improve the water environment over a series of planning cycles. The CIS also recognises that objective setting and exemptions should be used to prioritise actions. Those measures not implemented in the first cycle will be addressed in subsequent cycles.

5.2 ENFORCEMENT

Key Issue: A number of submissions highlighted concerns with regards to enforcement of existing water protection legislation, including the 11 Directives listed in the WFD. Several submissions noted that achievement of the water quality objectives in the Plan relies heavily on the implementation of these 11 Directives, for example the Habitats Directive, which, in some cases, has been limited to date. Related to this, there were queries regarding who would be responsible for enforcement and implementation of the water protection legislation which is already in place.

Response: Between publication of the draft Plan and the final Plan, a new chapter (Chapter 13) has been added which relates to overall implementation. Chapter 13 of the final Plan acknowledges that delivery of the RBMP will be challenging, with responsibility for implementation of the plans currently assigned across a range of organisations with no single body having ultimate responsibility. An RBD can cover the areas of responsibility of a large number of governmental bodies. Furthermore, implementation of many of the measures necessary to achieve the objectives of the Plan is the responsibility of national rather than local authorities.

Chapter 13 acknowledges that enforcement of existing legislation across local, regional and national levels is key to successful implementation of the Plan and that as it moves into the implementation stage there is a need to strengthen and adjust existing administrative structures. Recommendations in relation to revised structures for water management have been put forward over the past two years by the OECD, Forfas and in the report of the Special Group on Public Service Numbers and Expenditure.

Chapter 13 of the Plan notes that in the short-term, funding will continue to be provided to support the RBD Offices so that these can coordinate the efforts of the various authorities to oversee, manage, enforce and report on the implementation of the plans, with the National Advisory Committee continuing to exercise an oversight role. Against this background, the Department of Environment, Heritage and Local Government will review by end 2010 the governance and structures for implementation of the river basin management plans. This review will include consideration of inspection and enforcement. As one of the key challenges will be implementation and enforcement of WFD requirements over a wide range of public bodies, it is important that structures resulting from the

review have a clear RBD remit and be provided with the resources and statutory power to oversee and enforce implementation over all relevant public bodies.

For the purpose of promoting consistency in environmental regulation and enforcement, local authorities, the Environmental Protection Agency and the Department of Environment, Heritage and Local Government are also jointly involved in the preparation of guidance and training for local authority personnel through the Environmental Services Training Group (ESTG). Guidance and training currently being developed includes: (a) the authorisation of discharges to water and sewer under the Water Pollution Acts; and (b) protocols for agricultural inspections and enforcement. Other guidance and training will be prepared as appropriate.

5.3 ALTERNATIVE OBJECTIVES UNDER THE WFD/EXTENDED DEADLINES

Key Issue: A number of submissions received related to the application of extended deadlines for improvement of that status beyond the first Plan cycle (2009 - 2015).

Response: In a number of cases objectives have changed between the draft and final Plan. The main reasons for these changes relate to revised status information and an acceptance that significant numbers of status estimates are based on inadequate data. This has prompted the need to increase the amount of monitoring as the first action in many water bodies. Between publication of the draft plan and the final plan, the number of rivers requiring extended deadlines has increased from 26 to 28, for lakes it has increased from 1 to 5, for transitional waters it has increased from 12 to 13, for coastal waters it has increased from 4 to 5 and for groundwaters it has increased from 1 to 8 (see Table 27 of the draft Plan and Table 10.7 of the final Plan for further detail).

Two groundwater bodies warrant clarification; these are Lusk Bog of the Ring and Wicklow Central (Avoca).

The **Lusk Bog of the Ring** has been designated as being of good chemical status but poor quantitative status. Since the start of 2009 abstraction rates at the Bog of the Ring water treatment plant have averaged approximately 3.5 megalitres/day. Recent construction of a new pipeline to Jordanstown reservoir has allowed a reduction in abstraction from the aquifer to 2.7 megalitres/day. This is considerably lower than the 80% of available recharge required by the EPA. Abstraction rates in the future will be limited by Fingal County Council to 3.15 megalitres/day. Water levels in wells surrounding the plant will continue to be monitored and are expected to show stable or rising groundwater levels in the near future. The intent is to restore the aquifer to good quantitative status before the next assessment by the EPA in 2012; however, it is recognised that groundwater recovery can be slow and so in the current Plan a precautionary target date of 2021 for full quantitative recovery has been set in line with EPA recommendations.

The **Wicklow Central (Avoca)** groundwater body represents a special case. A recently completed feasibility study of remediation options (CDM, 2008) suggests that it will be technically very difficult and costly to remediate the mine waste within the timeframes stipulated in the Directive for achieving good status. Treating the point source discharges to the river from the mine has been proven to be viable, but dealing with the pollutants moving through the natural fissures in the rocks and through the spoil is much more difficult. In addition, health and safety issues at the disused mine site will take priority when defining the course of action to be taken. There is insufficient data available to confirm the viability of restoring this groundwater water body and so a detailed investigative study has been recommended (Section 9 of the final Plan) to establish the technical viability of restoration and the costs and benefits of such actions. For the purposes of the Plan, the Avoca groundwater body has been identified as potentially requiring a Less Stringent Objective (LSO), but this must be confirmed by a full cost benefit analysis during the first planning cycle.

5.4 LEVEL OF AMBITION

Key Issue: The level of ambition proposed in the draft Plan was also the subject of a number of submissions. Some of these suggested that the ambitions were unrealistically high, while conversely others suggested that the plan did not go far enough. The latter comment was very often related to derogations particularly on the Avoca River (see **Section 5.3**).

Response: Over the course of the draft and final plan development there has been a shift from achievement of good status by 2015 for the majority of water bodies to a more limited and cautious ambition. In 2008 a workshop with all of the Local Authorities in the Eastern River Basin District reviewed the existing condition of each water management unit or water body and the pressures affecting it. Neighbouring authorities developed an approach as to which waters would be expected to be improved first based on the nature and scale of pressures affecting them. There was agreement to start this process at the top of the catchments and then to recognise that waters not achieving good status by 2015 for reasons of either natural recovery or programming would detrimentally affect downstream waters and so these would be expected to improve at a later date.

The outcome of this workshop was a clear definition of which waters would be improved in each planning cycle, with steady progress through until 2027. By 2015 it was expected that 61.5% of the waters in the ERBD would be at good status. It was felt that this level of ambition was realistic and rational at that time.

Revised status information and acceptance that significant numbers of status estimates are based on inadequate data has prompted the need to increase the amount of monitoring as the first action in many water bodies; this has reduced the numbers of water bodies now expected to achieve good status in 2015.

Indications now are for an improvement over the first plan cycle to Good Ecological Status in 55.3% of the waters in the ERBD (down from 61.5%). This shift in thinking is related to better understanding of the data gaps which exist for some water bodies. In many cases, water bodies are failing ecological standards (e.g. fish, invertebrates), but the cause of this is not revealed by current WFD monitoring. In these cases, improvements in status will start with further investigative monitoring to fill the data gaps before the most appropriate measures to be applied can be determined and there will be a further time lag once the measures are put in place before any improvements would be come evident. As each cycle for the RBMPs is only six years in duration it is unlikely that "good status" can be achieved where this investigative monitoring is required.

Derogations were also the subject of a number of submissions with a general feeling that we should not wait 10-15 years before tackling particularly difficult water bodies. It is worth noting that derogations are not intended to provide a "do nothing" option until 2021 or 2027. Instead the Plan has identified that even with a dedicated action programme a particular water body will not achieve good status by 2015, e.g. the Avoca River (see **Section 5.3** above). It will take considerably longer for that system to be revived, possibly 10-15 years and therefore it is not reasonable to list its achievement date as 2015 or indeed even 2021. The derogations require that measures be applied as part of this cycle and will be carried on in the 2015 and 2021 cycles with the intention of achieving good status by 2027. It should be noted that even with the application of extended deadlines, measures must still be taken to ensure that these water bodies achieve the best possible status by 2015.

5.5 AGRICULTURAL SUPPLEMENTARY MEASURES

Key Issue: There was a high level of interest in possible supplementary agriculture measures over the course of the public consultation open days and subsequent submissions. Submissions from the agricultural sector generally asserted that the National Action Programme (NAP) under the EU Nitrates Directive was the primary regulatory control, and that the need for supplementary measures would be determined by the findings of the Agricultural Catchment Programme.

Response: In the case of the Eastern RBMP, no supplementary measures are proposed under Agriculture at this time. The plan is adopting the general approach of using pilots to obtain more data before committing to expenditure (this follows Department of Finance guidelines on Capital expenditure and also aligns well with the Pilot catchment studies underway by the Department of Agriculture, Fisheries and Food, the results of which will start to become available in 2012). The Final Plan and POM for the Eastern RBD lists Key Actions which are covered by existing Irish Law and as such no supplementary measures are required to implement them.

5.6 WATER SUPPLY

Key Issue: Submissions in relation to both the Eastern RBD and Shannon IRBD River Basin Management Plans raised the issue of the Greater Dublin Water Supply Strategy and how it was dealt with in both of the plans. It was noted by respondents that the Eastern RBD Plan did not address this strategy specifically.

Response: Section 10.3 of the final Plan outlines major proposed developments within the Eastern River Basin District. They include the following:

- Flood defences for Dublin (Dublin City Council);
- Beach Nourishment Project, Laytown (Meath County Council);
- Scotsman Bay (Dun Laoghaire Rathdown County Council);
- Transport 21 (Greater Dublin Area);
- Portmarnock Dune Stabilisation (Fingal County Council);
- Flood Defences for Rogerstown Estuary (Fingal County Council);
- Dublin Gateway Project (Dublin Port Company);
- 6-Year Maintenance Dredging Plan (2009-1015) (Dublin Port Company);
- Bulk Handling Facility (Dublin Port Company);
- Capital Dredging (Berths and Basins) (Dublin Port Company);
- Bremore Port in coastal Fingal/Meath (Fingal & Meath County Councils); and
- Water transfer to Greater Dublin from the Shannon River (Dublin City Council).

All of the above projects are still at an early stage and would be subject to normal planning processes, including the requirements for Strategic Environmental Assessment and Environmental Impact Assessment as appropriate.

Section 5.3.2.7 of the SEA Environmental Report notes that several local authorities are presently engaged in source option reviews to address future demands in the Greater Dublin Water Supply Area (GDWSA). Currently, the River Liffey is at its limit for safe abstraction, necessitating the search for a new source. Dublin City Council, on behalf of the local authorities in the GDWSA, produced a draft Plan in 2008 dealing with the possible source options to meet future water demand. The Plan (Water Supply Project – Dublin Region) has been subject to its own Strategic Environmental Assessment including statutory public consultation from November 2008 to February 2009. Ten options were considered as part of that draft Plan including abstraction of water from the Shannon at Lough Ree,

Lough Derg or at Parteen Basin. In addition, the possibility of conjunctive use of the Liffey/Barrow Rivers and from groundwater has also been explored alongside desalination of the Irish Sea.

The plan for the Water Supply Project – Dublin Region is currently in the adoption process and the recommended option for meeting the Dublin Region's long term water supply needs is proposed to include abstraction from northern Lough Derg with a major water storage reservoir in County Offaly, to be located on a former cut away bog. An Environmental Impact Assessment (and assessment under Article 6 of the Habitats Directive) of the preferred option will be carried out and a planning application will be submitted to An Bord Pleanála. Full statutory public consultation will take place as part of the process. An Bord Pleanála will make a determination on the project.

***Recommendation**: In recognition of the hierarchy of the River Basin Management Plans under the EU Water Framework Directive, the Water Supply Project – Dublin Region will need to have regard to the final RBMP for both the Eastern RBD and the Shannon IRBD. In so doing it will shall ensure that there is no conflict between the Plans and also that any proposal taken forward as a new water source will not jeopardise the objectives of the RBMPs and their associated POMs. It is recommended that text to this effect is included in the final adopted plan for the Water Supply Project – Dublin Region, which has been prepared by Dublin City Council on behalf of DEHLG and the local authorities within the Dublin Region Water Supply Area.*

5.7 INTEGRATION BETWEEN SEA/HDA AND PLAN

Key Issue: Comments were received stating that the integration between the Plan and the SEA/HDA process was not highlighted.

Response: The SEA and HDA were ongoing throughout the development of the RBMP for the Eastern RBD, with the SEA, HDA and Plan teams working together closely to identify potential environmental issues/constraints at the earliest possible stage in the Plan making process.

The SEA and HDA teams were involved in the:

- Development of the alternatives considered in the draft RBMP, SEA and HDA;
- Early identification of environmental sensitivities in the Eastern RBD in order to amend the draft RBMP and to avoid impacts on the environment;
- Recommendation of mitigation measures to address the potential impacts arising from the alternatives considered in the draft RBMP and POM;
- Development of a monitoring plan to track the environmental performance of the final RBMP once implemented;

- Review of submissions; and
- Screening of proposed changes to the final RBMP to determine if further significant environmental effects are likely to arise.

