



Open Research Online

Citation

Collins, Kevin; Ison, Ray and Blackmore, Chris (2005). River basin planning project: social learning (Science Report SC050037/SR1). Environment Agency, Bristol, UK.

URL

<https://oro.open.ac.uk/8445/>

License

None Specified

Policy

This document has been downloaded from Open Research Online, The Open University's repository of research publications. This version is being made available in accordance with Open Research Online policies available from [Open Research Online \(ORO\) Policies](#)

Versions

If this document is identified as the Author Accepted Manuscript it is the version after peer review but before type setting, copy editing or publisher branding

using science to create a better place

River basin planning project: social learning

Science Report SC050037/SR1

The Environment Agency is the leading public body protecting and improving the environment in England and Wales.

It's our job to make sure that air, land and water are looked after by everyone in today's society, so that tomorrow's generations inherit a cleaner, healthier world.

Our work includes tackling flooding and pollution incidents, reducing industry's impacts on the environment, cleaning up rivers, coastal waters and contaminated land, and improving wildlife habitats.

This report is the result of research commissioned and funded by the Environment Agency's Water Framework Programme.

Published by:

Environment Agency, Rio House, Waterside Drive,
Aztec West, Almondsbury, Bristol, BS32 4UD
Tel: 01454 624400 Fax: 01454 624409
www.environment-agency.gov.uk

ISBN: 1 84432 457 5

© Environment Agency

September 2005

All rights reserved. This document may be reproduced with prior permission of the Environment Agency.

The views expressed in this document are not necessarily those of the Environment Agency.

This report is printed on Cyclus Print, a 100% recycled stock, which is 100% post consumer waste and is totally chlorine free. Water used is treated and in most cases returned to source in better condition than removed.

Further copies of this report are available from:
The Environment Agency's National Customer
Contact Centre by emailing enquiries@environment-agency.gov.uk or by telephoning 08708 506506.

Authors:

Kevin Collins, Ray Ison & Chris Blackmore

Dissemination Status:

Release to Regions

Keywords:

River Basin Planning; Social Learning; Systems;
Water Framework Directive;

Research Contractor:

Open Systems Research Group
Systems Department, Faculty of Technology,
Open University,
Walton Hall, Milton Keynes, MK7 6AA.
Email: k.b.collins@open.ac.uk
Tel 01908 655095

Project Manager:

Dr John Colvin, Social Policy Manager, Rio House,
Waterside Drive, Aztec West, Almondsbury, BRISTOL
BS32 4UD

Product Code:

SCHO0805BJHK-E-P

Science at the Environment Agency

Science underpins the work of the Environment Agency. It provides an up-to-date understanding of the world about us and helps us to develop monitoring tools and techniques to manage our environment as efficiently and effectively as possible.

The work of the Environment Agency's Science Group is a key ingredient in the partnership between research, policy and operations that enables the Environment Agency to protect and restore our environment.

The science programme focuses on five main areas of activity:

- **Setting the agenda**, by identifying where strategic science can inform our evidence-based policies, advisory and regulatory roles;
- **Funding science**, by supporting programmes, projects and people in response to long-term strategic needs, medium-term policy priorities and shorter-term operational requirements;
- **Managing science**, by ensuring that our programmes and projects are fit for purpose and executed according to international scientific standards;
- **Carrying out science**, by undertaking research – either by contracting it out to research organisations and consultancies or by doing it ourselves;
- **Delivering information, advice, tools and techniques**, by making appropriate products available to our policy and operations staff.



Steve Killeen

Head of Science

Executive summary

This report documents the findings of a 12-month Environment Agency science project on social learning for river basin planning that began in November 2003. The work was done by researchers from the Open Systems Research Group based in the Systems Department at the Open University in conjunction with the River Basin Planning (RBP) Project team at the Environment Agency.

Our aim was to use social learning approaches and soft system methods to inform the development of the River Basin Planning Strategy and improve the effectiveness of the Environment Agency's Water Framework Directive (WFD) Programme.

The reason for such research is twofold. Social learning can provide a different way of making progress when existing mechanisms (the market and regulation for example) fail to address complex issues. EU guidelines also advocate social learning for implementing the WFD.

