

## Integrating the implementation of the European Union Water Framework Directive and Floods Directive in Ireland

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### ABSTRACT

Water Framework Directive (WFD) statutory authorities and stakeholders in Ireland are now challenged with the issue of how the proposed programmes of measures in the newly required River Basin Management Plans – designed to protect and restore good ecology by reverting as closely as possible back to natural conditions – are to be implemented in a way that concurrently complies with other existing and emerging intersecting European Union legislation, such as the Floods Directive (FD). The WFD is driven largely by ecological considerations, whereas the FD and other legislation are more geared towards protecting physical property and mitigating public safety risks. Thus many of the same waterbodies, especially heavily modified waterbodies, arguably have somewhat competing policy objectives put upon them. This paper explores the means by which Ireland might best achieve the highest degrees of cost effectiveness, economic efficiency and institutional durability in pursuing the common and overarching objective of the WFD and FD – to ensure Irish waterways are put to their highest valued uses.

**Key words** | European Union, flood management, water resources

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### INTRODUCTION

Centuries of land development, whether for human settlement, energy production, materials extraction, navigation, transportation, fishing, agriculture or other industrial manufacturing, has left Ireland's River Basin Districts (RBDs) with a legacy of modified waterbodies – ones that must provide a wide variety of water services and uses to a population currently in excess of four million people. The River Basin Management Plans (RBMPs) developed over the past few years in accordance with the European Union (EU) Water Framework Directive (WFD) (European Parliament and Council 2000) indicate that approximately 84% of all Irish surface waterbodies require enhanced implementation of mitigation measures to attain the WFD-established objectives.

Artificial waterbodies (AWs) and heavily modified waterbodies (HMWBs), both totalling 37 each throughout Ireland (South Western River Basin District 2008), are required to meet Good Ecological Potential (GEP) by 2015 via adequate implementation of these measures, whereas the generally more stringent Good Ecological Status (GES) standard is

the objective for all other waterbodies. The actual metrics for GES were established in 2009, but the precise means by which the attainment of GEP objectives will be judged has yet to be agreed. Less Stringent Objectives (LSO) or time extensions on the established 2015 objectives are permitted for selected waterbodies under the Directive upon demonstration by Member States that adequate implementation of mitigation measures to achieve 2015 objectives is either (a) technically infeasible, (b) disproportionately expensive (i.e. marginal costs of measures implementation significantly outweigh the marginal social benefits), or (c) disproportionately costly (i.e. likely to inflict costs and/or cost impacts on a certain stakeholder group or groups in a widely disparate manner). Temporary derogations or 'exemptions' are also allowed for in certain circumstances.

As implementation of the RBMPs gets under way by way of continuing or introducing the measures required for each waterbody to attain the 2015 WFD objectives, some of the focus of water resources policy makers and regulators in

Ireland is now turning towards integrating the wide array of inextricably linked water resources management issues such as efficient energy production, climate change, bathing water quality and flood risk management.

The EU Floods Directive (European Parliament and Council 2007) in particular serves as a topical example of this emerging need to harmonize the intersecting and sometimes competing objectives of EU water resources management directives. The WFD is driven largely by ecological considerations whereas the FD is geared primarily towards protecting physical property and preventing human mortality (e.g. drowning deaths from flash floods).

Thus the same waterbodies, and in particular current or potential HMWBs, arguably have somewhat competing policy objectives put upon them via these two directives – hence the need perhaps for some additional pre-emptive thinking in Ireland regarding the means by which these objectives will be set and ultimately met.

### THE EUROPEAN UNION WATER FRAMEWORK DIRECTIVE EC/60/2000

The WFD introduces modern concepts intended to shift EU water governance away from a uni-disciplinary, one-dimensional focus on water pollution control and towards the application of principles and practices associated with catchment-based 'Integrated Water Resources Management' (Ker Rault & Jeffrey 2008). Thus, signatory EU Member States such as Ireland, in adopting and transposing this modernized legislation into State statutory constructs, has committed to carefully balancing environmental, economic and cultural considerations in carrying out the implementation of the measures identified in its RBMPs.