The SEA team initially produced a document, '*A Working Approach for the Development and Assessment of Alternatives*' which was circulated to the SEA Steering Group for consideration and in order to generate debate and discussion on the reasonable alternatives available for consideration. A workshop was subsequently held with the Plan Team to determine the level of detail contained within the alternatives and to discuss how the alternatives would be dealt with in the SEA.

To assist in Plan development, the SEA team provided an initial high-level review of the main alternatives to highlight key environmental issues going forward and to address the potential impacts arising from the alternatives being considered. Following more detailed assessment of the suite of measures from the draft Plan, an extensive list of mitigation measures was proposed for incorporation in the final RBMP and POM for the Eastern RBD. These mitigation measures were based on the findings from both the SEA and the HDA. The Plan team considered these mitigation measures during the consultation period. The relevant mitigation has been identified which pertains to measures being included in the final RBMP and POM for the Eastern RBD following changes made after close of the consultation period. This mitigation, together with monitoring requirements and further information on the SEA process, are included in Chapter 11 of the Final Eastern RBMP.

5.8 WATER BODY LEVEL ASSESSMENT

Key Issue: Some of the submissions queried why a more detailed assessment was not carried out in the Environmental Report considering that water body level information on the application of measures is included in the draft Plan.

Response: At the time the Environmental Report was completed there was limited information available as to the implementation of the proposed measures at water body or water management unit (WMU) level. Since the publication of the draft Plan and the Environmental Report this information has been reviewed to determine if any additional, meaningful assessment could be included that would incorporate water body level assessment. It was found that the nature of the measures remains such that the assessment could not be meaningfully refined to include this information. For example, the volume of air emissions produced through use of community digestors could be calculated if the number of these digestors was known. At the moment, though a number of WMUs include the measure for provision of community digestors to treat slurry and/or sewage sludge, this does not mean that a digestor would be located within each of these WMUs. Instead it means that the cost of an unspecified number of digestors would be shared across several WMUs. Therefore, a quantitative assessment in terms of these air emissions at the water body level is not possible at this time.

However, this level of assessment may be possible during subsequent cycles of river basin planning and should be considered for inclusion in future SEAs should the relevant information be available.

5.9 EXISTING PORT INFRASTRUCTURE

Key Issue: A number of submissions were received in relation to existing port activities and specifically maintaining the viability of these facilities.

Response: In the Eastern RBD port activities relate to Bremore Port (development proposal), Drogheda Port and Dublin Port. Both Drogheda and Dublin ports have been present for hundreds of years and have influenced the way the River Boyne and River Liffey tidal estuaries have developed. Ports, by their size and function, have an impact on the natural morphology of the estuaries, making them wider and deeper to accommodate shipping traffic. As a result, ports have been recognised in the Eastern RBMP as Heavily Modified Water Bodies. Measures have been proposed to address these including increasing in-channel morphological diversity and improvements to marginal and aquatic habitats.

The ecological potential of ports was the subject of submissions from both Drogheda and Dublin Ports. It was recognised that port actives have the potential to negatively impact on aquatic and riverine habitats; however, the potential for creation of new and important habitats, e.g. polders, was also highlighted. The challenge of maintaining and improving ecological potential in these heavily modified situations will require a practical understanding of port activities integrated with a clear understanding of the habitats and species most adapted to type of stressed habitat.

In the hierarchy of Plans and Programmes in which the RBMP and POMs are placed, they represent a regional plan derived from the EU Water Framework Directive. Bremore Port is a Project level proposal and as such must have regard for the planning constraints of this higher-level plan. Within the draft Plan, Bremore Port in Coastal Fingal / Meath was listed as a major proposed development that may require alternative objectives. It is noted that such development proposals must have over-riding social and economic benefits and must still allow waters to achieve Good Ecological Potential.

Recommendation: *It is recommended that the Port Authorities engage with a qualified estuarine / marine specialist in formulating future plans for the ports to ensure that the ecological potential of such ventures is addressed at the strategic planning stage and in order to ensure achievement of the WFD objectives for heavily modified water bodies.*

5.10 RIVER LIFFEY ACT

Key Issue: A number of submissions highlighted the need to address the Liffey Reservoir Act.

Response: This has now been has been incorporated into Chapter 7 (Section 7.7 Subsection Hydrological Issues) of the final Plan. It is recognised that there is a need for legislation to be revised, where appropriate, in the context of abstractions and compensation flow. In particular, the Liffey Reservoir Act (1936) and the permissions and obligations therein, should be assessed with a view to the objectives and commitments of the EU Water Framework Directive.

5.11 CLIMATE CHANGE

Key Issue: A number of submissions were received in relation to the issue of climate change in the context of its affects on river basin planning.

Response: The issue of Climate Change is now covered in greater detail in Section 7.9 of the final Plan in accordance with the Guidance Document "Water Framework Directive – Draft River Basin Management Plans, Adapting the Plans to Climate Change". Measures specified in the Plan take account of potential impacts of Climate Change as described in Tables 7.9, 7.10 and 7.11 of the final Plan.

The strategy of the Plan is to deal with the major problems affecting water quality and ecology in the Eastern River Basin District through widespread implementation of existing legislation and supporting supplementary measures. The effect of these measures will be monitored over time so that they can be evaluated. At the same time more climate data will become available and predictions of future climate will become more reliable.

Member State Water Directors recommend making "climate checks" of the programmes of measures in the first river basin management plans. These climate checks should identify the measures best suited to strengthening river basins' capacities to adapt to climate change. Further work to incorporate climate change in river basin management planning will therefore be needed when the management plans are revised in 2015 and 2021. Measures will need to be resilient to climate change impacts. This will be especially important for expensive and long-term investments such as large infrastructure projects. Planning for droughts, water scarcity and flood prevention will also become increasingly crucial.

5.12 OTHER PLANS, POLICIES AND PROGRAMMES

Key Issue: Two main issues with regard to the influence or interaction of other plans, policies and programmes arose in the submissions. The first was the consideration of the cumulative impacts of the Eastern RBMP and POM when taken together with the other seven RBMPs and POMs, which will be implemented both jointly and independently by the relevant authorities in Ireland and Northern Ireland. The second was the need for integration of the Eastern RBMP with other regional and local plans and programmes along with queries as to how this integration would be achieved.

Response: With regard to the cumulative impacts of all eight RBMPs it is expected that these would primarily be very positive. These plans are providing a completely new way of managing water resources in an integrated fashion with a holistic approach to achieving good water quality at the heart of the WFD. While there may be some cumulative negative impacts, primarily in the form of impacts to material assets due to the costs of implementation and the need to rethink established practices in some sectors, these are expected to be outweighed by the positive cumulative impacts to water. This will in turn result in cumulative indirect positive impacts on receptors such as biodiversity, human health and population.

In the case of the influence of the RBMP for the Eastern RBD on other plans and programmes, such as the Regional Planning Guidelines (RPGs) and City/County Development Plans, these plans would fall below the Eastern RBMP and POM in the planning hierarchy and as such will be required to take the RBMP into account both during preparation of the guidelines/plans themselves as well as their SEAs.

As mentioned in a previous section one of these lower level plans in the Eastern RBD is the Water Supply Project – Dublin Region, which is currently in the adoption process and has been subject to its own SEA process.

Recommendation: *In order to ensure that the relevant RPGs, County/City Development Plans and Water Supply Project – Dublin Region take account of the Eastern RBMP, it is recommended that a commitment is included in the text of these plans that they will not conflict with or jeopardise the objectives of the Eastern RBMPs and POM. However, making this commitment is not enough, the organisations preparing the plans and their associated SEAs are also strongly recommended to review the measures in the Eastern RBMP and POM and the mitigation measures in the SEA to determine whether conflicts are arising, and if so to resolve these.*

5.13 AVAILABILITY OF INFORMATION IN THE PUBLIC DOMAIN

Key Issue: It was notable in the submissions received on the Eastern RBMP and POM that there was a cross-sectoral call for better access to information and provision of education / awareness campaigns. Some submissions also highlighted that not all members of the public have access to a computer and therefore cannot access the documents which are available for download on the Eastern RBD wesbite (www.erbd.ie) or on the website www.wfdireland.ie.

Response: This Plan is a substantial document and to support this there is a great deal of detail which is presented in electronic databases. The Plan aims to provide an overview of the process and objectives of the WFD; describe the status of the water bodies in the District; the pressures affecting them; and what measures are required to improve and protect them.

More supporting information and data are available in 4 main locations:

1. ERBD website (www.erbd.ie), which provides an overview of the Directive and the ERBD project as well as public access to all of the key WFD deliverables and records of the Advisory Council and Technical Council meetings;
2. WFD website (www.wfdireland.ie), which provides access to all supporting documentation and studies undertaken in Ireland as part of the WFD implementation since 2002 (the most relevant of these are listed in the bibliography at the end of this Plan);
3. River Basin Management System (via Local Authority offices); and
4. Electronic PowerPoint slides at www.erbd.ie.

Currently for the RBMP and POM for the Eastern RBD much of the detail on specific measures at the water body level is contained in the River Basin Management System (RBMS), which is a Geographical Information Systems (GIS) tool. The RBMS provides access to all data, assumptions, measures, how and why measures have been selected and the cost and effective estimates of those measures for all water bodies in the ERBD. A public access area in the system is available via each Local Authority. This offers a map based facility for users to:

1. Select waters of interest;
2. Display the objectives and status of that water;
3. Display the measures prescribed; and
4. Print reports.

An RBMS user guide is available on the ERBD web site (www.erbd.ie) and provides an overview of the process encapsulated in the RBMS and step by step guidance through its various elements.

In the instances where a member of the public does not have access to a computer, the key point of contact has been identified as the RBD project coordinator. Hard copy versions of the Plan and associated documents can be obtained through the relevant project co-ordinator. It is also noted that many community libraries now have computers with internet access. Where available, these public share computers offer another avenue for access to the Eastern RBD website and www.wfdireland.ie by interested parties.

The breadth of access will depend on the on-going education and awareness that supports the implementation of the Plan and POMs. Many of the basic measures and supplementary measures considered in the draft plan already recognise the importance of this element and it was further highlighted in the SEA Environmental Report through the recommended mitigation measures included therein. A list of potential public awareness campaigns and schemes is provided in Section 7.9 of the final Plan.

5.14 NEW MEASURES OR CHANGES TO EXISTING MEASURES

During the consultation period, a number of submissions included possible additional measures which could be included in the final plan. During the review of submissions, the Plan Team identified three new measures for inclusion in the Programmes of Measures to further assist in achieving Good Ecological Status by improving the riverine habitat for all trophic levels of the aquatic foodchain. These are outlined in **Table 5.1** below.

Table 5.1 Additional Measures Identified From Consultation Responses

Measure Description
Take account of, where appropriate, measures from the Delvin Catchment Report; • Restore channelised sections to natural river course and habitat; • Install natural revetment along heavily eroded sections of the river, e.g. quarry site near the Naul; • Review river and tributary maintenance operations; • Manage and expand riverside tree cover; • Install/Restore salmonid spawning grounds; • Install permanent water quality dataloggers; • Establish wildlife corridor along the Delvin River; and • Control invasive species Japanese Knotweed, Giant Hogweed and Cherry Laurel.
Improve river habitats
Investigate and monitor legacy landfills

These new measures have been reviewed and discussed with the Plan team and, in line with the requirement of the SEA Regulations, have been screened to determine if they require assessment as

part of the SEA for the Eastern River Basin Management Plan and Programme of Measures. The result of the screening exercise can be found in **Table 5.2,** overleaf. Where relevant, the mitigation measures put forward in the SEA would apply to these new measures.

Table 5.2 Screening of Other Possible Measures Identified From Consultation Responses

Further Assessment?	Additional Measure	Comment
X	Take account of, where appropriate, measures from the Delvin Catchment Report; • Restore channelised sections to natural river course and habitat; • Install natural revetment along heavily eroded sections of the river, e.g. quarry site near the Naul; • Review river and tributary maintenance operations; • Manage and expand riverside tree cover; • Install/Restore salmonid spawning grounds; • Install permanent water quality dataloggers; • Establish wildlife corridor along the Delvin River; and • Control invasive species Japanese Knotweed, Giant Hogweed and Cherry Laurel.	Several of these measures involve either data gathering (e.g. installation of dataloggers) or review of existing operations, none of which are expected to result in impacts on the wider environment other than contribution to improvements in water quality. As such no further assessment is required. In the case of measures that are aimed at river restoration (e.g. installation of natural revetment and restoration of spawning grounds), the impacts of these have been assessed as part of other measures considered in the SEA (SEA PM6 and PM9) with mitigation recommended. With regards to control of invasive species, the details of the control measures are not yet available. Therefore, it is strongly recommended that once the details of the control measures become available that these be subject to a screening exercise to determine whether a SEA or HDA of these is required.
X	Improve river habitats	The details of the required improvements are not detailed in this measure; therefore, no further assessment can be carried out. However, several potential measures to improve river habitats were assessed as part of the suite of measures considered in the SEA. Therefore, once the actions arising out of the implementation of this measure are known it is strongly recommended that these be compared with the measures assessed in the SEA in order to determine if any of the recommended mitigation measures apply. Should actions be proposed which have not already been considered in the SEA, then a screening exercise will need to be carried out prior to their implementation to determine whether a SEA or HDA of these is required.
X	Investigate and monitor legacy landfills	Investigation and monitoring of legacy landfills is part of the information gathering stage of the planning process. Therefore, this type of measure is not expected to result in significant environmental impacts and as such was not assessed. It is anticipated that implementation of this measure would precede implementation of remediation activities at legacy landfills, the impacts of which were assessed under a separate measure (SEA OP5) with mitigation recommended.

