

## INSTITUTIONAL CHALLENGES FACED WHEN TACKLING THE ISSUE OF DIFFUSE POLLUTION

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### ABSTRACT

The EC Water Framework Directive, 2000/60/EC (WFD), which will be transposed into Scottish Law during 2003, represents the most significant change in environmental legislation covering the aquatic environment for 30 years (Scottish Environment Protection Agency, 2002). The holistic approach to environmental objectives coupled with an inclusive 'sustainability' agenda requiring attention to economic and social aspects is a departure from the past focus of the Scottish Environment Protection Agency (SEPA). Implementing the WFD requires SEPA to expand its mainstream business to include new issues, notably diffuse pollution and Sustainable Development. SEPA is clearly endeavouring to meet this goal and to some extent has been successful. There is evidence, however, that these issues are yet to be fully incorporated as mainstream business. Participants in our research confirmed the hypothesis that diffuse pollution was both an emerging issue for SEPA and an issue that required a rethink about how SEPA conducts its business. Attention is drawn to the fact that the significance of diffuse pollution was only highlighted through the failure of the investment in sewerage and point source solutions to improve bathing waters, forcing SEPA and partners to look elsewhere at the underlying causes of water quality issues.

**Keywords :Diffuse Pollution, Managing Participation, Partnerships, Skill deficits, Water Framework Directive**

### INTRODUCTION

This paper is based on findings of an interdisciplinary research project entitled *Disciplinary Interactions: Ontological Commitments and the Law*'. The ESRC funded research project employed an interdisciplinary team to consider how disciplinary commitments influence implementation of environmental regulations and policy in the Scottish context. The objective was to investigate whether the barriers stemming from ontological commitments (beliefs upon which disciplines are founded) result in restricting choices to a few 'manageable options' for policy and regulations (Gouldson and Murphy, 1998). The particular emphasis is on diffuse pollution, as this has been predicted to be the most significant contributor to water pollution in Scotland by 2010 (Scottish Executive, 2002).

The process of standard setting in relation to the control of diffuse pollution involves individuals and groups from a variety of disciplinary backgrounds. It includes scientists and recognised interest groups, with some input from legal advisers and policy makers more broadly. Preliminary investigations suggest, however, that entry to the policy making groups is somewhat haphazard with prior involvement in standard setting or prior involvement with the regulatory body a virtual prerequisite for involvement in standard setting.

Different disciplines and interest groups approach regulation in often very different ways (Landesmann, 1997; RCEP, 1998; Jasanoff, 1999; Kuhn 1970). These differences are caused by differences in the ontological commitments of the groups and individuals involved, which lead them to approach issues and see facts in particular ways (RCEP, 1998; Jasanoff, 1999; Luhman, 1988; Teubner, 1988; Wynne, 1994). These facts, combined with the nature of the particular regulatory process used, will shape the outcomes of the process (Jänicke, 1997). In so doing the "best regulatory solution" to the problem of diffuse pollution may be unintentionally excluded (Gouldson and Murphy, 1998).

These different understandings of facts have been highlighted by recent studies on the interactions of scientists and policymakers. This research also highlighted the extent to which understandings influence, perhaps unduly, the shape of regulation (RCEP, 1998; Redclift 1994; Boehmer-Christiansen, 1994). Various recommendations have resulted, such as that there is a need to keep the regulatory analysis and the scientific components which input into the regulatory process separate. This ensures that those inputting information to the regulatory process simply fulfil that task and do not try to influence the outcome of the regulatory process, nor attempt to displace the need for a decision by attempting to provide the regulatory answer (RCEP, 1998, Gouldson and Murphy 1998). The need to keep scientific inputs and regulatory analysis separate is caused by the fact that the contexts in which policymaking and scientific consensus operate are very different. Scientific consensus is generally ensured through professional and disciplinary factors, whereas policymaking operates in a context which tends to highlight disagreements, ambiguity and uncertainty (Jassanoff, 1999).