The Irish Water Pollution Act of 1977 is generally considered the first significant comprehensive regulatory water pollution control instrument in Ireland. Although it did require water quality management plans at the catchment level, it focused mainly on water pollution events and the most extreme chronic problems in drinking waters and bathing waters. Throughout the 1990s, various European directives and associated transposed legislation in Ireland stepped up and refocused water quality management via addressing problems at their sources sector by sector (e.g. Urban Wastewater Treatment Directive for municipal sector and Nitrates Directive for the agricultural sector). These directives, however, were also fairly disjointed in their implementation strategies, as each was pursued

respectively on a State and/or Local Authority jurisdictional basis rather than on a hydrological basis.

Alternatively, the new water pollution control strategy in Ireland under the WFD focuses more on achieving specified aquatic ecological outcomes and less on the means by which these objectives will be achieved. It also requires harmonization with other competing and complimentary legislation and reconciliation with economic development goals. The public participation requirements under the WFD are also much more rigorous and standardized.

The WFD is to be implemented via a series of three 6-year planning cycles for each of Ireland's seven RBD's, respectively, the first of which concludes in 2015. Among the key requirements of river basin management planning under the WFD are:

- (1) characterization of RBDs (i.e. inventory of the distinct physical, economic, institutional and cultural characteristics of each of the RBDs);
- (2) definition and identification of significant water pressures in each catchment or subcatchment (e.g. agriculture, urban runoff, septic tanks, etc.);
- (3) classification of waterbodies (e.g. designated protection area waterbody, AWB, HMWB, etc.) and establishment of measurable objectives for each class of surface and ground water;
- (4) analysis and subsequent identification of cost-effective combinations of mitigation measures needed to achieve the 2015 objectives for each waterbody and a schedule of implementation actions adequate to meet these objectives by 2015 (i.e. Programme of Measures (POM)); and
- (5) analysis and full and transparent disclosure to the public of the specific technical and/or financial constraints and considerations that are projected to impede implementation of the measures identified as necessary for 2015 objective attainment for each waterbody for which an exemption or extension will be sought.

The currently ongoing process being undertaken by Ireland pursuant to WFD Articles 4.8 and 4.9 to classify and thus designate certain waterbodies as HMWBs has particular relevance to the implementation of the FD. The agreed nature of the cost-effectiveness analysis of mitigation measures and the analysis of costs and benefits used to justify any potential AWB and HMWB exemptions under the WFD is similarly critical to the implementation of the FD. In interpreting the WFD requirements for exemption justifications for *all* waterbodies, the European Commission has been clear and unwavering:

*‘Common to all these exemptions are strict conditions to be met and a justification to be included in the River Basin Management Plan[s].’ (European Commission 2009).*

More specifically, and again per the WFD text in Article 4.4 and all relevant Common Implementation Strategies (CIS) published to date explaining this text (European Commission 2009), all time extensions are to be grounded in some degree of substantive analysis that explains why 2015 objective attainment is either technically infeasible, disproportionately expensive, or significantly inhibited by natural conditions. Further, the EC and Member State Water Directors have agreed that ‘when applying the ‘disproportionality justification’, the reasons, underlying data and assessments should be made public’ (European Commission 2009). According to the Eastern RBD RBMP (Eastern River Basin District 2010) and an internal document recently circulated enumerating the exemptions for Ireland’s remaining six RBDs (RPS Consultants 2010b), nearly 1,700 time exemptions on 2015 WFD objectives are being sought in Ireland.

Article 4.5 of the WFD requires even more stringent criteria and more rigorous analysis for LSOs to be permitted, including demonstration that the environmental and socio-economic needs served by the activity making the LSO necessary cannot be achieved by a ‘better environmental option not entailing disproportionate costs’. To date, Ireland has only identified one waterbody for which LSO derogation will be sought – a groundwater body in the Avoca River Basin. The Eastern RBD RBMP includes the stated intent to complete a cost-benefit analysis of this LSO before 2015.