6 HOW ENVIRONMENTAL CONSIDERATIONS & CONSULTATIONS HAVE BEEN TAKEN INTO ACCOUNT IN THE FINAL PLAN

6.1 ENVIRONMENTAL CONSIDERATIONS

The SEA process took place in conjunction with the preparation of the Plan and the HDA. Thus, from the outset, considerations of the environmental consequences of the alternatives have been taken into account. At a formal level the process involved a series of workshops, presentations, discussions and meetings between the SEA, HDA and Plan Teams as well as with statutory consultees and non-statutory stakeholders and organisations. The iterative process ensured that the SEA/HDA and the preparation of the Plan were well integrated in order to meet the environmental objectives and the objectives of the Plan (**Figure 6.1**).

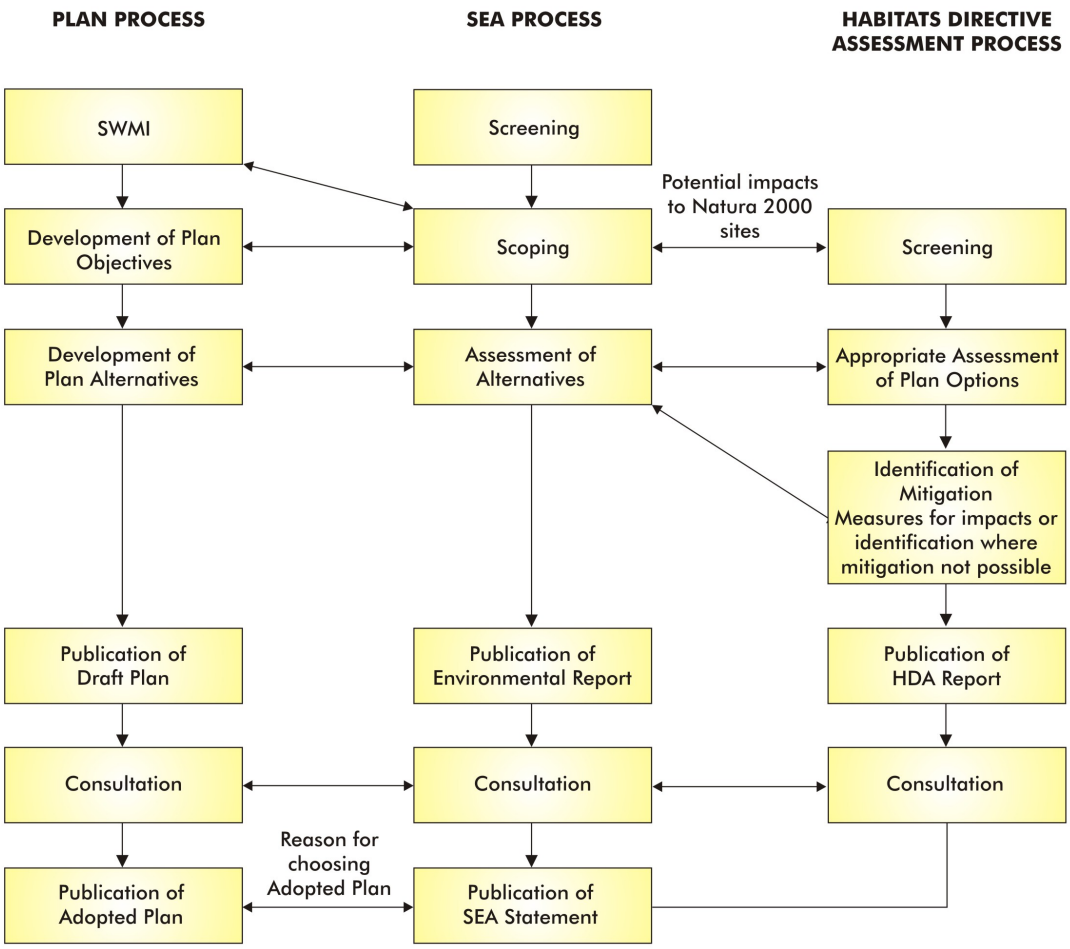

Figure 6.1 Integration of the SEA/HDA and preparation of the RBMP and POM

6.2 SUMMARY OF THE SEA ASSESSMENT

6.2.1 Assessment Methodology

The approach used for the assessment in the SEA is termed an 'objectives led assessment'. In this case, each of the alternatives considered was tested against defined SEA Environmental Objectives (**Box 6.1**), which are separate to the Plan objectives and cover each of the SEA environmental topic issues from the legislation, e.g. population, biodiversity, material assets, etc. A matrix format was used for the assessment, which permitted a systematic approach and comparison of alternatives.

Box 6.1: Environmental Objectives

Objective 1 (Biodiversity, Flora and Fauna):	Prevent damage to terrestrial, aquatic and soil biodiversity, particularly EU designated sites and protected species.
Objective 2 (Population):	Contribute to sustainable development.
Objective 3 (Human Health):	Protect and reduce risk to human health in undertaking water management activities.
Objective 4 (Soil):	Avoid damage to the function and quality of the soil resource in the River Basin District.
Objective 5 (Water):	Prevent deterioration of the status of water bodies with regard to quality, quantity and improve water body status for rivers, lakes, transitional and coastal waters and groundwaters to at least good status, as appropriate to the WFD.
Objective 6 (Air Quality):	Minimise emissions to air as a result of Plan activities.
Objective 7 (Climatic Factors):	Minimise contribution to climate change by emission of greenhouse gasses associated with Plan implementation.
Objective 8 (Material Assets 1):	Maintain level of protection provided by existing morphological infrastructure, e.g. flood defences, coastal barriers, groynes, etc.
Objective 9 (Material Assets 2):	Provide new and upgrade existing water management infrastructure to protect human health and ecological status of water bodies.
Objective 10 (Material Assets 3):	Support economic activities within the District without conflicting with the objectives of the WFD.
Objective 11 (Material Assets 4):	Protect water as an economic resource.
Objective 12 (Cultural Heritage):	Avoid damage to cultural heritage resources in the River Basin District.
Objective 13 (Landscape):	Avoid damage to designated landscapes in the River Basin District.

The main alternatives scenarios considered for assessment in the SEA were:

a) Business as Usual, i.e. implementation of the 11 Existing Directives listed in Article 10 and part A of Annex VI of the WFD, also termed *Basic Measures* in the Plan;

b) Business as Usual Plus, i.e. as above but with other required measures noted in Article 11(3) of the WFD, also termed *Other Basic Measures* in the Plan; and

c) Individual Additional Measures, or *Supplementary Measures* in the Plan.

As the preparation of the draft Plan for the Eastern RBD was carried out at the same time as the other seven plans for the island of Ireland, it was considered appropriate by the SEA Team that all of the proposed measures be considered in the SEA, as most of these could be useful in the Eastern RBD. This allowed the Eastern RBD Plan Team to consider adding other measures to the final RBMP and POM without triggering the need to put the Environmental Report out for additional public consultation. It is acknowledged that a few of the measures are only applicable in their specific jurisdiction, e.g. legislation; therefore, a reference to the source jurisdiction for each measure was included for clarity and can be found in Tables 8.3 to 8.14 of the Environmental Report. It should be noted that there are also measures included and assessed in the SEA that did not originate in any of the Plans (e.g. WW6), but which the SEA Team considered to be valid alternatives. SEA Measure WW6 'Reduction in pollution at source through education campaigns' has been incorporated in the Plan through the inclusion of a number of existing/planned and supplementary measures targeted at improving education and awareness and advice.

Prior to carrying out the assessment, the Business as Usual Measures were sieved to focus on elements that could be reasonably assessed. The Business as Usual Plus measures were all assessed; however, this was confined to qualitative assessment due to lack of specific detail, which would allow quantification. The Additional Measures were also sieved to determine which were suitable for assessment. Commentary on why assessment was not considered appropriate for a particular measure is provided in Tables 8.3 to 8.14 and Section 9 of the Environmental Report.

6.2.2 Overall Summary of Assessment

For convenience, a summary of the assessment contained within the SEA is presented in **Appendix A**. It should be noted that only those measures included in the draft Plan for the ERBD are included. The full assessment can be found in Tables 9.1 to 9.12 of the main volume of the Environmental Report and the Appendix to Chapter 9 of the Environmental Report.

6.2.3 Summary of Cumulative and Synergistic Impacts

The primary cumulative/synergistic impacts identified include improvements in water quality leading to positive cumulative impacts to aquatic biodiversity, flora and fauna, both within EU designated sites and the RBD as a whole. Negative cumulative impacts to air quality and climate have been identified due the potential for a number of alternatives to result in increased emissions to air from transport-related activities and processing of waste materials, e.g. sludge. However, some of this can be offset by use of renewable energy sources and capture of CH_4 for reuse as a fuel source.

Also, a number of measures call for the construction of new or upgraded infrastructure. Cumulatively, the increased energy use from these projects could result in increased emissions of GHG (greenhouse gasses), potentially contributing to climate change. This cumulative impact could be mitigated through the use of renewable energy to fuel new infrastructure projects. In addition, new or upgraded infrastructure could result in potentially cumulative negative impacts to biodiversity, landscape and cultural heritage if these are sited poorly. Consideration of the wider environment prior to siting new infrastructure will greatly reduce this potential cumulative impact.

A number of the physical modification measures have considerable potential to improve the environment individually or cumulatively if implemented correctly; however, the potential for negative cumulative impacts to cultural heritage, landscape and biodiversity from these measures is dependant on the methodology in which they are implemented.

The cost associated with implementation of many of the measures could result in potential cumulative negative impacts to both individuals and local authorities, for which no mitigation may be available. However, cumulative positive impacts would be experienced by those economic sectors reliant on good water quality (residential, tourism, angling, etc.).

In addition, some of the measures may result in changes in land use or development patterns. While, these changes are expected to make a significant contribution to sustainable development in the Eastern RBD, they could also result in cumulative negative impacts. For example, changes could occur in the composition of rural communities should new generations of families that have resided in areas historically, no longer be able to continue to build individual residences on the family holding due to restrictions on siting of on-site wastewater treatment systems. In addition, limitations on forestry in sensitive areas could impact on the economic value of forests as well as reduce the potential for carbon sequestration, cumulatively impacting on Ireland's climate change commitments.

6.2.4 Summary of Secondary or Indirect Impacts

Secondary impacts to biodiversity could result due to the physical and / or chemical alteration of habitats resulting in loss or change to flora and fauna currently present. This is particularly important for birds that may feed on biomass generated by nutrient output from wastewater treatment facilities, industry or farming. Changing the nutrient output or the physical setting may cause a change in available food sources, ultimately leading to the loss of the bird species from the area.

Also, changing the management of land through fencing, set-aside or buffer strips may indirectly impact on protected flora and fauna dependent on the current regime. This would be true for corncrakes, which are ground nesting birds that rely on winter flooding and a mowing regime for survival, or meadow barley, which is a plant that relies on a level of grazing in order to outcompete

other non-native species. Indirect positive impacts may also occur in relation to soil biodiversity, particularly with alternatives that limit erosion, soil loss and remediate land contamination.

Secondary impacts to population may result as a number of measures will guide land use planning, thereby contributing to sustainable development. All of the measures are designed to improve water quality, which also contributes to sustainable development.

Improvements to water quality will indirectly impact on human health in relation to protection of drinking waters, bathing waters and shellfish waters. Improvements in septic tank management and upgrades to treatment facilities will also indirectly impact on population through reduced odour nuisance.

Soils are one of the pathways for movement of water and as such they can be indirectly impacted by many of the measures discussed. Indirect positive impacts to soils are likely from measures designed to reduce farming pressures, improve nutrient balances and prevent erosion. Measures to prevent pollution of waters by chemicals will also improve soil quality and function.

Air quality has the potential to interact with other environmental receptors, principally human health and climate. Increased treatment requirements may increase emissions to air from treatment and disposal facilities locally, e.g. dioxins from incineration; however, air quality emissions would be subject to Emission Limit Values (ELVs) set out in IPPC and/or Waste licenses. Emissions to air from transport also have the potential to indirectly impact on air quality and climate through release of GHG.