In simple terms, social learning is learning that happens with others. Everyone involved knows what is being learned, who is learning it and how. The reference to social learning in this project emphasises that people learn through social interaction with others. An individual can be both the 'teacher' and the 'taught' at the same time. The interactive dynamic of this form of learning allows new insights, understanding, practices and solutions to emerge from social interaction.

In terms of managing natural resources, social learning helps multiple stakeholders work better together when handling complex resource situations.

The project combined systems thinking and practices with concepts of social learning. It initiated 15 workshops, involving about 100 Environment Agency staff, as well as external stakeholders.

The aim was to give the different parts of the Environment Agency and its stakeholders a chance to learn how RBP could progress in England and Wales. A learning approach addressed conceptual issues across the RBP project portfolio and helped the RBP project team develop its capacities and skills for working with internal and external stakeholders.

The workshops focussed on the WFD implementation process including: convergence/integration; river basin planning and programme of measures.

The learning that emerged from a systemic inquiry into these topics centres on:

- raised awareness of notions of complexity, uncertainty and interdependency in resource management;

- the Environment Agency's own practices and its approaches to 'messy' issues that have systemic interdependencies;
- engaging with stakeholders;
- project management and initiation;
- conceptual clarity about social learning in the Environment Agency;
- benefits and risks of using social learning.

What emerged was that social learning may give staff 'permission' to admit that they do not know what to do in a given situation. They can then 'step back' and think about the purpose of a particular goal, the nature of the issue under consideration and current understandings, skills and approaches to achieving that goal.

A learning approach – embedded in the use of systems ideas – helped people express and explore confusion and uncertainty. It enabled the project team and Environment Agency staff to understand what river basin planning might be about, and how they might do it better.

The project fulfilled one of its key aims: to provide the RBP team with the experience of learning their way towards what river basin planning means and how to go about it, in conjunction with a range of other Agency staff and, latterly, with external stakeholders. This helped them appreciate that the skills and experience to 'do' the WFD do not lie with one or two key staff or a single organisation.

A final robust conceptual model of river basin planning did not, though, emerge from the project. Some members of the team saw this as a failure. Others felt that the groundwork done in the early workshops helped the RBP structure at project level retain its shape amid a rapidly evolving political and organisational environment. Phase 2 of the project will address the issue of developing a more robust model of river basin planning.

This report is divided into five main sections. After the introduction, Section Two reviews the theoretical and methodological approaches. We examine the emerging learning points about river basin planning in Section Three. The wider implications for social learning and the Environment Agency are discussed in Section Four. The conclusion presents some timely challenges for the Environment Agency and its partners. Background papers are to be found in four Appendices.

Contents

Executive summary	4
Contents	6
Acknowledgements	7
1 Introduction	8
2 Theoretical framework and methodological approach	11
3 Emergent learning	24
4 Social learning and the Environment Agency	40
5 Concluding comment	47
Appendices	
Appendix 1 Social learning review	48
Appendix 2 Ethical agreement	60
Appendix 3 Managing complexity	62
Appendix 4 Planned publications	65
Figures and tables	
Figure 1 Social learning for concerted action	11
Figure 2 Heuristic device for learning about situations	14
Figure 3 An activity model of a system to conduct a systemic inquiry	17
Figure 4 Systemic inquiry into river basin planning	19
Figure 5 River basin planning and cycles of learning	25
Figure 6 + 7 Examples of early 'maps' of WFD	27
Figure 8 Draft systems map of the WFD	28
Figure 9 Draft map of river basin management	29
Table 1 Summary of main project activities	23

Acknowledgements

A project of this nature depends heavily on the contributions of those taking part in workshops and meetings. We extend our thanks to all those who took part, provided many helpful suggestions and shared their insights.

Outside the workshops, many Environment Agency staff, particularly members of the Project Steering Group, took the time to engage with the ideas presented here. We thank them for being prepared to explore these ideas with us.

We also acknowledge the significant contributions of our colleagues in the EU Social Learning for Integrated Management of Water (SLIM) project in developing the concepts used here.

The opinions expressed here are the authors' and do not necessarily represent the views of the River Basin Planning project team, Steering Group, other Environment Agency body or individual members of staff.

All errors and omissions are the responsibility of the authors.

1 Introduction

1.1 The report in context

This report documents the aims, activities and findings of the science project: River Basin Planning and Social Learning, which ran from November 2003 until November 2004. The research was undertaken by members of the Open Systems Research Group (OSRG) in the Systems Department at the Open University in conjunction with the River Basin Planning (RBP) project team of the Environment Agency of England and Wales.