For waterbodies to be modified by ‘new sustainable human development activities’ to the extent that WFD objectives will not be met or maintained, it must be demonstrated (again, in the RBMPs) that these modifications are of overriding public interest and/or benefit. More specifically, the EC states that ‘an analysis of the costs and benefits of the project adapted to the needs of the Directive is necessary to enable a judgment to be made on whether the benefits to the environment and to society of preventing deterioration of status or restoring a water body to good status are outweighed by the benefits of the new modifications or alterations to human health, to maintenance of human safety or to sustainable development’ (European Commission 2009). The planning of a significant ‘new modification’ of this nature and scope must also be accompanied by an analysis of its costs and benefits pursuant to the Environmental Impact Assessment Directive.

Again, in effect this means that justification for not meeting WFD objectives by 2015 on any waterbody requires presentation to the public of clear evidence that doing so is either:

- technically infeasible,
- likely to yield low social benefits at relatively high additional costs, and/or
- likely to induce disparately distributed implementation costs or cost-impact burdens amongst community stakeholders.

There seems to be disagreement presently between Member State Water Directors and the EC on whether constraints on State water resources management budgets can be used to justify failures to meet 2015 WFD objectives, with the EC apparently still holding firm that they cannot (European Commission 2009).

## THE EUROPEAN UNION FLOODS DIRECTIVE EC/60/2007

The EU Parliament re-entered Ireland’s water resources management arena more recently with the Floods Directive (FD) (European Parliament and Council 2007), which is the key constituent of the EU Flood Action Programme of 2005. The EU Member States are henceforth responsible for, among other things, evaluating, preventing and managing flood risks.

As early as the 1940s in Ireland, formalized arterial drainage schemes were being implemented by the national authority which is now the Office of Public Works. Complimenting these schemes were a collection of local flood relief schemes and more minor capital flood control projects. Unlike water pollution control legislation, comprehensive EU-driven flood control legislation was not adopted in Ireland until the transposition of the FD of 2007. Thus, very little institutional harmonization between flood control and water pollution control strategies occurred in Ireland until current times. Like the WFD, the FD now requires Ireland to reconcile its FD implementation strategy with both its environmental conservation and economic development objectives and provide for maximal public participation.

More specifically, the FD states:

*‘Floods have the potential to cause fatalities, displacement of people and damage to the environment, to severely compromise economic development and to undermine the economic activities of the Community (Preamble 1).*

*Floods are natural phenomena which cannot be prevented. However, some human activities (such as increasing human settlements and economic assets in floodplains and the reduction of the natural water retention by land use) and climate change contribute to an increase in the likelihood and adverse impacts of flood events (Preamble 2).*

*It is feasible and desirable to reduce the risk of adverse consequences, especially for human health and life, the environment, cultural heritage, economic activity and infrastructure associated with floods. However, measures to reduce these risks should, as far as possible, be coordinated throughout a river basin if they are to be effective (Preamble 3).'*

In introducing a 'framework for the assessment and management of flood risks, aiming at the reduction of the adverse consequences for human health, the environment, cultural heritage and economic activity', the FD is effectively instituting measures which can contribute to the prevention of deterioration of water status as provided for by the WFD.

The FD is to be implemented in Member States such as Ireland in three phases. During the first phase, the EU Member States must carry out a preliminary assessment of flood risks for river basins and for coastal zones by 2011. During the second phase, they must draw up flood hazard maps and risk maps by 2013. These must identify high, medium and low-risk areas, including those where occurrences of floods would be considered an extreme event.

The maps will also have to include details on expected water depths, economic activities that could be affected, the number of inhabitants at risk and the potential environmental damage. The third phase will require member states to produce catchment-based Flood Risk Management Plans (FRMP) by 2015, thereby harmonizing with the WFD RBMP cycle.

The FRMPs are required to include measures to:

- reduce the probability of flooding and its consequences;
- prevent unsustainable land use practices (by discouraging building in flood-prone areas);
- protect such areas from the likelihood of floods (restoring natural flood plains); and
- inform and prepare the public.