Alternatives directed at improving water quality through upgrade of wastewater treatment infrastructure or reducing loading can indirectly impact on material assets by improving efficiency of existing infrastructure and providing new infrastructure. Negative indirect impacts are likely for some economic activities currently using or discharging to water but positive impacts will also be experienced by other economic activities dependent on clean water, e.g. angling, tourism etc.

6.2.5 Mitigation Required

As part of the Environmental Report, an extensive list of mitigation measures was proposed for incorporation in the final RBMP and POM for the Eastern RBD. These mitigation measures were based on the findings from both the SEA and the HDA. These are broadly categorised as:

- Requirement for Environmental Assessment at the project level where measures were anticipated to impact on EU Designated sites and on built heritage in particular;
- Recommendations for changes to land-use planning;

- Recommendation for education and awareness campaigns to inform stakeholders of how they are impacting on our waters and what they can do to mitigate their impacts;
- Guidance to assist sector specific changes;
- Requirement to take account of cumulative impacts in nutrient planning and loading;
- Measures to contribute to climate change abatement including use of renewable energy;
- Recognition that pollution pathways other than water should be considered; and
- Further studies to inform information gaps and assist in monitoring.

The Eastern RBD Plan team considered these mitigation measures during the consultation period. The relevant mitigation has been identified which pertains to measures being brought forward into the final Eastern RBMP and POM, following changes made after close of the consultation period, and is included in a table in Chapter 11 of the final Plan. In addition, the applicable mitigation measures will be incorporated into the electronic River Basin Management System (RBMS) in such a way as to highlight their presence when the local authorities are deciding which measures to implement.

In addition, there are a number of mitigation measures recommended in the Environmental Report that are linked with measures put forward as part of the Plan-making processes in the other seven RBDs. While this mitigation may not link directly with measures included in the Eastern RBMP and POM, a number have been carried forward either directly or as variations into the final RBMP and POM (see Chapter 7 of the final Plan) as they represent several valuable proposals that should be included. These additional mitigation measures recommended for inclusion are listed below along with a note of whether or not they have been carried forward (italicised text).

> SEA Ref. No. OP2/OP4: A programme of education and awareness to tackle improper and illegal disposal of waste to support the reduction of pollution from these sources. A campaign to reduce the illegal disposal of waste would have particular benefit for protected areas, which tend to be remote rural areas, e.g. bogs, used for illegal disposal of unwanted materials. *Campaigns on the use and disposal of chemicals and promotion of targeted positive actions e.g. removal of oils from hotel wastes have been included.*
>
> SEA Ref. No. AG8: An information and advice campaign targeted at farmers on a national scale. This campaign should focus on prevention first followed by Best Management Practices (BMP) as core themes. Adequate consideration should be given not just to water and biodiversity but also soils and cultural heritage. Information campaigns should also highlight best practice in the sector in order to demonstrate that an economically viable farming operation is possible within such schemes. Opportunities for agri-tourism should also be highlighted. Guidance shall also include information relating to implementation in areas protected for biodiversity. Information on the National Action Plan on Sustainable Use of Pesticides, should

also be included in this information and advice campaign. Information on the different legislation applied to agriculture and the requirements/issues associated with these should be included as well. *Included in the final Plan.*

SEA Ref. No. AB ALL: A focussed awareness campaign on water use and the value of water to reduce the volumes of water used / wasted, followed by leakage improvement and only then new infrastructure. Any new infrastructure, e.g. storage, should source its fuel from renewable sources. *Included in the final Plan.*

SEA Ref. No. AB14: The Planning Authority, in directing or restricting development should take account not only of the water capacity of an area but its wider capacity in terms of cultural heritage, biodiversity and landscape, etc. In addition, Habitats Directive Assessment should be considered for new abstractions, where required. *Not included in the final Plan however reference is made in Section 7 to reducing water demand overall.*

6.3 INFLUENCE OF THE SEA PROCESS DURING PLAN PREPARATION

The SEA and HDA were ongoing throughout the development of the RBMP and POM for the Eastern RBD, with the SEA, HDA and Plan teams working together closely to identify potential environmental issues/constraints at the earliest possible stage in the Plan-making process. The SEA and HDA Teams were involved in the:

- Development of the alternatives considered in the draft RBMP and POM, SEA and HDA;
- Early identification of environmental sensitivities in the ERBD in order to amend the draft RBMP and POM and to avoid impacts on the environment;
- Recommendation of mitigation measures to address the potential impacts arising from the alternatives considered in the draft RBMP and POM;
- Development of a monitoring plan to track the environmental performance of the final RBMP and POM once implemented; and
- Screening of proposed changes to the final Plan to determine if further significant environmental effects are likely to arise.

The SEA process has ensured that potential environmental impacts (both positive and negative) associated with the implementation of the RBMP and POM for the Eastern RBD have been given due consideration in the preparation of the Plan. **Table 6.1** shows how environmental considerations and the input of the SEA have been taken into account in the final RBMP and POM.

Table 6.1 How Environmental Considerations Have Been Taken into Account in the RBMP

Environmental Consideration	How has this been accounted for in the Plan?
Identification of environmental constraints in the ERBD	Through refinement of measures at an early stage.
Identification of extra measures	Inclusion of SEA Measure WW6, which includes provision for: *Reduction in pollution at source through education campaigns,* which will be implemented within the RBMP through a number of existing/planned and supplementary measures which are targeted at improving education and awareness.
Recommendation of mitigation measures to address impacts on the wider environment	The mitigation measures from both the SEA and the HDA that are relevant to the measures brought forward into the final RBMP and POM have been incorporated into Chapter 11 of the final Plan. The relevant mitigation measures will also be incorporated in the electronic RBMS. The RBMS is an information management system, which serves a variety of purposes, including facilitating a structured approach for selection of measures. It is key that these be included in this electronic system as it is likely that this is the format to which the local authorities will be referring on a regular basis for measure selection rather than the hard copy of the final RBMP document.
Required Environmental Monitoring Programme	The environmental monitoring programme required by the SEA has been incorporated into the final Plan in Chapter 11. Please see **Section 8** of this document for further detail on the contents of the monitoring programme. It should be noted that the propsed Environmental Monitoring Programme has been aligned with the existing WFD monitoring programme, where possible, in order to ensure monitoring programme efficiency and ease of data gathering.

7 PREFERRED SCENARIO AND REASONS FOR CHOOSING THE FINAL PLAN

As noted in Chapter 8 of the final Plan, the WFD is clear that each water body has to be addressed, and that a catchment approach is required to manage waters. As such a specific programme of measures is required for each of the water bodies in the ERBD. This is an enormous task made more complex by the number of waters (488), the differences in the pressures affecting them and the interrelationships between waters throughout each catchment.

In the ERBD the philosophy of catchment management has been rigorously adopted. Surface waters have been grouped into sub catchments, or water management units (WMUs), where the waters have similar characteristics and pressures. Transitional waters, coastal and groundwaters are treated as individual units as these can cross surface catchment boundaries. Lakes are also treated individually, but relationships with their surface catchments are considered.

For each WMU or water body, a comprehensive process has been followed which reflects the overall structure of the Directive: understanding the pressures affecting the waters; evaluating their relative importance; identifying the measures that will address the specific problems; and assessing the cost and effectiveness of each measure. In this way a detailed profile and plan for each of the waters in the ERBD has been developed.

The measures that are proposed to address pressures in each WMU or waterbody have been selected jointly by the ERBD project and the constituent Local Authorities. The initial selections were reviewed internally by different groups within the Local Authorities, and then by the Technical and Advisory Councils prior to the publication of the Draft Plan in December 2008. The programme of measures for each water body comprises those Basic Measures (existing legislation) and additional specific actions considered necessary to achieve the objectives of the WFD; this combination of measures is termed “priority actions” and represents the preferred scenario in the final Plan.

It should be noted that alternatives considered were predominantly based on their ability to achieve the WFD objective of good status, rather than on their potential to result in negative impacts on the environment. This is because of the inherent positive impacts of the proposed alternative measures in the areas of water quality, human health, population, etc., due to their basic function of improving ecological status. Where the potential for negative impacts was identified by the SEA for a selected alternative, the inclusion of mitigation measures was considered sufficient to alleviate these impacts. It is worth noting that none of the proposed alternatives were found to result in negative impacts to such an extent that they were recommended for exclusion from the Plan by either the SEA or HDA processes.

A full list of Basic Measures is provided in Section 7 of the final Plan, whilst the supplementary measures and additional actions chosen for each sub-catchment or water body in the ERBD can be read in Appendix B. A greater level of detail together with the data and assumptions used, on a water body by water body basis, can be seen in the River Basin Management System (see Section 8 of the final Plan for further detail). This can be viewed in each local authority and will allow interested parties to look in detail at individual water bodies and sub catchments and the process that was adopted. In addition, an illustration of the approach used for selection of measures is outlined in Figure 8.1 of the final Plan.

Descriptions of each individual water body or sub catchment, the pressures affecting it and the proposed measures are also provided in a series of separate, more detailed, slide presentations which can be downloaded from the ERBD website (www.erbd.ie). For each water management unit or individual lake, coastal or transitional water, extensive information is presented on the local area, the various pressures, the status and the measures selected (see Section 8 of the final Plan for further detail).

It should be noted that the Plan has been developed through consultation and engagement with interested parties. It is intended to continue to work in partnership with organisations to help deliver the environmental objectives set out in the Plan in a coordinated way.

8 MEASURES TO MONITOR SIGNIFICANT ENVIRONMENTAL EFFECTS OF THE IMPLEMENTATION OF THE ADOPTED PLAN

8.1 INTRODUCTION

Article 10 of the SEA Directive requires that monitoring be carried out in order to identify, at an early stage, any unforeseen adverse effects due to implementation of a Plan or Programme, and to be able to take remedial action. Monitoring is carried out by reporting on a set of indicators, which enable positive and negative impacts on the environment to be measured. Environmental targets and indicators were developed during the SEA and the preparation of the RBMP and POM (refer to Table 10.1 of the Environmental Report). The Environmental Monitoring Programme is based on these indicators and is discussed in more detail below. It is useful to note here that the monitoring programme currently being carried out under the WFD will form a substantial element of the Environmental Monitoring Programme required under the SEA; thereby ensuring that the Environmental Monitoring Programme will be implemented and data will be gathered regularly.

It should be noted that the success of the RBMP and POM in moving water bodies toward achieving the objectives of the WFD, including achieving good status by 2015 and beyond, will be related to the speed at which the measures considered are implemented as well as choosing, as a priority, measures which result in the greatest benefit in the shortest time frame. For example, education and awareness campaigns, when implemented correctly, can provide good results, within short-time frames, for relatively minimal monetary investment.

8.2 RESPONSIBILITY FOR MONITORING

Unlike most plans that are adopted, in this case there isn't one single authority tasked with the implementation of the RBMP and POM for the Eastern RBD. Instead implementation of the RBMP and POM for the Eastern RBD will be carried out by a number of different public authorities, each of which is responsible for different elements of the Plan. The key parties in the implementation of the Plan are:

- The local authorities in the ERBD (Dublin City Council and the county councils of Meath, Kildare, Wicklow, Cavan, Dún Laoghaire-Rathdown, Fingal, Offaly, South Dublin, Westmeath, Wexford and Louth), which acted jointly to make the plan; Dublin City Council, as the coordinating local authority in the District will aim to coordinate the work of the authorities and public participation in the district;

- The Environmental Protection Agency, which is responsible for reporting to the EU Commission, coordinating activities at national level and certain other tasks such as assigning status, monitoring programmes and review of the plan;
- The Department of Environment, Heritage and Local Government which has a coordinating role in relation to implementation of the Water Framework Directive, and through the Local Government Fund and Water Services Investment Program plays a significant role in determining priority for investment in infrastructure and the availability of resources to local authorities;
- Other public authorities identified under the 2003 Water Policy Regulations, which are required to exercise their functions in a manner which is consistent with the objectives of the river basin management plan; and
- The Water Framework Directive National Advisory Committee, which will oversee implementation of the plan at national level. It is chaired by the Department of Environment, Heritage and Local Government and involves representatives from the Department of Agriculture, Fisheries and Food, the Environmental Protection Agency, the City and County Managers Association (representing local authorities) and other Government Departments as appropriate.

As a number of public authorities will be participating in implementation of the Plan, there isn't an obvious choice for the assignment of responsibility for carrying out the Environmental Monitoring Programme; however, there are a number of options available during the first round of monitoring. The responsibility could be assigned to the EPA in their guise as the competent authority for the Eastern RBD concerning reporting to the European Commission. Alternately, submissions have suggested the establishment of a RBD authority to coordinate implementation of the Plan. In addition, the Water Framework Directive National Advisory Committee will oversee implementation of the river basin management plans at national level and includes representatives from each of the public authorities responsible for plan delivery. See Section 5.2 of this document and Chapter 13 of the final Plan for more information regarding overall implementation of the Plan going into the future.