The project emerged in response to the Environment Agency's invitation in September 2003 to tender for the national science project: Developing a National Strategy for Public Participation in River Planning for the Water Framework Directive (WFD) (Rees et al., 2005).

From the outset, the Environment Agency identified three reasons for undertaking this project.

First, the *Common Implementation Strategy Guidance* document on River Basin Planning highlights *social learning* as a valuable approach in implementing the WFD (EU, 2003). The RBP project team recognised early on that social learning should be part of the overall participation strategy for England and Wales. The Agency therefore commissioned this project as a separate research strand, independent of the public participation strategy.

Second, the project team members wanted learning approaches to help them tackle issues within the RBP project and the WFD programme. In particular, they expected that a learning approach would help develop the team's capacities and skills for working with internal stakeholders before engaging with external stakeholders.

Third, the team wanted better to understand how to address interdependencies between work packages and projects. They saw this as particularly relevant in developing ideas for integrating the different component parts of the WFD.

1.2 Aims and objectives

The overall aims of the project identified in the original specification were:

1. to inform the development of the River Basin Planning Strategy;
2. to improve the effectiveness of the Environment Agency's WFD Programme.

The outcomes were not fully specified in advance, as the WFD Programme context was dynamic and evolving. Similarly, and consistent with the chosen

project managing methodology of *systemic inquiry*, the aims were discussed during the initial months of the project and continued to evolve throughout the project. Over time, the aims were agreed in more detail as follows:

1. To introduce the concept of 'social learning' to the Environment Agency. Initially, it would help facilitate the development of, and decision-making within, the River Basin Planning (RBP) and Programme of Measures (POMs) projects. This concept would also inform the emerging Stakeholder Engagement (SE) strategy and help it evolve over successive WFD cycles to meet external aspirations as well as achieve the required 'active involvement' of stakeholders in the operational implementation of the WFD¹.
2. To build capacity for social learning at Programme Board/ Functional Head level. The Agency's preference is for 'evolution rather than revolution' in WFD implementation. But it recognises that, in the medium term, difficult decisions will have to be made if implementation of the WFD is to achieve an integrated approach to environmental management.
3. To begin to build capacity for social learning at the local level through the Business Implementation project. The Environment Agency publication *Making it Happen* commits the Agency to increasing partnership working with external bodies. The concept of social learning underpins the Environment Agency's *Stakeholder Engagement Strategy*. These approaches will help ensure that 'active involvement' happens. They will help develop local skills that will be increasingly important outside WFD-related activities.

Consistent with our commitment to learning approaches, the project team agreed to revise and develop the aims and objectives during the early months.

The objectives were clarified, refined and eventually finalised in April 2004. This meant that we could take into account experiences of the team and shifts within the wider WFD project. We identified five work streams:

- Work stream 1: Intellectual framing of social learning;
- Work stream 2: Participant conceptual advice and feedback;
- Work stream 3: Systemic inquiry of River Basin Planning;
- Work stream 4: Project management;
- Work stream 5: Preparation of an academic paper with Steering Group members.

Workstream 1 developed the project team's understanding of social learning as a concept and organising principle for policy and practice (see Appendix 1).

¹ Based on earlier research, social learning approaches are best introduced experientially rather than didactically or theory-led. For an overview of learning theory see Appendix 1.

Workstream 2 drew upon the specific skills and knowledge that Open University (OU) researchers had gained in other contexts, most notably a recent EU project on Social Learning for Integrated Management of Water (SLIM)²; and also the researchers' experiences of systems thinking and practices.

Workstream 3 was the most significant and substantial component of the overall project. It focused on the processes of embedding social learning within the RBP and POM projects; the Business Implementation project and the wider WFD programme.

The fourth work stream ensured that the overall project was effectively managed. This would ensure that a better understanding of the constraints and opportunities for social learning within the organisation's culture would emerge. This 'managing for emergence' meant allowing the project to unfold rather than prescribing each step and milestone beforehand.

The fifth workstream meant that peer-reviewed dissemination of the learning emerging from the project would reach a wider range of practitioners and policy-makers.