The FRMPs are to be informed directly by detailed analysis in Catchment Flood Risk Assessment and Management Planning Studies. In essence, the analyses (including socio-economic analysis) upon which the plans published in the RBMPs and FRMPs are to be justified, must be conducted in a substantively coordinated fashion, as must the procedures for 'actively involving interested parties' in the generation and communication of the findings of these analyses. S.I. 122 of 2010, which is Ireland's statutory transposition of the FD, makes it clear that in Ireland, 'Flood risk management plans shall take into account relevant aspects such as costs and benefits...'

The required timeline for implementing the key elements of both the WFD and FD described here is illustrated in Figure 1.

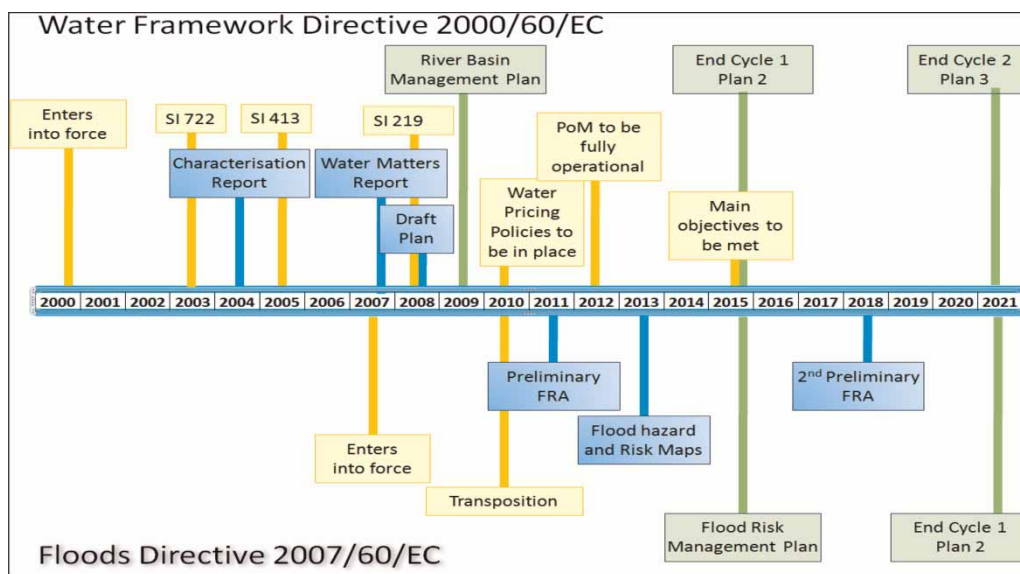


Figure 1 | Schedule of implementation requirements of the WFD and FD.

## INTEGRATING THE IMPLEMENTATION OF THE WFD AND FD IN IRELAND

The WFD was transposed into Irish law primarily by Statutory Instrument Nos. 722 of 2003 – basic transposition; 413 of 2005 – advisory council; 218 of 2009 – RBMP deadline extension; 272 of 2009 – surface water objectives; 9 of 2010 – groundwater objectives; and 90 of 2010 – RBMP second deadline extension. The FD was transposed into Irish law by Statutory Instrument No. 122 of 2010 – basic transposition. Both sets of Directive transpositions implicitly embrace the concept of catchment-based Integrated Water Resources Management in a variety of ways, as illustrated in Figure 2.

As shown in Figure 3, many familiar implementation applications of both of the Directives illustrate the potential for achieving common objectives simultaneously.

Per Article 9 of the FD, the Competent Authorities for the FD ‘shall take appropriate steps to coordinate the application of this Directive [FD] with that of Directive 2000/60/EC [WFD] focusing on opportunities for improving efficiency, information exchange and for achieving synergy and benefits having regard to the environmental objectives

Plan / Programme	WFD	FD
Flood Risk Management Plans	✓	✓
Arterial Drainage and Flood Relief Schemes	✓	✓
Conservation Plans (Biodiversity Plans)	✓	?
Water Services Strategic Plans	✓	✓
Pollution Reduction Plans	✓	
Sludge Management Plans	✓	
Major Accident and Emergency Plans	✓	✓
Forest Management Plans	✓	?

Figure 2 | Integrated components of WFD and FD implementation in Ireland.