In any event it is key that it is either a national or RBD-based body or group assigned to carry out the monitoring of the effects of the RBMP on the wider environment. This will ensure that cumulative impacts across a large geographic scale can be identified. In addition, this body or group would be responsible for determining the frequency for reporting on the monitoring programme as well as the ongoing review of monitoring targets and indicators. This body or group would also be tasked with determining when remedial action would be required should impacts be identified. Because of this it is recommended that this decision be made in the near term in order to allow monitoring to begin within the first year of implementation and the results included as part of the interim report describing progress in the implementation of the planned programmes of measures, which will be submitted to the EU Commission within three years of adoption of the Plan. This will allow appropriate remedial

action to be taken should any unforeseen environmental effects be identified. In addition, it is recommended incorporation of the Environmental Monitoring Programme into one of the existing web-based reporting systems (e.g. the RBMS) being used for the WFD should also be considered, as this would provide a central and easily accessible database for collation of monitoring information.

8.3 SOURCES OF INFORMATION FOR MONITORING

Monitoring will focus on aspects of the environment that are likely to be significantly impacted by the Plan. Where possible, indicators have been chosen based on the availability of the necessary information and the degree to which the data will allow the target to be linked directly with the implementation of the RBMP and POM. **Table 8.1** presents the Environmental Monitoring Programme to track progress towards achieving the strategic environmental targets, and includes sources of relevant information. The required Environmental Monitoring Programme has also been incorporated in Chapter 11 of the final Plan.

As shown in **Table 8.1**, the majority of information required is already being actively collected (under the WFD and other programmes), though not all of this is being gathered and reported on at a national level. It should be noted that the monitoring programme has been designed to be flexible for the express purpose of allowing the use of alternate indicators should more relevant data sources become available during the implementation and monitoring of the plan. Again it should be noted that the monitoring programme currently being carried out under the WFD will form a substantial element of the Environmental Monitoring Programme required under the SEA; thereby ensuring that the Environmental Monitoring Programme will be implemented and data will be gathered regularly.

Table 8.1 Required Environmental Monitoring Programme for the Eastern RBMP and POM

Target	Indicator	Data Availability, Source and Frequency
BFF: Halt spread of Alien Species and their associated impact to the aquatic environment.	Geographical spread of Alien Species in the District.	National Invasive Species Database from Invasive Species Ireland (joint project between NPWS and NIEA). Compilation is ongoing.
BFF: Halt deterioration of habitats or their associated species due to water quality related issues by 2015, in line with the Water Framework Directive.	Status of EU Protected Habitats and Species. Condition of Selection Features in sites designated for nature conservation (SACs, SPAs, Ramsar and NHAs).	The Status of EU Protected Habitats and Species in Ireland report. NPWS. Published every 6 years. Not currently compiled.
P: Provide adequate water and wastewater treatment infrastructure capacity to all urban and suburban areas (cities, towns and villages) within the District by 2015.	Number of Section 140 motions under the Planning and Development Act 2001 tabled and passed for development in urban and suburban areas where adequate water and wastewater treatment infrastructure capacity is not in place.	Summary of Annual Planning Statistics. An Bord Pleanála. Published annually.
P: Strictly control rural development with the provision of individual wastewater treatment units in accordance with the EPA Guidelines Manual in relation to the provision of wastewater treatment to single houses.	Number of Section 140 motions under the Planning and Development Act 2001 tabled and passed for development in rural areas where individual wastewater treatment are not provided in accordance with the EPA Guidelines Manual in relation to the provision wastewater treatment to single houses.	Summary of Annual Planning Statistics. An Bord Pleanála. Published annually.
P: Carry out 100% inspection, of all individual septic tanks or any other privately owned treatment unit to identify those not functioning properly.	Number of inspections carried out.	Not currently compiled. Likely would be carried out by Local Authorities.
HH: All drinking water areas (including groundwater), as identified on the register of protected areas, to achieve good status, or maintain high status, by the deadlines set in the final Plan.	Interim Indicator: Compliance with Drinking Water Standards. Long Term Indicator: Parameters to be measured in accordance with the environmental quality standards to determine Good Status.	The Provision and Quality of Drinking Water in Ireland Report. EPA. Published every 1 to 2 years.
HH: All bathing waters, as identified on the register of protected areas, to achieve good status, or maintain high status, by the deadlines set in the final Plan.	Interim Indicator: Compliance with Bathing Water Standards. Long Term Indicator: Parameters to be measured in accordance with the environmental quality standards to determine Good Status.	The Quality of Bathing Water in Ireland. EPA. Published annually.

Target	Indicator	Data Availability, Source and Frequency
HH: All economic shellfish waters, as identified on the register of protected areas, to achieve good status, or maintain high status, by the deadlines set in the final Plan.	Interim Indicator: Compliance with the Quality of Shellfish Water Regulations. Long Term Indicator: Parameters to be measured in accordance with the environmental quality standards to determine Good Status.	Water Quality in Ireland report. EPA. Published every 1 to 2 years.
HH: All water bodies designated for salmonids, as identified on the register of protected areas, to achieve good status, or maintain high status, by the deadlines set in the final Plan.	Interim Indicator: Water quality in designated salmonid waters. Long Term Indicator: Parameters to be measured in accordance with the environmental quality standards to determine Good Status.	Water Quality in Ireland report. EPA. Published every 1 to 2 years.
S: Achieve soil phosphorus levels in line with Teagasc targets for agricultural land.	Interim Indicator: Soil Phosphorus levels.	National Soils Database. Teagasc and EPA. Updated as data becomes available.
S: Achieve risk reduction targets as detailed in the Soil Directive for areas identified as at risk (not yet established).	Long Term Indicator: Monitoring programme as established under the requirements for the Soil Directive (once established).	Not yet established.
W: No deterioration in status of waters currently with high or good status (WFD Objective).	Interim Indicators: Interim Water status. Long Term Indicator: Water status in 2015 report.	Interim Water Status in 2011 Report. EPA. Water Status Report to published in 2015 as part of second RBMP cycle. EPA.
W: Restoration to good status of waters currently at moderate, poor or bad status (WFD Objective).	Interim Indicators: Interim Water status. Long Term Indicator: Water status in 2015 report.	Interim Water Status in 2011 Report. EPA. Water Status Report to published in 2015 as part of second RBMP cycle. EPA.
W: Progressively reduce chemical pollution in waters (WFD Objective).	Interim Indicators: Interim Water status. Long Term Indicator: Water status in 2015 report.	Interim Water Status in 2011 Report. EPA. Water Status Report to published in 2015 as part of second RBMP cycle. EPA.
W: Limit pollution inputs to groundwaters and prevent deterioration (WFD Objective).	Interim Indicators: Interim Water status. Long Term Indicator: Water status in 2015 report.	Interim Water Status in 2011 Report. EPA. Water Status Report to published in 2015 as part of second RBMP cycle. EPA.
AQ: Minimise total emissions to air associated with nutrient management.	Distance / number of vehicle trips used to transport nutrients; to be used as a proxy indicator for emissions associated with nutrient management activities, such as removal by tanker of slurry in areas of nutrient surplus.	Not currently compiled – monitoring of this would need to be integrated into the Waste Licences for operators of these activities. This information could be included in the Annual Environmental Report for each licensed facility.

Target	Indicator	Data Availability, Source and Frequency
AQ: Compliance with odour criteria to prevent deterioration in amenity beyond the site boundary as set out in license for new or upgraded wastewater infrastructure.	Number of complaints received related to odour.	Monitored by the EPA as part of the IPPC license process. This information is usually included in the Annual Environmental Report for each licensed facility.
AQ: Compliance with odour criteria to prevent deterioration in amenity beyond the site boundary due to changes in industrial practices due to plan implementation.	Number of complaints received related to odour.	Monitored by the EPA as part of the IPPC license process. This information is usually included in the Annual Environmental Report for each licensed facility.
C: Use BAT, including renewable energy, to minimise GHG from new or upgraded wastewater infrastructure in line with Ireland's commitments to reduce GHG emissions under the Kyoto Protocol.	Calculated CO_2 equivalent in tonnes from new or upgraded water infrastructure, e.g. WWTP / WWTW, including emissions associated with the digestion and / or incineration of sludge.	To be calculated based on changes in water infrastructure at the interim review in 2011 and the second RBMP cycle in 2015.
C: Use BAT, including renewable energy, to minimise GHG from changes in industrial practices due to plan implementation in line with Ireland's commitments to reduce GHG emissions under the Kyoto Protocol.	Calculated CO_2 equivalent in tonnes due to changes in industrial practices.	To be calculated at the interim review in 2011 and the second RBMP cycle in 2015 based on changes in industrial practices, records of which are held as part of the IPPC licence process by the EPA.
C: No net loss of CO_2 sequestering vegetation due to changes in forestry practices as a result of Plan activity.	Calculated CO_2 sequestering potential of forest vegetation based on forest cover.	CO_2 sequestration potential could be sourced from the National Council for Forest Research and Development or similar source. Land cover information to be sourced from the Ireland's Corine Land Cover project.
MA1: No increase in the amount of infrastructure at risk from flooding as a result of Plan activities. In this case the length of road and rail infrastructure at risk will be used as a proxy indicator for infrastructure in general.	Interim indicator: Number of Flood Risk Management Plans prepared in accordance with the Floods Directive (2007/60/EC). Long Term Indicator: Length of road and rail infrastructure at risk from flooding.	Information on number prepared to be sourced from the OPW. Information flood risk to be sourced from the OPW.
MA2: Increase investment in water management infrastructure.	Water services investment expenditure per annum.	To be sourced from the Finance Department annual expenditure figures.
MA2: Full compliance with the requirements of the Urban Wastewater Treatment Directive and its associated regulations.	Number of exceedances of the standards contained in the Urban Wastewater Treatment Directive and its associated regulations.	Urban Waste Water Discharges In Ireland Reports. EPA. Published every two years.
MA3: Minimise impacts to economic activity due to Plan implementation without conflicting with the objectives of the WFD.	Percent change in land cover types due to Plan implementation.	Land cover information to be sourced from Ireland's Corine Land Cover project.
MA4: Achieve sustainable use of water in the context of maintaining its economic benefit.	Change in economic value of water relative to the baseline report: Economic Analysis of Water Use in Ireland.	Economic studies carried out as a part of the plan making process during the second cycle of river basin management planning.

Target	Indicator	Data Availability, Source and Frequency
CH: No physical damage or alteration of the context of cultural heritage features due to Plan activities.	Changes in the condition of monuments on the Record of Monuments and Places (RMP) due to Plan implementation. Number of listed structures at risk due to Plan implementation.	The Archaeological Survey monitoring programme, Ireland. DEHLG. Updated on an ongoing basis. Buildings at Risk Register. Heritage Council Ireland. Updated on an ongoing basis.
L: No damage to designated landscapes as a result of Plan implementation.	Number of water and wastewater treatment plants sited in landscapes with a high sensitivity to change. Percentage changes in land cover types in areas with a high sensitivity to change.	Data on number of new wastewater treatment plants to be sourced from Local Authorities (not currently compiled centrally). Ireland's Corine Land Cover project.

***Key**: BFF – Biodiversity, Flora and Fauna; AQ – Air Quality; W – Water; C – Climate; MA – Material Assets; L – Landscape; P – Population; HH – Human Health; S – Soils; CH – Cultural Heritage*

9 CONCLUSION AND NEXT STEPS

The SEA and HDA processes carried out during the preparation of the RBMP and associated POM for the Eastern RBD have ensured that any potential significant environmental impacts associated with implementation of the Plan have been identified and that they have been given appropriate consideration. Consultation on the draft Plan, Environmental Report and HDA Report has further contributed to the development and finalisation of the adopted RBMP for the Eastern RBD.

It is envisaged that monitoring and reporting of environmental impacts, both positive and negative, resulting from implementation of the RBMP and POM for the Eastern RBD will continue over the course of the 5-year cycle for the Plan. It should be noted that the monitoring programme has been designed to be flexible for the express purpose of allowing the use of alternate indicators should more relevant data sources become available during the implementation and monitoring of the plan. The data collected can then be used in the next cycle to facilitate a review of progress on implementation and effectiveness of the RBMP and POM and to feed into the SEA for the second cycle of the RBMP process. It is also envisaged that results of the SEA monitoring programme will be included as part of the interim report describing progress in the implementation of the planned programmes of measures, which will be submitted to the EU Commission within three years of adoption of the Plan. This will allow appropriate remedial action to be taken quickly should any unforeseen environmental effects be identified.

As previously noted the monitoring programme currently being carried out under the WFD will form a substantial element of the Environmental Monitoring Programme required under the SEA; thereby ensuring that the Environmental Monitoring Programme will be implemented and data will be gathered regularly. In addition to those Indicators included in the WFD monitoring programme, the majority of the remaining Indicators in the Environmental Monitoring Programme are currently compiled/reported on as part of other processes. As such only a small number of Indicators would require new data gathering to be carried out.