The recommendation concerning the need to separate scientific input and policymaking was made in by the RCEP in 1998 and followed from observations that "science" largely shaped environmental policies. As far as it can be ascertained, no systematic investigation concerning the extent to which this advice has been, or can be put into practice has yet been undertaken. The project seeks to establish the extent to which these problems still exist and to begin the process of answering these questions by considering firstly the degree to which scientific analyses shape the precise regulatory outcome. For example, the starting point

of the regulatory process is still deemed to be scientific understanding (RCEP, 1998) and definition of the “problem” or “issue” and not the public’s perceived risk. In addition science is often presumed to hold the answers to environmental problems. This has led to it being relied upon to produce both an understanding of the problem and the policy proposals to resolve it (Haas, 1992; RCEP, 1998). This reflects Foucault’s ideas on the special status accorded to individuals who possess certain types of knowledge (Foucault, 1991).

The theory of increasing path dependency (Arthur, 1994; Collins, 1985) is also relevant here as it can be applied to the regulatory process. It centres on the premise that once the regulatory process has begun, information entering the process automatically shapes the outcome by increasing the costs associated with considering alternative, as yet undisclosed information. This can result in certain policy choices appearing more obvious than others and in certain policy choices being excluded automatically from the process (Gouldson and Murphy, 1998). The information involved in the process can, as Liberatore notes, include previous policies as well as research findings (Liberatore, 1994; Boehmer-Christiansen, 1994; Kuhn, 1970; Gouldson and Murphy, 1998).

The practical focus of the project is centred upon standard setting in the context of diffuse pollution of inland and coastal waters. There is now a growing awareness of the importance of controlling diffuse pollution and the practical difficulties posed by control of such pollution (SEPA, 1999b). Diffuse pollution “causes a variety of problems, associated with the range of pollutants involved. These include direct toxicity; siltation of recreational waters, industrial intakes and spawning riffles; and eutrophication, with algal blooms and major costs for the potable supplies industry and tourism,” (Ferrier, 2000).

Diffuse pollution is also very difficult to control in that, even where standards can be agreed, it may prove difficult to police them where policing involves, for example, monitoring not only water quality, but pollution sources such as the quantities of fertiliser applied to a particular field. These difficulties may explain the new focus on environmental management approaches at the international and European levels.

The control of diffuse pollution is the last aspect of the maintenance of water quality to be tackled by the regulators. The maintenance of water quality has long been recognised as important for environmental and economic purposes and has prompted the introduction of statutory measures to protect the water environment (DETR, 1999). These controls have distinguished between the characteristics of pollutants and the characteristics of the receiving waters, so that the impact on the local environment can be directly assessed and control can be exercised (DETR, 1999).

Over the last twenty years, significant progress has been made in the reduction of point source pollution, by contrast concern continues to be expressed over progress in controlling pollution from diffuse agricultural and urban sources (SEPA 1999 a and b). As a result of this concern legislative proposals have been issued, for example, the Scottish Executive issued a Consultation Paper, on 7th March 2000. This sets out proposals for amendment to the current Regulations, made under sections 31A, 104(1)(a) and 105(1) of the Control of Pollution Act 1974 (as amended). It explains the background to the proposed changes, identifies the options, and includes an appropriate Regulatory Impact Assessment. Moreover, the European Union issued the Water Framework Directive in 2000, the provisions of which must be translated into domestic law by the UK by 2003. The Directive mandates the introduction of measures to control diffuse pollution.