Water Framework Directive	Floods Directive
Reduce Pollution Catchment Management	Reduce Flooding Mitigation of Flooding
Subject to WFD Analysis For good status etc	Actions from CFRAMS e.g., morphological
Remove Culverts	Model to see if flood moves d/s
Space for Rivers Allow flooding on flood plains	Development Planning Zones A, B, C
Morphological Change E.g., if a flood weir removed	Flooding Implications Move upstream?
Article 4 Allows certain works under FD	FRMP

Figure 3 | Integration of WFD and FD in Ireland to achieve common social objectives.

laid out in Article 4 of Directive 2000/60/EC [WFD]’. The respective Competent Authorities for WFD and FD implementation and other directly relevant authorities in Ireland are listed in Table 1. A similar degree of cooperation with bodies implementing other environmentally-oriented Directives, e.g. the Bathing Water Directive, is also desirable.

The WFD Competent Authorities in Ireland are the lead Local Authorities for each RBD with the Department of Environment, Heritage and Local Government (DEHLG) responsible for funding their implementation activities. The Office of Public Works (OPW) is the Competent Authority in Ireland for the FD, and they are sponsored by the Department of Finance in this capacity.

Article 14 of the WFD and Articles 9 and 10 of the FD address how the respective Competent Authorities are to jointly effectuate the ‘active involvement of all interested parties’ throughout the coordinated WFD and FD implementation process. In Ireland, the administrative arrangement for accomplishing this also includes public participation procedures pursuant to Ireland’s Planning and Development Regulations of 2001. Although S.I. 122 of 2010 enumerates the many administrative steps leading to the final submission of FRMPs to the Minister for Environment, Heritage and Local Government for approval, as does S.I. 722 of 2003 for the WFD RBMPs, the details of the actual sequence and means by which this RBMP/FRMP ‘coordinated active involvement of all interested parties’ will realistically be accomplished is less clear at present.

## SOME CONSIDERATIONS FOR FUTURE WFD AND FD INTEGRATED IMPLEMENTATION IN IRELAND

In taking into account our current understanding of Ireland’s WFD/FD integration strategy as highlighted in the preceding text, the authors wish to raise some considerations with the aim of potentially contributing to the ongoing improvement of the new integrated WFD/FD implementation process.

- (1) In attempting to understand the process of classification of Ireland’s waterbodies, and in particular the provisional classification of HMWBs, lacking currently in the available reports is a clear presentation of evidence that HMWBs (or any other waterbodies) would be put to their highest valued uses under their current or current-provisional classifications. It is noteworthy that in other developed countries, it is not uncommon

**Table 1** | Ireland's WFD and FD implementation authorities

	WFD	FD
Sponsoring dept.	DEHLG	DoF
Competent authorities	<i>EPA</i> for the purposes of reporting to the European Commission and assigned other functions <i>Local Authorities acting jointly</i> for setting objectives, making and implementing RBMP	OPW
Relevant public authorities	33 in ERBD	All Government departments, all Local Authorities, all semi-state bodies, all WFD competent authorities
Advisory council	48 in ERBD	–
Specified public bodies	–	Constituent Local Authorities, OPW, ESB, WI
Specified organizations	–	All Government departments, all Local Authorities, ESB, EPA, WI, Marine Institute, Met Eireann, GSI

for flood control structures and even viable hydroelectric dams to be removed in response to cost-benefit analyses indicating that restoration of these waterbodies to natural conditions is more cost-beneficial.