The following outstanding issues remain to be addressed with regard to the SEA and Plan-making processes:

- Designation of an organisation/authority to coordinate the Environmental Monitoring Programme as identified by the SEA. See **Chapter 8** of this document for further detail as to the options available;
- Lack of information available to carry out a water body level assessment of the impact of the proposed measures as part of the SEA process. It is envisioned that this level of assessment will possible during subsequent cycles of river basin planning and should be considered for inclusion in future SEAs should the relevant information be available; and

- Lack of a clear implementation plan for the overall Plan-making process. However, the information provided in Chapter 13 of the final Plan indicates that the DEHLG will review by end 2010 the governance and structures for the implementation of all of the RBMPs in Ireland.

10 ADDENDUM TO THE ENVIRONMENTAL REPORT

10.1 INTRODUCTION

This is the addendum to the Environmental Report for the draft River Basin Management Plan and associated Programmes of Measures for the Eastern River Basin District, hereafter referred to as the draft Plan. This document serves several purposes: a) to provide clarification and/or additional information following requests in the submissions received during the 6-month consultation period on the draft Plan and Environmental Report; and b) to identify where the Environmental Report has been updated in response to submissions received during the public consultation period, with the exception of minor amendments and typographical corrections. It should be noted that this document supplements and should be read in conjunction with the Environmental Report.

It should be noted that the clarifications and additional information contained herein (shown in *italicised text*) have been provided in order to increase the usefulness of the document for the public and decision makers but are not to such an extent that it will require changes to the content or outcome of the assessment contained within the Environmental Report.

10.2 AMENDMENTS AND ADDENDA BY CHAPTER

10.2.1 Non-technical Summary

Additional information is provided on p. iii regarding the timelines for the second and third River Basin Management Plan cycles:

> *In certain circumstances the draft Plan considers the timeline horizons of 2021 and 2027, being the end of the second and third 6-year Plan cycles, respectively. These longer-term horizons are necessary where good status or good potential or indeed LSO (less stringent objectives) cannot be achieved by 2015 or where measures to achieve these are deemed technically infeasible or disproportionate in cost.*

Clarification is provided on p. v regarding the local authorities within the ERBD:

> *The Eastern RBD incorporates all or part of twelve local authority areas. The ERBD includes all of Dublin City, Fingal, South Dublin and Dún Laoghaire-Rathdown, the vast bulk of County Meath, County Kildare and County Wicklow as well as smaller portions of County Louth, County Cavan, County Westmeath, County Offaly and County Wexford. Each of the local authorities for*

these areas is a competent authority for the ERBD, with Dublin City Council the statutorily designated co-ordinating authority for the ERBD.

Additional detail regarding issues of concern in relation to water in the ERBD has been added on p. v.

Some issues of concern in the ERBD for which measures are proposed in the draft Plan include: spread of invasive alien species; pressure on fisheries; presence of heavily modified and artificial water bodies; point and diffuse pollution *from wastewater treatment plants, licensed discharges, mines, landfills, quarries and contaminated lands;* agriculture; unsewered properties; forestry; physical modifications; and abstraction. *In particular the Avoca River is located within the ERBD and has been identified by the EPA (2008) as the most severely affected river in Ireland.*

On p. ix, the reference to the 2007 Significant Water Management Issues or SWMI document has been updated to *Water Matters – Have Your Say*. This update has been made throughout the document.

It should be noted that the Eastern RBD is the only river basin district without any designated waters for Freshwater Pearl Mussel (*Margaritifera margaritifera*) in Ireland. However, the Derreen River, which is located on the southern border of the District within the South Eastern RBD, does contain Freshwater Pearl Mussel. Therefore, the proposed Strategic Measures for Freshwater Pearl Mussel designated areas have been included in the SEA for the ERBD RBMP. The following clarification has been added to Table 4 on p. xiii:

* *It should be noted that there are currently no designated catchments for Freshwater Pearl Mussel within the boundaries of the ERBD.*

On p. xiv, the reference to Appropriate Assessment has been changed for clarity to: *the assessment carried out under Article 6 of the Habitats Directive (92/43/EEC).* This update has been made, where applicable, throughout the document. A reference has also been added regarding the provision of the recommended mitigation measures in **Chapter 10** of the Environmental Report.

10.2.2 Chapter 1: Introduction

Clarification is provided in Section 1.2 on p. 2 regarding the local authorities within the ERBD.

The Eastern RBD incorporates all or part of twelve local authority areas. The Eastern RBD includes all of Dublin City, Fingal, South Dublin and Dún Laoghaire-Rathdown, the vast bulk of County Meath, County Kildare and County Wicklow as well as smaller portions of County

Louth, County Cavan, County Westmeath, County Offaly and County Wexford. Each of the local authorities for these areas is a competent authority for the Eastern RBD, with Dublin City Council the co-ordinating authority for the Eastern RBD.

Clarification is provided on p. 3 regarding the coordinating local authority within the ERBD.

This SEA is being carried out on behalf of the 12 *competent* authorities for the Eastern RBD, which includes the county councils of Cavan, Dún Laoghaire/Rathdown, Fingal, Kildare, Louth, Meath, Offaly, South Dublin, Westmeath, Wexford and Wicklow as well as Dublin City Council, *which is the coordinating authority for the Eastern RBD.*

10.2.3 Chapter 2: Methodology

Additional information is provided in Table 2.1 on p. 8 regarding the timelines for the second and third River Basin Management Plan cycles.

The RBMP and POM will cover the period from 2009 up to 2015, with an interim review after three years. *However, the Plan also considers the horizons of 2021 and 2027, which are the end of the second and third 6-year plan cycles, respectively*.

Additional information on the Floods Directive has been added to Section 2.3.1.3 on p. 10, including information on its timing of transposition into the national legislation and a brief summary of what is required as part of its implementation.

The Directive came into force in November 2007 and is required to be transposed into Irish law before 26 November 2009. The Directive requires Member States to first carry out a preliminary assessment by 2011 to identify the river basins and associated coastal areas at risk of flooding. For such zones they would then need to draw up flood risk maps by 2013 and establish flood risk management plans focused on prevention, protection and preparedness by 2015. The Directive applies to inland waters as well as all coastal waters across the whole territory of the EU.

Clarification as to the type of assessment carried out under the Habitats Directive is provided in Section 2.4 on p. 13.

It is important to note that the phrase 'Appropriate Assessment' is sometimes used more loosely to refer to the whole process set out under Articles 6(3) and 6(4) of the Habitats Directive. Therefore, it is important to note that in this case the term Habitats Directive Assessment will be used, not 'Appropriate Assessment' (which refers to Stage 2 in the

sequence under Habitats Directive Assessment). A *Habitats Directive Assessment* of the RBMP and POM was carried out in parallel with the SEA and Plan processes, with the findings of the *Habitats Directive Assessment* used to guide the development of the alternatives to be considered as part of the SEA.

10.2.4 Chapter 3: Description of the Plan

Clarification is provided on p. 14 regarding the local authorities within the ERBD.

As stated previously, *the Eastern RBD incorporates all or part of twelve local authorities: Dublin City, County Westmeath, County Meath, County Cavan, County Kildare, County Offaly, Fingal, South Dublin, Dún Laoghaire-Rathdown, County Wicklow and a small portion of County Wexford and County Louth. Dublin City Council is the co-ordinating authority for the ERBD.*

Clarification has been provided in Table 3.1 on p. 18 as to the names of the electronic reporting tools being used as part of Plan implementation:

Questions	Details	Where has this been answered
Our Objectives in the Eastern District	We have set out the particular waters in the Eastern District where we have proposed alternative objectives. The timescales for achieving improvements in our waters are also demonstrated.	Draft River Basin Management Plan *Water Maps (electronic tool)*
Our Plan For The Eastern District	The outcome of this planning process is an action programme for the Eastern District to achieve these improvements. We have proposed a detailed action plan setting out what, where and when actions are needed and who will do them.	Draft River Basin Management Plan *River Basin Management System (electronic tool)*

Further information on the supporting documents, Water Maps and the River Basin Management System is available on www.wfdireland.ie/ *and* www.erbd.ie/

Updated information regarding the presence of designated shellfish waters has been added to Section 3.4.2.2 on p. 21.

There are two designated shellfish waters in the ERBD as designated under the European Communities (Quality of Shellfish Waters)(Amendment) Regulations 2009 (SI 55 of 2009). These are Malahide and Balbriggan/Skerries.

The number of bathing waters has been updated in Section 3.4.2.2 on p. 21. This change has been made throughout the document, where required.

There are *21* designated bathing waters within the ERBD.

10.2.5 Chapter 5: Baseline Environment

Table 5.2 on p. 33 has been updated to include population information for County Wexford.

County	1996	2002	% Change '96 - '02	2006	% Change '02 - '06
Wexford	*104,371*	*116,596*	*11.7*	*131,749*	*13.0*

Table 5.3 on p. 34 has been updated to include drinking water quality compliance information for County Wexford.

County	Overall Compliance Rate of Drinking Water
Wexford	*Overall compliance rate of 94.2%. Below the national average.*

For clarification the full reference to the EPA's 2007 and 2005 *Water Quality in Ireland: Key Indicators of the Aquatic Environment* reports has been added to Section 5.3.3.1 on p. 37.

> From the EPA's *Water Quality in Ireland: Key Indicators of the Aquatic Environment* reports (2007 and 2005), river water quality in Ireland between 2004 and 2006 showed some improvement over the 2001 to 2003 period, with 71.4% unpolluted, 18.1% slightly polluted, 10.0% moderately polluted and 0.6% seriously polluted.

The ecological status/potential of water bodies in the Eastern RBD has been updated since completion of the Environmental Report. Tables 5.4 and 5.5 on p. 37 and 38 have been updated from Tables 3.3 and 3.5 in the Final Plan along with the accompanying text.

Table 5.4 Surface Water Status in the Eastern District

Surface Water Category	High	Good	Moderate	Poor	Bad	Unknown
Rivers (% of total number of bodies)	*22%*	*21%*	*33%*	*20%*	*4%*	*0%*
Lake (% of total area)	*4%*	*12%*	*64%*	*3%*	*17%*	*0%*
Transitional (% of total area)	*0%*	*0%*	*100%*			*0%*
Coastal (% of total area)	*58%*	*0%*	*26%*			*16%*
Artificial water bodies (% of total number of bodies)	*0%*	*87%*	*0%*	*13%*	*0%*	*0%*

Updated from Table 3.3: Surface water ecological status/potential in the Eastern River Basin District on p. 3-7 of the final Plan

The results show that the majority of rivers and lakes in the ERBD have generally good to poor water quality status. All transitional waterbodies are classed as *moderate*, while the coastal waterbodies are classed as either of *high, moderate or unknown status*. A summary of the water body status in the ERBD is provided in **Figure 5.6**. Based on the current water status results *57*% of rivers, over *84*% of lakes, *100*% transitional waters and *42*% of coastal waterbodies in the ERBD will need to have their status improved to meet the requirements of the WFD.

Table 5.5 Groundwater Status in the ERBD

Groundwater	Good	Poor
Chemical Status (% of total area)	*91%*	*9%*
Quantitative Status (% of total area)	*99%*	*1%*
Combined Status (% of total area)	*90%*	*10%*

Updated from Table 3.5: Groundwater status in the Eastern River Basin District on p. 3-9 of the final Plan

In the ERBD groundwater status has been found to be generally good with *90*% of the groundwater bodies achieving good status. *Only eight cases were designated as being poor status; one was assigned poor status on the basis of quantitative tests while seven were on the basis of chemical status.* In order to meet the requirements of the WFD all groundwater bodies must achieve good chemical and quantitative status.

Table 5.6 on p. 39 has been updated to reflect information in Section 5 of the final Plan.

Protected Area	Total Designated Areas	Other Relevant Section in Chapter 5
Drinking Waters	*104*	5.3.2
Economically Significant Aquatic Species	0	5.3.7
Recreational and Bathing Waters	21	5.3.2
Nutrient Sensitive Waters	4	5.3.8
Protection of Habitats		
Salmonid and Shellfish waters	5	5.3.1
Water Dependent SACs	*33*	5.3.1
Water Dependent SPAs	*16*	5.3.1

Updated from Section 5, p. 5-1 of the final Plan

A discussion regarding the Artificial Water Bodies (AWB) in the ERBD has been added for information purposes in Section 5.3.3.3 on p. 39.

Artificial water bodies (AWB) are surface water bodies, which have been created in a location where no water body existed before and which, have not been created by the direct physical alteration, movement or realignment of an existing water body. Within the ERBD these waters include the following man-made canals: Boyne Navigation, Grand Canal Basin, Grand Canal Edenderry Branch, Grand Canal Main Line E of Lowtown, Grand Canal Main Line W of Lowtown, Grand Canal Naas & Corbally Branch and the Royal Canal Main Line. The Turlough Hill Reservoir is also classed as an AWB.

Additional information regarding the potential impacts to water quality from landfills, quarries, mines and contaminated sites has been added to Section 5.3.3.4 on p. 40.