In Scotland the WFD is being implemented via the *Water Environment and Water Services (Scotland) Act 2003*. The turbulent progress of the Bill (Transport and the Environment Committee, 2002) indicates that the project provides a timely focus on the challenges of developing sustainable regulatory processes. It is thought that implementation may lead to Scotland regulating diffuse agricultural pollution in a different way to England and Wales (ENDS, 2000) simply because it will take place within a different legal system. The WFD requires EU member States to assess and to take action to ensure good ecological status of their waters. The objective of sustainable water use requires the lead agency and its partners to take account of social and economic as well as environmental factors. Implementation will be through river basin management plans to control point source and diffuse pollution, engineering works, abstraction and impoundment of water. Under the WFD each Member State will be required to establish criteria and procedures for monitoring and classifying waters and implement a programme of measures for environmental action by 2006. This represents a shift from traditional environmental regulation and means that the regulatory body responsible for developing and implementing these regulations must embrace all aspects of sustainable development including the social and economic aspects. As outlined above, these changes are likely to be problematic as within SEPA there has been a preponderance of physical science approaches to environmental regulation. This is likely to be reflected in a similar approach to implementing sustainable development, which, if it happens, will lead to regulatory failure. Given that there are resource constraints on the regulatory body and given that implementation of the WFD is only one aspect of its work, the individuals within the agency responsible for implementing the WFD will remain those with a physical science background. This distinctive scenario presents an exciting opportunity to study cultural and organisational change within a regulatory body.

There is increasing attention being paid to the social, political and economic contexts in which environmental planning and regulation takes place (Ross, 2000). The recognition, simplistically speaking, that science has caused as many problems as it has solved, requires a move to a more complex, interdisciplinary approach to environmental issues (Wakeford and Walters, 1995). In particular, there is growing understanding that bio-physical environmental issues can not be resolved without an

understanding of the human pressures and impacts. These perspectives are reflected in the philosophy of the DPSIR (Driving forces, Pressures, State, Impact and Response) approach to implementing the WFD.

## METHODS

The fieldwork was undertaken in the corporate offices of SEPA. It began in April 2002 and data collection was completed in November 2002. The project employed the fieldwork techniques of participant observation and in-depth interviews plus content analysis of the supporting institutional documents to generate the data for analysis (for a discussion on these methodologies see Silverman, 2000). These methods have been selected to allow analysis of how day to day practices influence policy and regulatory decision making, in keeping with the ethnographic tradition of institutional studies (Miller, 1997). Several voices inform the analysis, including the 'real time' voices recorded in meeting transcripts, the 'voices of interviewees and the impressions of the field researcher through her field notes.

Methods used included:

1. Taped or field noted transcripts of meetings (N = 39)
2. Taped or field noted semi-structured in-depth interviews (N = 16)
3. Biographical Questionnaire (N = 69)
4. Field notes on issues arising during day to day practices (N = 10)

In total 102 participants took part in the project through attending meetings and workshops and providing individual commentaries on the process. The research team took a multiple case perspective, which allows us to note similarities and differences between processes.

## RESULTS AND DISCUSSION

Implementing the WFD requires SEPA to expand its main business to include new issues, notably diffuse pollution and Sustainable Development. SEPA is clearly endeavouring to meet this goal and to some extent has been successful. There is evidence, however, that these issues are yet to be fully incorporated as mainstream business. During our research, most participants confirmed our hypothesis that diffuse pollution was both an emerging issue for SEPA and an issue that required a rethink about how SEPA conducts its business. In particular, on six different occasions, our attention was drawn to the fact that the importance of diffuse pollution was highlighted through the failure of the investment in sewerage and point source solutions to improve bathing waters, forcing SEPA and partners to look elsewhere at the underlying causes of water quality issues.

Despite the confident assertion of one member of the Diffuse Pollution Initiative (DPI) Steering Group that diffuse pollution is 'now fully incorporated into SEPA's main day to day business', other members of the group feel the objective of the DPI is to get diffuse pollution into mainstream business, indicating that this is yet to be achieved. Indeed one member commented that the fact they need a separate initiative clearly says something about the priority the issue has been given in the past. Three participants asked on three different occasions how the DPI fitted with their work plans and with the WFD implementation planning, suggesting that the links between the DPI and other areas of SEPA work were not fully developed. This is further illustrated by the lack of direct discussion of diffuse pollution issues at the WFD Implementation Board meetings, particularly when compared to the attention given to other new areas such as economics, groundwater and water resources. However, this might be explained by the confidence the Board have in the Diffuse Pollution Initiative rather than the Board not attending to the subject.