1.3 Report structure

This report is divided into five sections. Following the introduction, there is a short overview of the aims and objectives, then a discussion on methodological approaches and main project activities. The emerging learning points from the project are examined in Section Three and the implications for social learning and river basin planning discussed in Section Four. Our comments appear in the Conclusion. Background papers are in four Appendices.

² See <http://slim.open.ac.uk> for a range of reports and resource materials resulting from this research.

2 Theoretical framework and method

2.1 Social learning as a policy option

This project combined two concepts to conduct a systemic inquiry into River Basin Planning (RBP) with the Environment Agency: social learning and systems thinking and practices. The rationale for this approach emerges from the long involvement of members of the OSRG in research in systems thinking and practice combined with the team's recent research on Social Learning for Natural Resource Management (SLIM).

Here, social learning is understood to be an emerging way of promoting concerted action to transform and improve natural resource management situations. Concerted action by stakeholders is understood as complementary to regulation, fiscal measures and education or information provision. Figure 1 shows this complementary relationship.

Figure 1 Social learning for concerted action

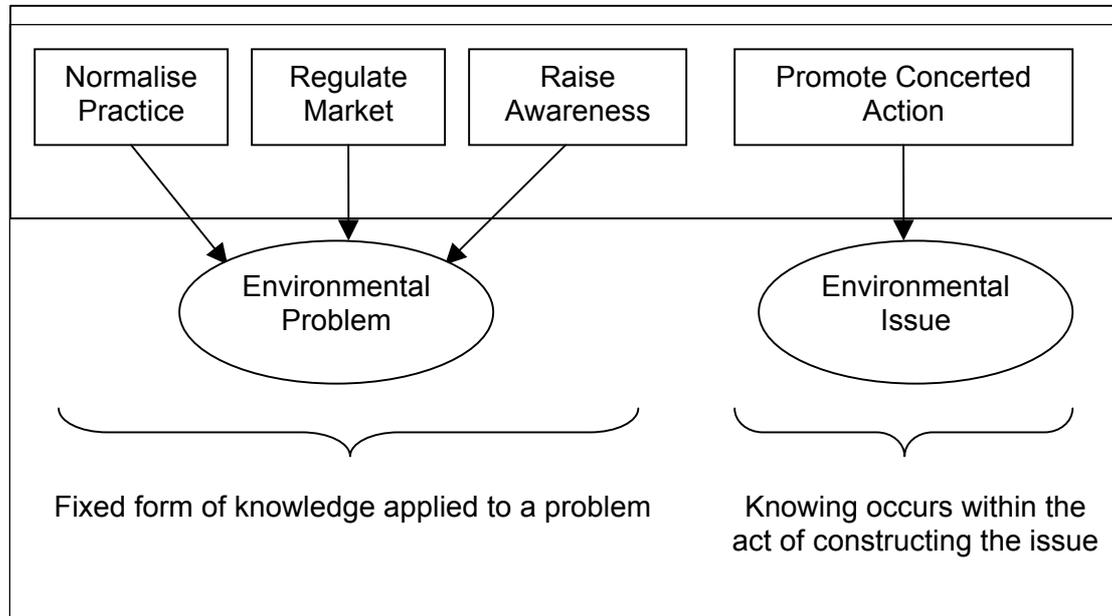


Figure 1 makes a distinction between an environmental *problem* and an environmental *issue*. Problems are existing situations that are well known independently of the social processes by which an issue comes to be seen as problematic. From this perspective, a 'problem' can be addressed by applying previous knowledge and practices. An example of a problem might be fish deaths caused by pollution from a leaking tanker. All those involved accept

that the problem (fish deaths) is caused by a chemical spill in the river, and that removing the tanker and its contents from the river fixes it.

By contrast, many environmental issues are less easy to understand. Various elements and people, acting at different scales and decision levels, shape the definition and interpretation of an issue. In the case of fish deaths, the issue might be 'what was the tanker doing next to the river, and why did the leak occur?' Using a more systemic approach means that complex sets of inter-relating factors can better be appreciated. In this example, such factors would relate to understanding the causes of fish deaths and how they might be prevented in the future. Natural resource issues have also been called 'messes' to emphasise the following characteristics (see Appendix 3):

- interdependency;
- complexity;
- uncertainty;
- multiple stakeholding.