Waste disposal sites (including old un-lined landfills), quarries, mines, gasworks sites and industrial lands produce lesser discharges to waters than wastewater plants and industries; however subsurface residues or waste products *from previous activities may have seeped into the ground* and continue to threaten groundwater and surface waters. *The key threat to waters from these sites is potential contamination from pollutants (mainly dangerous substances, for example metals and fuel). These chemicals may travel through groundwater and enter surface waters, affecting the quality of both, damaging aquatic plants and animals and impairing water uses*.

More detail regarding the sources of nutrient enrichment in water from agriculture has been added to Section 5.3.3.4 on p. 40.

These are enrichment of water by nutrients (phosphorus and nitrogen), *from substances such as fertilisers (both organic and inorganic) as well as erosion of nutrient enriched soils*, and organic pollution from animal slurry/manure and silage effluent.

Additional information regarding the potential impacts to water quality from Forestry activities has been added to Section 5.3.3.4 on p. 41.

Forestry can cause also acidification of water through the capture of sulphur and nitrogen compounds from the atmosphere by forest canopies. Rain become more acidic as it passes through the canopies into the ground below and may worsen the chemical balance of receiving waters. Nutrient enrichment can also occur through the introduction of extra nutrients, which in naturally nutrient–poor areas, can lead to problems such as algal growth. Road-making and stream crossing as well as felling activities can cause erosion and sedimentation on susceptible soils, reducing water quality. Incorrect pesticide usage can also result in contamination of waters.

Additional detail as to the number and location of continuous air monitoring stations has been added to Section 5.3.4.1 on p. 43.

> There is continuous monitoring carried out throughout the island, *with 11 monitoring stations in the ERBD, primarily in Dublin City*.

Additional detail as to variations in average annual rainfall has been added to Section 5.3.4.3 on p. 44.

> *Average annual rainfall varies between about 800mm in the southeast and 2,800mm in the northwest.*

More detail regarding water environments as sources of archaeological material has been added to Section 5.3.5.7 on p. 47.

> *This is particularly important, as water environments are often an important source of previously unknown archaeological material, as they can preserve organic matters often missing from dry-land sites. For example, the rivers of the ERBD are potentially rich in previously unknown archaeological features, as both settlement and ritual activity (in the form of the deposition of artefacts) are often associated with these.*

Further information on the navigable waters in the ERBD has been added in Section 5.3.7.2 on p. 50.

> Navigable waters within the ERBD include the Royal canal and the Grand Canal *as well as the Boyne Navigation.*

The legends for Figures 5.4, 5.6 and 5.8 have been amended for clarity.

Information regarding the overall ecological status of surface waters and the chemical and quantitative status of groundwaters has been updated since the Environmental Report was published in 2008. The revised status information incorporates monitoring data from 2008 and supersedes the information in Tables 5.4 and 5.5 and Figures 5.6 and 5.7a and b. See the final River Basin Management Plan for the most recent waterbody status information.

10.2.6 Chapter 6: Review of Relevant Policies, Plans and Programmes

Information has been added to Table 6.2 on p. 78 regarding the Framework Directive on the sustainable use of pesticides.

Human Health	*Framework Directive on the sustainable use of pesticides (Draft)*	*The Directive will establish a framework which will promote 'best practice' in the storage, use and disposal of pesticides, and their packaging. Key features include: the establishment of national action plans; compulsory testing of spray machinery and certification of spray operators, distributors and advisors; a ban (subject to derogations) on aerial spraying; special measures to protect the aquatic environment, public spaces and special conservation areas; minimising the risk of pollution through handling, storage and disposal; and the promotion of Integrated Pest Management (IPM).*	*The measures included under this Directive (once adopted) should be considered for incorporation into the River Basin Management Plan when it is updated in 2015*	*The measures included in the POM include a. suite of measures aimed at maintaining/ improving water body status through the sustainable use of pesticides.*

Information has been added to Table 6.2 on p. 81 regarding the EU Environmental Liability Directive.

Water	*The EU Environmental Liability Directive (2004/35/EC)*	*The main objectives include the application of the "polluter pays" principle for environmental liability. This Directive establishes a common framework for liability with a view to preventing and remedying damage to animals, plants, natural habitats and water resources, and damage affecting the land.*	*The Plan should aim to prevent or remedy damage to animals, plants and natural habitats through interaction with water resources. The impacts of the Plan on these receptors are largely expected to be positive due to the water quality objectives included in the Plan.*	*Many of the measures included in the POM are aimed at reducing pollution discharges to water, in part to prevent and remedy damage to animals, plants, natural habitats and water resources.*

Information has been added to Table 6.3 on p. 86 regarding the European Communities (Environmental Liability) Regulations 2008 (S.I. 547 of 2008).

Water	*European Communities (Environmental Liability) Regulations 2008 (S.I. 547 of 2008)*	*Place obligations on operators to prevent environmental damage and, where such damage has occurred, the operator is required to control, contain, remove or manage contaminants or causes of damage. Give effect to provisions of EU Liability Directive 2004/35/EC.*	*See EU Liability Directive.*	*See EU Liability Directive.*

10.2.7 Chapter 7: Strategic Environmental Objectives, Targets and Indicators

The interim indicator of, "Number of *Margaritifera* Plans put in place", for the Biodiversity, Flora and Fauna Target of, "Halt deterioration of habitats of their associated species due to water quality related

issues by 2015, in line with the Water Framework Directive", has been deleted as it is not applicable in the ERBD. This change has been made throughout the document, where required.

The data source for the Long Term Indicator, "Number of exceedances of the standards contained in the Urban Wastewater Treatment Directive and its associated regulations", for the Material Assets Target of, "Full compliance with the requirements of the Urban Wastewater Treatment Directive and its associated regulations", has been changed from the DEHLG to EPA.

10.2.8 Chapter 8: Alternatives

Table 8.1 on p. 103 has been updated with regards to the implementing legislation for The Plant Protection Products Directive (91/414/EEC).

> *The European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations (SI 83 of 2003) as amended SI 320 of 1981 as amended, SI 624 of 2001 as amended, and SI 565 of 2008.*

A reference has been added to Tables 8.3 to 8.13 linking these tables to the appendix to Chapter 8 for additional information on which measures are being considered in each jurisdiction.

The following clarification has been added to Table 8.14 on p. 135.

> ** It should be noted that there are currently no designated catchments for Freshwater Pearl Mussel within the boundaries of the ERBD.*

10.2.9 Chapter 9: Assessment

A reference has been added to Tables 9.3 to 9.12 linking these tables to the detailed assessment in the Appendix to Chapter 9.

The following clarification has been added to Table 9.12 on p. 151.

> ** It should be noted that there are currently no designated catchments for Freshwater Pearl Mussel within the boundaries of the ERBD.*

The following summarises the cumulative/synergistic effects identified as a result of Plan implementation. This section should be read in conjunction with Section 9 and the Appendix to Section 9.

The primary cumulative/synergistic impacts that have been identified include cumulative improvements in water quality leading to positive cumulative impacts to aquatic biodiversity, flora and fauna, both within EU designated sites and the RBD as a whole. With regards to negative impacts, cumulative impacts to air quality and climate have been identified due the potential for a number of alternatives to result in increased emissions to air from transport-related activities and processing of waste materials, e.g. sludge. However, some of this can be offset by use of renewable energy sources and capture of CH_4 for reuse as a fuel source.

Also, a number of alternatives call for the construction of new or upgraded infrastructure. Cumulatively, the increased energy use from these projects could result in increased emissions of GHG, potentially contributing to climate change. This cumulative impact could be mitigated through the use of renewable energy to fuel new infrastructure projects. In addition, new or upgraded infrastructure could result in potentially cumulative negative impacts to biodiversity, landscape and cultural heritage if these are sited poorly. Consideration of the wider environment prior to siting new infrastructure will greatly reduce this potential cumulative impact.

A number of the physical modifications alternatives have considerable potential to improve the environment individually or cumulatively if implemented correctly; however, the potential for negative impacts to cultural heritage, landscape and biodiversity from these alternatives is dependant on the methodology in which they are implemented.

The cost associated with implementation of many of the alternatives could result in potential cumulative negative impacts to both individuals and local authorities, for which no mitigation may be available. However, cumulative positive impacts would be experienced by those economic sectors reliant on good water quality (residential, service, tourism, angling, etc.).

In addition, some of the alternatives may result in changes in land use or development patterns. While, these changes are expected to make a significant contribution to sustainable development in the RBD, they could also result in cumulative negative impacts. For example, changes could occur in the composition of rural communities should new generations of families that have resided in areas historically, no longer be able to continue to build individual residences on the family holding due to restrictions on siting of on-site wastewater treatment systems. In addition, limitations on forestry in sensitive areas could impact on the economic value of forests as well as reduce the potential for carbon sequestration, cumulatively impacting on Ireland's climate change commitments.

10.2.10 Chapter 10: Mitigation and Monitoring

A reference has been added in Section 10.3 on p. 157 linking the mitigation measures contained in Table 10.2 to the detailed assessment in the Appendix to Chapter 9.

> *Please see the Appendix to Chapter 9, which provides the detailed assessment of alternatives and the rationale behind the development of these mitigation measures.*

10.2.11 Chapter 14: References

Two additional references have been added on p. 203:

> *Environmental Protection Agency (2005b). The Nature and Extent of Unauthorised Waste Activity in Ireland.*

> *Environmental Protection Agency (2005a). Water Quality in Ireland 2005: Key Indicators of the Aquatic Environment.*

10.2.12 Appendix to Chapter 6: Other Plans, Programmes and Policies of Relevance

Information has been added to Table 1 regarding the European Landscape Convention.

Landscape	*The European Landscape Convention (Council of Europe ETS No. 176)*	*Objectives are the protection, management and planning of European landscapes.*	*The impact of the Plan on landscapes is largely expected to be associated with site level impacts (e.g. construction of new infrastructure). The favouring of sites and measures that carry a lower risk of impacts to landscape could be emphasised in the Plan.*	*The requirement to carry out environmental impact assessment, including landscape assessments prior to implementation of specific items in the POM is aimed at addressing the objectives of this Convention.*

11 ABBREVIATIONS

ACP	Agricultural Catchments Programme
CFRAMP	Catchment Flood Risk Management Plans
CIS	Common Implementation Strategy
DAFF	Department of Agriculture, Fisheries and Food
DCENR	Department of Communications, Energy and Natural Resources
DCMNR	Department of Communications, Marine and Natural Resources
DEHLG	Department of Environment, Heritage and Local Government
EIA	Environment Impact Assessment
ELV	Emission Limit Value
EPA	Environmental Protection Agency
ERBD	Eastern River Basin District
ESB	Electricity Supply Board
ESTG	Environmental Services Training Group
EU	European Union
GDA	Greater Dublin Area
GDWSA	Greater Dublin Water Supply Area
GHG	Greenhouse Gas
GIS	Geographical Information Systems
GSI	Geological Survey of Ireland
HDA	Habitats Directive Assessment
IBEC	Irish Business and Employers Confederation
IPPC	Integrated Pollution Prevention and Control
IRBD	International River Basin District
LSO	Less Stringent Objective
NAP	National Action Programme
NBIRBD	Neagh Bann International River Basin District
NERBD	North East River Basin District
NHA	Natural Heritage Area
NI	Northern Ireland
NIEA	Northern Ireland Environment Agency
NPWS	National Parks and Wildlife Service
NRA	National Roads Authority
NWIRBD	North Western International River Basin District
OPW	Office of Public Works
POM	Programme of Measures
RBD	River Basin District
RBMP	River Basin Management Plan

RBMS	River Basin Management System
RMP	Records of Monuments and Places
RPG	Regional Planning Guidelines
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SERBD	South Eastern River Basin District
ShIRBD	Shannon International River Basin District
SPA	Special Protection Area
SWAN	Sustainable Water Network
SWMI	Significant Water Management Issues
SWRBD	South Western River Basin District
UCC	University College Cork
UCD	University College Dublin
WFD	Water Framework Directive
WMU	Water Management Unit
WRBD	Western River Basin District
WSIP	Water Services Investment Programme

APPENDIX A

Summary of Environmental Assessment for Measures included in the draft Eastern River Basin Management Plan

Table 1 Key to Assessment of Alternatives

Assessment Symbol	Explanation of Symbol
+	Positive Impact
-	Negative Impact
+ / -	Both positive and negative impacts or unclear in the absence of further detail
0	Neutral or no impact

Table 2 Summary of Assessment: Measures under the Existing 11 Directives and the Other Required Article 11(3) Measures or Basic and Other Basic Measures