In order to highlight the manner in which diffuse pollution penetrated meeting discussions, the frequencies of its discussion were compared to other 'new areas' for SEPA such as groundwater, abstractions and water resources, economics and morphology. During the course of this study seventeen WFD meetings were attended. Water resources were mentioned at most meetings (N=15); groundwater was mentioned at fourteen meetings; diffuse pollution and economics at thirteen meetings and morphology at twelve meetings. This indicates that diffuse pollution was holding its own with other new areas, but perhaps not part of SEPA's core business yet, given that water quality was raised at every meeting. Furthermore, a participant highlighted the lack of attention given to diffuse pollution in the latest WFD consultation report, arguing that 'the diffuse pollution suffers from pressures. Notably, diffuse pollution is considered under the heading of water quality in the Annex 2/5 document although it is given its own annex in SEPA's internal scoping strategy for the Characterisation Report.

Further, problems with integrating diffuse pollution into mainstream business were caused by the lack of attention on the connections between land and water pollution. Not only is SEPA focused on water, but their institutional history means they focus on surface freshwater quality, masking other pressures on water bodies.

It also seems clear from our research that Sustainable Development is not yet regarded as core business either. Despite having sustainable development as part of their remit and being highlighted by the Chairman (November, 2002), we were surprised by how little discussion there was on the issue. Sustainability was mentioned on twenty nine occasions but there was very little extended discussion on the issue. On seven occasions participants argued that SEPA found focusing on Sustainable Development difficult as the institution still saw itself as a regulator enforcing statutory standards not influencing behaviour.

There are, however, areas where progress in incorporating Sustainable Development into core business has been quite marked. The Bathing Waters situation was notably linked to Sustainability as participants recognized that resolving diffuse agricultural pollution required a sensitivity to the economic situation of the farmers; hence the discussion on economic incentives and the cost-benefits of best practice approaches. Likewise, Sustainable Urban Drainage (SUDS) was highlighted as an element of Sustainable Development during every Sustainable Urban Drainage Scottish Working Groups (SUDSWP) meeting and the SUDSWP participants appeared most committed to Sustainability of all the processes, as it was mentioned frequently as SUDSWP's *raison d'être*. Finally, the fact that Sustainability was at the heart of the WFD was highlighted on eleven occasions, with particular regard to the need to consider both environmental and socio-economic aspects. There was also reference to a link between risk assessment methodology and the precautionary principle made during four Pressure and Impact Group (PIG) meetings. These references, however, did not extend much beyond identifying the issue as a problem and there is little evidence of a concerted effort to tackle the holistic and interdisciplinary implications of the directive beyond an aspiration to link the scientific aspects of the Characterisation Report with Annex three and a commentary on 'driving forces'.

## CONCLUSION

This policy-focussed paper highlights how diffuse pollution continues to create a number of challenges for the Scottish Environment Protection Agency (SEPA). These include the phasing of the WFD workload and implementation processes, negotiating access to data held by other organizations and managing information inputs in a transparent manner. A further aspect is decision making with imperfect and inconsistent data, which will then form the underpinnings of developing both the regulations and the program and measures. Added to this, SEPA acknowledge that they face particular challenges in managing the participative intent of the water framework directive. Whilst they are enthusiastic about meeting these challenges, they are constrained by limited human and financial resources.

## ACKNOWLEDGEMENTS

The authors would like to acknowledge the support of the Scottish Environment Protection Agency in the development of this paper but the views expressed are those of the authors alone. The project has been funded by an ESRC Research Grant.

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