- (2) In trying to discern from the available reports the actual combinations of mitigation measures that are being pursued to cost-effectively achieve WFD objectives on any given waterbody (or even in any given catchment), apparent becomes an analytical disconnect between the cost-effectiveness analysis, the exact mitigation measures to be employed, and the waterbodies on which these measures are to yield cost-effective attainment of WFD objectives. The Economics Background Report (RPS Consultants 2010a – unpublished) in particular appears to be the document that will ultimately serve as the required cost-effectiveness analysis to accompany six of the RBD's RBMPs in Ireland. However, it does not examine in detail measures that are already mandated by existing legislation and concentrates on only three areas of implementation (i.e. unsewered areas, river channelization and wastewater treatment plant upgrades). The analysis makes a number of broad assumptions, particularly about the implementation, effectiveness, costs and benefits of the proposed measures, so that establishing the optimal approach and its actual effectiveness, costs and their cost distributions for any specific waterbody (or in any given catchment) is difficult. Many of the building blocks for a cost-effectiveness analysis are in this report, but the actual identification of the most cost-effective combination of measures specific to each waterbody required to meet 2015 or extended-timeline objectives for any given waterbody is absent.

In contrast, the Eastern RBD RBMP references ongoing efforts to do this waterbody-level or subcatchment-based comprehensive cost-effectiveness analysis via the Eastern RBD River Basin Management System. Also in contrast, the Eastern RBD RBMP expressed the clear intent to ultimately provide the actual identification of the cost-effective combination of measures required to meet WFD objectives for each of its waterbodies. However, even these outputs are not currently available for public review. All RBDs may find that in the absence of this final distillation to the local level of measures, effectiveness, costs and cost distributions and impacts, many interested parties will not be able to fully comprehend the reasons for and consequences of the decisions that are being taken on the management of their communities' waterbodies.

- (3) Several of the proposed timeline exemptions were justified in the available reports nominally as 'technically infeasible' or they indicated that 'technical constraints' or 'practical constraints' would prevent 2015 WFD objective attainment. In reviewing the actual descriptions of the circumstances underlying some of these characterizations, though, it appears that in reality 2015 objective attainment is clearly within the *technical* realm of possibility. For instance, time to design and install wastewater treatment plant upgrades and budget cycles needed to procure the necessary funding for these upgrades are cited as time-exemption justifications in the Extended Deadlines Background Document (RPS Consultants 2010b). These exemptions seem to suggest administrative or *fiscal* constraints (i.e. inadequate near-term financing to achieve objectives on time) rather than technical constraints. Such criteria

may not be considered by the EC as appropriate for 2015 WFD objective exemptions.

- (4) The Regulatory Impact Analyses (RIA) that were done for both the WFD and the FD, respectively, were to serve in part as higher-level administrative checks on the costs and cost impacts of the transpositions of these Directives. Both documents provide little in the way of assisting their readers in understanding the full suite of costs, cost distributions or cost impacts of the respective measures to be implemented in Ireland. The WFD RIA ([Environmental Resources Management 2007](#)) consists mostly of national-level water services and septic tank installation costs, whilst the FD screening RIA ([Office of Public Works 2009](#)) estimates consist mainly of past flood damage costs. Although such estimates are potential components of a thorough cost-benefit analysis on WFD and FD implementation strategies for HMWBs or waterbodies potentially qualifying for exemptions, they do little in and of themselves to communicate the tradeoffs between catchment-level or waterbody-level implementation alternatives. For many 'interested parties', the *interest* is likely to be in the costs and benefits of WFD and FD decisions as they affect their local waterbodies or catchments.
- (5) The current deficiencies in analyses of the costs and benefits associated with the implementation of the measures set forth in Ireland's RBMPs and the one draft FRMP completed to date ([Cork City Council 2010](#)) may be symptomatic of the institutional arrangement under which Ireland is to implement the WFD and FD. Again, under the WFD in Ireland, the Competent Authorities for RBMP implementation are the lead Local Authorities for each RBD. But funding for this implementation, including for the analysis of costs and benefits under various implementation alternatives, comes from Central Government via the DEHLG. The funding arrangement for WFD implementation in Ireland adds to the institutional tension between Local Authorities and their preference for locally based decisions and local funding autonomy and the DEHLG and its natural inclination towards national authority and centralized funding mechanisms. The potential under this arrangement for differences in estimating and interpreting costs alone for the Local Authorities (on the receiving end of funds) and Central Government (on the awarding end of funds) is difficult to ignore.