SEA Objectives	Review of Licensing Controls (DIR 4)	Changes in Land Use Planning (DIR 5)	Infrastructural Requirements (DIR 6)	Cost recovery for water use & promotion of sustainable water use (WFD 1)	Protection of Drinking Water Sources (WFD 2)	Abstraction and impoundment control (WFD 3)	Point source and diffuse source discharge (WFD 4)	Controls on physical modifications to surface waters (WFD 5)	Prevention or reduction of the impact of accidental pollution incidents (WFD6)	Authorisation of discharges to groundwater (WFD7)	Priority substance control (WFD 8)	Controls on other activities impacting water status (WFD 9)
Objective 1 (BFF)	+ / -	+/-	+/-	+	+	+/-	+/-	+/-	+/-	+	+/-	+/-
Objective 2 (P)	+	+	+	+	+	+	+	+/-	+	+	+	+
Objective 3 (HH)	+	+	+	+	+	+	+/-	+/-	+	+	+/-	+
Objective 4 (S)	+ / -	+/-	+/-	+	+	+/-	+/-	+/-	+/-	0	+/-	+
Objective 5 (W)	+	+	+	+	+	+	+	+/-	+	+	+/-	+
Objective 6 (AQ)	+ / -	+/-	+/-	0	0	-	0/-	+/-	+	0	+/-	0
Objective 7 (C)	+ / -	+/-	+/-	+	0	-	0/-	+/-	0	0	+/-	0
Objective 8 (MA1)	0	0	0	0	0	0	0	+/-	+	0	0	0
Objective 9 (MA2)	+	+/0	+	+	0	+	+	+/-	+	0	+	0
Objective 10 (MA3)	+/-	+/-	-	-	+/-	+/-	-	+/-	+	+/-	+/-	-
Objective 11 (MA4)	+	+	+	+	+	+	+	+/-	+	+	+	+
Objective 12 (CH)	0	0	+/-	+	0	+/-	+/-	+/-	+/-	0	+/-	0
Objective 13 (L)	0	0	+/-	0	0	+/-	+/-	+/-	+/-	0	+/-	0

Key: BFF – Biodiversity, Flora and Fauna; AQ – Air Quality; C – Climate; W – Water; MA – Material Assets; L – Landscape; P – Population; HH – Human Health; S – Soils; CH – Cultural Heritage

See Section 9.1 of the Environmental Report for further detail on what is included in DIR4 to 6 and Table 8.2 for further detail on measures WFD1 to 9

Table 3 Summary of Assessment: Supplementary Measures considered in the draft Eastern RBMP

Measure	BFF	P	HH	S	W	AQ	CC	MA1	MA2	MA3	MA4	CH	L
Wastewater													
WW1: Measures intended to reduce loading to the treatment plant: - Limit or cease the direct importation of polluting matter (e.g. liquid wastes, landfill leachate) - Investigate 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 - Upgrade and rehabilitate Combined Sewer Overflows (CSOs)	+/-	+	+	+/-	+/-	+/-	+/-	0	+	+/-	+	0/-	0/-
WW2: Impose development controls using a common approach where there is, or is likely to be in the future, insufficient capacity at treatment plants	+	+	+	+	+	0	0	0	+	+/-	+	-	0
WW10: Install secondary treatment at plants where this level of treatment is not required under the urban wastewater treatment directive	+/-	+	+	+/-	+	+	-	0	+	+/-	+	0/-	0
WW11: Apply a higher standard of treatment (stricter emission controls) where necessary	+/-	+	+	+/-	+	+	-	0	+	+/-	+	0/-	0
WW12: Upgrade the plant to remove specific substances known to impact on water quality status	+/-	+	+	+/-	+	+	-	0	+	+/-	+	0/-	0
WW13: Install ultra-violet or similar type treatment	+/-	+	+	+/-	+	+	-	0	+	+/-	+	0/-	0
WW14: Relocate the point of discharge	+/-	+	+	+	+	0	0	0	+	+/-	+	0/-	0
WW16: Implement Community Digestors for Alternative Energy	+/-	+	+/-	+	+	+/-	+/-	0	+	+	+	0/-	0/-
Industrial Discharges													
IND6: Introduce Best Available Techniques (BAT) for industrial discharges	+	+	+	+	+	+ / -	+ / -	0	+	+ / -	+	0	0
IND8: Relocate discharge point	+ / -	+	+	+	+	0	0	0	+	+ / -	+	-	0

Measure	BFF	P	HH	S	W	AQ	CC	MA1	MA2	MA3	MA4	CH	L
Other sources													
OP5: Undertake remediation projects for prioritised landfills, quarries, mines and contaminated lands, e.g. pollution containment measures and monitoring requirements	+	+	+	+	+	+ / -	+/-	0	0	0	+	+/-	+/-
OP6: Properly dispose of harbour dredgings	+	+	+	+	+	-	-	0	0	-	+	0	0
Agriculture													
AG1: Creation of buffer strips around water bodies to prevent pollutant loss	+/-	+/-	+	+	+	+/-	+/-	0	0	-	+	0	0
AG3: Installation of fencing to prevent livestock access to watercourses	+/-	+/-	+	+	+	+/-	+/-	0	0	-	+	0	0
AG4: Reduction of agricultural intensity, e.g. lower stocking density on land, land reclamation	+/-	+/-	+	+	+	+/-	+/-	0	0	-	+	0	0
AG5: Require nutrient management planning	+	+	+	+	+	+/-	+/-	0	0	-	+	0	0
AG6: Set aside of agricultural lands	+/-	+/-	+	+	+	+/-	+/-	0	0	-	+	0	0
AG8: Increase participation in rural environmental protection schemes / other agri-environment schemes, e.g. NPWS farm plans, particularly in priority catchments and focus advice and regulatory action in areas where there is a lower uptake in agri-environment schemes	+	+	+	+	+	0	0	0	0	-	+	+	0
AG9: Upgrade farm management systems	+	+	+	+	+	+/-	+/-	0	0	-	+	0	0
AG12: Removal by tanker in areas of nutrient surplus	+	-	+/-	+/-	+	-	+/-	0	-	-	+	-	-
AG13: Treatment by digestors in areas of nutrient surplus	+	-	+/-	+/-	+	-	+/-	0	-	-	+	-	-
Wastewater from Unsewered Properties													
UP1: Amend Building Regulations - Code of Practice for single houses - Code of Practice for large systems - Certification of the construction of onsite wastewater treatment systems and percolation areas/polishing filters	+	+	+	+	+	0	0	0	+	-	+	0 / -	0

Measure	BFF	P	HH	S	W	AQ	CC	MA1	MA2	MA3	MA4	CH	L
UP2: Assess applications for new unsewered systems by applying risk mapping/decision support systems and codes of practice. Notice to planning authority required immediately prior to the installation of onsite effluent treatment systems including percolation areas and polishing filters.	+	+	+	+	+	0	0	0	+	0	+	0 / -	0
UP8: Enforce requirements for de-sludging and codes of practice	+ / -	+ / -	+ / -	+	+	+ / -	-	0	+	+ / -	+	0 / -	0 / -
UP11: Consider connection to municipal systems	+ / -	+ / -	+ / -	+	+	+	-	0	+	+ / -	+	0 / -	0 / -
Forestry													
F2: Acidification - Avoid or limit (to below critical thresholds) afforestation on 1st and 2nd order stream catchments in acid sensitive catchments	+	+	+	+	+	0	-	0	0	-	+	0	0
F3: Acidification - Restructure existing forests to include open space and structural diversity through age classes and species mix, including broadleaves	+	+	+	+	+	0	-	0	0	-	+	0	0
F4: 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.	+	+	+	+	+	0	-	0	0	-	+	0	0
F5: Eutrophication and Sedimentation - Avoid or limit forest cover on peat sites	+	+	+	+	+	0	-	0	0	-	+	0	0
F6: Eutrophication and Sedimentation -Change the tree species mix (for example broadleaves) on replanting	+	+	+	+	+	0	-	0	0	-	+	0	0
F7: Eutrophication and Sedimentation - Limiting felling coup size	+	+	+	+	+	0	-	0	0	-	+	0	0
F8: Eutrophication and Sedimentation - Establish new forest structures on older plantation sites (including riparian zones, drainage layouts, species mix, open areas)	+	+	+	+	+	0	-	0	0	-	+	0	0
F11: Pesticide Use - Reduce pesticide usage	+	+	+	+	+	+	0	0	0	0 /-	+	0	0
F12: Pesticide Use - Pre-dip trees in nurseries prior to planting out	+	+	+	+	+	+	0	0	0	0 / -	+	0	0

Measure	BFF	P	HH	S	W	AQ	CC	MA1	MA2	MA3	MA4	CH	L
F13: Acidification - Mitigate acid impacts symptomatically using basic material (e.g. limestone or sand liming)	+	+	+	+	+	0	0	0	0	0 / -	+	0	0
F14: Acidification - Manage catchment drainage to increase residence times and soil wetting, including no drainage installation in some areas	+	+	+	+	+	0	0	0	0	0 / -	+	0	0
F15: Acidification - Implement measures to increase stream production – for example with native woodland in riparian zones.	+	+	+	+	+	0	0	0	0	0 / -	+	0	0
F16: Eutrophication and Sedimentation - Establish riparian zone management prior to clearfelling	+	+	+	+	+	0	0	0	0	0 / -	+	0	0
F17: Eutrophication and Sedimentation - Enhance sediment control	+	+	+	+	+	0	0	0	0	0 / -	+	0	0
F18: Hydromorphology - Enhance drainage network management – minimise drainage in peat soils	+	+	+	+	+	0	0	0	0	0 / -	+	0	0
F19: Pesticide Use - Develop biological control methods	-	+	+	+	+	+	0	0	0	0 / -	+	0	0
Dangerous Substances													
DS3: Reduction of pollution by control of point sources through use of pollution reduction programmes	+	+	+	+	+	+/-	+/-	0	0	-	+	0	0
DS4: Reduce discharges, losses and emissions from diffuse sources, including in groundwater source protection zones	+	+	+	+	+	+/-	+/-	0	0	-	+	0	0
DS5: Upgrade treatment to remove substances from effluent	+	+	+	+	+	+/-	+/-	0	+	-	+	0	0
DS6: Relocate discharge point	+ / -	+	+ / -	+	+	0	0	0	+	-	+	0/-	0
Physical Modifications													
PM2: Support voluntary initiatives, such as wetlands and Integrated Coastal Zone Management schemes, including through awareness campaigns	+ / -	+	+	0	+	0	+	+/-	0	0	+	0 / -	0 / -
PM6: Channelisation impact remediation schemes, such as re-meandering of straightened channels, reconstruction of pools, substrate enhancement, removal of hard bank reinforcement/revetment or replacement with soft engineering solution	+ / -	0/-	0/-	+ / -	+	0	-	-	0	+ / -	+ / -	0 / -	0 / -

Measure	BFF	P	HH	S	W	AQ	CC	MA1	MA2	MA3	MA4	CH	L
PM7: Over-grazing remediation, such as stabilisation of river banks	+ / -	0	0	+	+	0	0	0	0	+ / -	+	0 / -	0 / -
PM9: Strategically appraise significant barriers to fish movement and introduce impassable barriers remediation schemes, such as fisheries enhancement schemes, reopening of existing culverts, removal of impoundment and de-silting of impounded reach, desiliting of affected river reaches, removal of barriers to fish migration, updating of existing fish passes and construction of new fish passes	+ / -	+ / -	+ / -	+ / -	+	0	-	-	0	+ / -	+ / -	0 / -	0 / -
Abstractions													
AB4: Examine compensation flow requirements on regulated rives and maintain minimum flow or flow variability, where applicable, to maintain good hydrological status and support ecology	+	+	+	+	+	0	+	0	0	+	+	+ / -	0
AB6: Develop water budgets	+ / -	+	+	+	+	0	+	0	+	+	+	0 / -	0 / -
AB7: Reduce abstraction demand, e.g. reduce leakage and unaccounted water, modify plumbing codes to support conservation, daily metering of abstracted volumes, implement small schemes with smaller demand	+ / -	+	+	+	+	0	+	0	+	+	+	0 / -	0 / -
AB8: Increase available water, e.g. promote infiltration of runoff, reuse of grey water or treated wastewater, identify and build infrastructure for alternate sources	+ / -	+	+	+	+	0	+	0	+	+	+	0 / -	0 / -
AB9: Water metering and charging programmes for residential users	+	+	+	+	+	0	+	0	+	-	+	0	0
AB10: Reduce abstraction volumes	+ / -	+	+	+ / -	+	-	-	0	+	+ / -	+	+ / -	+ / -
AB11: Altered abstraction timing	+ / -	+	+	+ / -	+	-	-	0	+	+ / -	+	+ / -	+ / -
AB12: Conjunctive use	+ / -	+	+	+ / -	+	-	-	0	+	+ / -	+	+ / -	+ / -
AB13: Provision of additional storage	+ / -	+	+	+ / -	+	-	-	0	+	+ / -	+	+ / -	+ / -
AB14: Direct development to areas where capacity exists and restrict development if abstraction already at capacity	+ / -	+ / -	+ / -	+	+	0 / -	0 / -	0	+	+ / -	+	+ / -	0

Key: BFF – Biodiversity, Flora and Fauna; AQ – Air Quality; C – Climate; W – Water; MA – Material Assets; L – Landscape; P – Population; HH – Human Health; S – Soils; CH – Cultural Heritage