Interdependencies arise because when humans use natural resources in one way, it affects ecological processes that, in turn, interact with other people's uses of natural resources. This interdependency often crosses geographic and ecosystem boundaries and time-scales.

Natural resources are also under the influence of a complex mix of enmeshed natural, technical and social processes. These include changes in public policy, organisations and a diversity of stakeholders. Each set of stakeholders will have its own perceptions about the nature of the issue and problem, sense of stakeholding and ideas about the way forward.

Notions of interdependency and complexity lead to the recognition that uncertainty is a defining characteristic of many environmental issues. The range of interdependencies between, for example, water quality, fish populations, farming practices, working practices in a large regulatory agency and habitat management makes it harder to define the nature of the problem. It also makes it harder to predict the effects of proposed solutions. For example, uncertainty is often associated with scientific understanding of the issue; the effectiveness of proposed policy measures and knock-on effects in other sectors.

Uncertainty and interdependencies can give rise to different perceptions and lasting disagreements on what needs to be addressed. Controversies can emerge from, for example, questioning the existence of issues, their origins, how cause-and-effect relations are understood, how they should be managed and by whom.

2.3 Social learning for concerted action

There is an increased recognition of these complex situations, or 'messes'. This is prompting wider acknowledgement that policy-making and practices to

manage natural resources require some form of ‘concerted action’ among multiple stakeholders to transform these ‘situations’ in a proactive way. Concerted action is not the same as consensus (though awareness and agreement to act in accord is required at some level). Concerted action encompasses a range of activities that stakeholders might feel is appropriate to achieve a shared objective. For example, an orchestra comprises many players, each using different instruments and playing different parts of the music. Collectively, they are acting in ‘concert’ with each other. The same could be said of a football team – each player undertakes a different task with the aim of achieving a mutually desired objective.

The metaphor begins to break down when it becomes clear that players either don’t have the skills required to play the ‘game’, or don’t know what the ‘goals’ are or don’t share those goals. This is the current experience with how ‘to do river basin planning’. To progress, the actors involved have to engage with each other in some form of learning activity. This will help them decide what purposeful action is desirable and how to achieve it in the different contexts.

The ‘*situation*’ is where the interactions and decision-making between diverse stakeholders, each with different understanding of the issues, perceptions, practices, policies, ecological constraints and institutional factors, take place.

When multiple stakeholders describe a situation as uncertain, complex and with a high degree of inter-dependency, then some element of social learning may be required. This will enable them to work in concert to progress the situation.

Drawing on Figure 1, the imperative for social learning approaches arises when existing mechanisms (the market and regulation for example) fail to address complex issues and progress situations. As one senior Environment Agency participant said: *“We need to learn our way into this because we’ve never done anything like this before; and it’s obviously a new form of learning that involves doing it together. So it’s social rather than technical.”* So social learning is learning that happens in conjunction with others, with awareness and transparency. The reference to *social* learning in this project emphasises that people learn through some form of social interaction with others, where an individual can be the ‘teacher’ and the ‘taught’ at the same time. It is the interactive dynamic of this form of learning that allows new insights, understanding, perspectives and practices to emerge from social interaction.

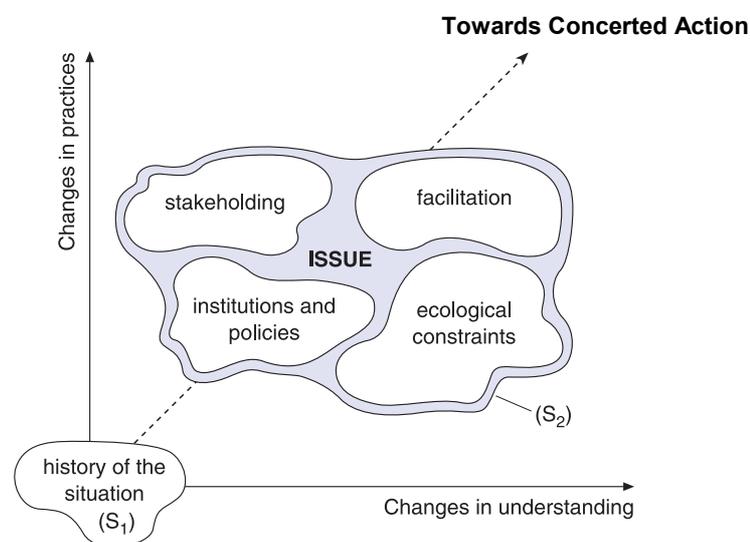
The emphasis on learning is to distinguish this process from traditional interpretations of education or awareness-raising, where A (the teacher) passes information to B (the taught) in what appears to be an uncomplicated, linear and one-way relationship. A more detailed analysis of the development and interpretations of notions of social learning is discussed in Appendix 1.

