

## **ESEE 2015 LEEDS**

### **“TITLE: What do we know about WFD implementation in Europe? A Meta-Analysis of 92 Journal Articles”**

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The Water Framework Directive (WFD), adopted in 2000, is plausibly the most ambitious piece of EU legislation in the field of water. The Directive defines a general framework for integrated river basin management in Europe with a view to achieve ‘good water status’ by 2015. Institutional novelties include, amongst others, water management at ecological scales, the involvement of non-state actors in the preparation of river basin management plans, the use of economic tools such as cost-benefit analysis, as well as a common strategy to support EU member states during the implementation of the Directive.

Not surprisingly, the WFD has attracted wide scholarly attention. At the time of writing, the Social Science Citation Index lists no less than 668 articles referring to the Directive in the title or abstract. Researchers from disciplines as diverse as political science, legal studies, economics and sociology have studied the Directive, interdisciplinary approaches to the WFD are legion. Arguably, not all of those 600+ articles are ‘spot on’, but there is no denying that the WFD is a prime topic for social scientists working on water resources.

However, as much as we know about the WFD and its implementation in Europe – there is a striking lack of integration across disciplines and approaches. Previous research provides a checkered pattern of single case studies or small-n comparative work, often within one country; attempts to aggregate existing knowledge are scarce. Almost fifteen years after the adoption of the Directive, and the ominous year 2015 being upon us, we believe it is time for an interim assessment of how the WFD has been implemented in the EU’s member states.

Providing a systematic review of existing scholarship, this paper takes a critical perspective on well-documented areas of research, identifies largely uncharted territory and suggests avenues for future work on the WFD. In doing so, we rely on social-science meta-analysis. Meta-analytical approaches aggregate in a systematic fashion knowledge from source texts, thereby relying partly or fully on quantitative aggregation methods. Initially developed to make causal statements about the relationship between two or more variables across a range of source studies, i.e. to answer a specific research question, meta-analysis is increasingly being used to summarise an area of research more broadly. Such systematic reviews then do not explore questions of causality, but provide a thorough overview of a specific body of literature with regards to research questions asked, theoretical approaches used, research designs and methods chosen, and jurisdictions and time periods covered. Our paper reflects the latter ambition.

This paper reviews empirical research covering the implementation of the WFD in EU member states. To this end, we searched the Web of Science, Science Direct and Google Scholar to identify publications that use the term “Water Framework Directive” in the title, abstract or key words. We also screened the lists of references of relevant publications and used the snow-balling method to locate further work by a particular author. However, we did not consider publications in languages other than English. Likewise, we excluded non-academic publications such as consultancy reports and policy documents, academic work not subject to peer review including working papers and conference contributions, as well as books and book sections. We then screened the remaining set of papers and excluded those papers that did not meet our search criterion – to cover empirically the implementation of the WFD. This way we discarded articles merely describing the content and ambition of the WFD and purely theoretical pieces with no empirical dimension, including legal studies and normative statements as to whether the WFD is compatible with

concepts such as Integrated Water Resources Management. We did not consider empirical studies which reflect physical science research, for instance hydrological analyses, which report on water policies outside Europe, perhaps inspired by the WFD, or which discuss phenomena related, but not directly linked to the actual implementation of the Directive in a member state. This would include, for instance, researcher-led experiments with public participation or economic analysis, which have the potential to inform WFD implementation, but are not part of a country's official implementation schedule. As a consequence, the findings reported in this paper are based on a sample of 92 journal articles. We then used a codebook consisting of more than 30 items to describe the research reported in each article. Codebook items include, amongst others, research priorities and questions explored, methods and research design chosen, concepts and theories used, countries and time periods studied, future research agendas identified by authors, but also author affiliations and publication choices.

Preliminary findings suggest, first, that our current knowledge about the implementation of the WFD in Europe relies mainly on single case studies or small-n comparative studies within one country. Cross-country comparisons are in a minority, and there is a striking lack of large-n quantitative research. Second, there is a cluster of very well-researched countries, including the United Kingdom, the Netherlands, Germany and Spain; however, member states who have joined the Union in 2004 and 2007 as well as some Mediterranean countries such as Italy and Greece are underrepresented. Third, there is a lot of research on the first cycle of WFD implementation, more specifically the phase of drafting river basin management plans and the programmes of measures. However, we know little about the pilot phase, and there is little comparative work over time. Finally, there is a conspicuous lack of theory in WFD scholarship. Authors tend to describe implementation patterns and, at times, to apply normative frameworks, but a minority of works refers to theory when they explain compliance with the WFD and embed observations into their social, economic or political contexts.

We find in particular that there is a certain imbalance in previous scholarship as to the institutional novelties introduced or promoted by the WFD. While the involvement of non-state actors into water management has inspired a rich literature, there is less in-depth research on river basin planning and management at ecological scale. Most importantly, regulatory tools such as cost-benefit analysis remain understudied. There are few articles only exploring the economic aspects of WFD implementation including the use of economic analysis in water planning, the relationship between participation and impact assessment, approaches to identify environmental benefits and costs and ways for cost-recovery for water services – and how they relate to a prevailing political and administrative culture, and last but not least the politics of exemptions, which often results in less stringent water quality objectives, management plans that override the public interest, and delays to deliver key milestones in WFD implementation. We conclude our paper by proposing avenues for future research.