Further, with the OPW serving as the Competent Authority for implementing the FRMPs within each

RBD, and funding coming directly from the Department of Finance, another layer of potential institutional discontinuity in the WFD/FD implementation process seems evident. Again, the primary objective of the FD is to protect human life and property from flood events, whilst of course harmonizing with the often competing primary objective of the WFD, which is, to the extent practicable, to restore waterbodies to 'good' or better ecological status (whilst of course harmonizing with competing human development needs). One might reasonably anticipate that a cost-benefit analysis done by the OPW of either the initial designation of a HMWB or the appropriate extended timeline for restoring to natural conditions in this HMWB might, because of different priorities, produce a higher estimate of net benefits than a cost-benefit analysis of the same waterbody conducted by analysts whose main focus is expediting the achievement of the WFD's primary objectives. This is because a cost-benefit analysis done primarily from the viewpoint of flood control is likely to look more favourably on a HMWB than a cost-benefit analysis done by analysts more versed in or focused on the many intrinsic and other ecological values that are characteristic of pristine waterbodies.

The reality, however, is that the cost-benefit analyses for WFD and FD measures implementations need not be done multiple times in tandem by institutions with inherently potential competing objectives and motivations. Further, a potential future reality in Ireland does not have to include the ultimate decisions regarding WFD and FD to be taken (and justified in these analyses) and submitted to the ministerial level of government for final approval by these respective Competent Authorities directly. At a minimum, joint WFD/FD cost-benefit analyses could be conducted on multi-objective implementation measures by a single, independent and more technically diverse institution. With some amendments to Irish statutory law, the potential for institutional biases could be addressed even more comprehensively by the creation of a higher-level body charged simply with ensuring that all of Ireland's waterbodies are put to their highest valued social uses subject to meeting a baseline of human and ecological health criteria not entailing disparate costs and cost impacts, as this is effectively the common, ultimate objective in all of the modern integrated water resources management legislation in Ireland.

- (6) Finally, the actual details of the public participation process that has been established for the 'coordinated

active involvement of all interested parties' in Ireland, and that is required for the compliant joint implementation of the WFD and FD, is somewhat unclear at present. This is understandable given that this process is an unavoidable by-product of the multi-institutional arrangements described above, but further clarification or development of the details of this process would be welcomed.

In conclusion, and in the most general terms, the best way forward for Ireland at this point is to conduct a single institutional study of all of its water resources management regimes that will provide some objective guidance to decision makers in their efforts to reconfigure its institutions and their respective strategies as well as their collective strategy for Ireland. Of most importance with respect to this study will be the ability of the researchers to not lose sight of the overriding objective of pursuing this reconfiguration of governance – putting in place a management structure that will ensure the highest valued use of Ireland's water resources now and into the future.

## REFERENCES

- Cork City Council 2010 Draft Lee Catchment Flood Risk Management Plan.
- Eastern River Basin District 2010 Eastern River Basin District: River Basin Management Plan 2009–2015.
- Environmental Resources Management 2007 Regulatory Impact Analysis of the Proposed Surface Water Classification Systems including Environmental Quality Standards. Final Report, December.
- European Commission 2009 Common Implementation Strategy for the Water Framework Directive (2000/60/EC). Guidance Document No. 20: Guidance Document on Exemptions to the Environmental Objectives, TR-2009-027.
- European Parliament and Council 2000 Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy. European Commission, Brussels.
- European Parliament and Council 2007 Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks.
- Ker Rault, P. A. & Jeffrey, P. J. 2008 *Deconstructing public participation in the Water Framework Directive: implementation and compliance with the letter or with the spirit of the law?* *Water and Environment Journal* **22** (4), 241–249.
- Office of Public Works 2009 Floods Directive: Screening Regulatory Impact Analysis. Engineering Services, March.
- RPS Consultants 2010a Final River Basin Management Plans – Background Documentation. Economic Analysis of Measures included in the River Basin Management Plans, July (unpublished).
- RPS Consultants 2010b Final River Basin Management Plans – Background Documentation. Alternative Objectives: Approach to Extended Deadlines, July.
- South Western River Basin District 2008 Programmes of Measures and Standards – Overall Summary Report. Heavily Modified Water Bodies and Artificial Water Bodies, September.

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