In social learning, the emphasis is on improving complex situations involving multiple stakeholders through some form of concerted action. The heuristic or learning device shown in Figure 2 was developed as part of the SLIM research. The whole of Figure 2 is a diagrammatic representation and is not

intended to be interpreted as a literal x-y graph. It depicts a trajectory towards concerted action that can be achieved through processes of social learning. This transforms the starting situation (S1) into a new and improved situation (S2). By paying attention to a number of 'variables' while jointly constructing an issue, people can see what they need to change about their understanding and practices in order to achieve that transformation.

Research results from SLIM suggest the important 'variables' are: history, institutions and policies, ecological constraints, stakeholders and stakeholding, and facilitation to move towards concerted action (dotted arrow) (SLIM, 2004).

Figure 2 Heuristic Device for Learning about Situations



It is essential to acknowledge and understand the history of a situation in order to develop policy responses that are appropriate to the specific circumstances. The above framework places significant emphasis on context, since any given resource problem exists in a historically based social, cultural and institutional setting that 'frames' the issue. Knowing the history can help identify what is at stake.

Stakeholding is the idea that individuals or groups, through social interactions, *actively* construct and promote their stakes in relation to those of others. The way that these social interactions do or don't happen can have significant influence on a person's sense of their own stakeholding. When they learn together, though, people move towards concerted action – they act with awareness in relation to each other.

Ecological constraints are identifiable and quantifiable factors that are perceived to influence ecosystem functions. Scientific knowledge is often accorded primacy in defining ecological constraints. These constraints then reflect the experience and understanding of researchers and experts. Just like scientists or experts, though, other stakeholders build their own understanding of the ecosystem. They have their own view of their role in it, through their

own relationship within a given system of interest. For example, compared to ecologists or farmers, anglers may have a different understanding of a river because of what they know about how good the fishing is. Rather than a being purely objective description, the term 'ecological constraints', refers to an observer's understanding of the relationship between people and their biophysical environment. This is an important part of acknowledging the different perspectives stakeholders may have about an environmental resource. This is particularly an issue in the WFD, where understandings of 'water quality', 'ecological status' and their improvements are significant.

The main role of facilitation is to turn one situation into another by enabling social learning. Facilitation, in this sense, refers to a combination of skills, activities and tools used by a facilitator (defined in the broadest sense) to support and guide learning processes among multiple interdependent stakeholders. Facilitation helps stakeholders involved in deliberations better to understand 'what they are doing' (first order learning), and 'why they are doing what they do' (second order learning), in order to act more purposefully.

The institutions and policies variable relates to the nature and role of institutions in natural resource management. Here, institutions describe 'an established law, custom, usage, practice, organisation or other element in the political or social life of individuals or organisations'. They represent a way of thinking or acting that has become accepted over time. Much of the process of implementing the WFD in England and Wales can be understood as a means to institutionalise practices to achieve improvements in water quality. Emerging and existing institutions can constrain or enable opportunities for concerted action to occur among stakeholders. And, they can, of course, be changed by stakeholders.

It is possible to transform situations by engaging with and making sense of the variables in Figure 2, by seeing how these variables interact within situations and by using them heuristically with stakeholders. . This, though, represents a major step for the Environment Agency. Simply recognising that the variables even exist is not enough. To progress the issues, the Agency must develop more sophisticated thinking and practices, which staff can then use in conditions of uncertainty, complexity and interdependency. In short, issues that are systemic in nature require some kind of appropriate inquiry to progress them.

Our research shows that the best way to transform a complex situation involving multiple stakeholders is for those stakeholders to co-construct an issue in which there is a dynamic relationship between understanding and action. This change process can be seen as enacting a learning system. Systemic inquiry is one form of enacting a learning system

2.4 Systemic inquiry

The concepts underlying systems thinking and practice are based on an established intellectual tradition of holistic thinking (e.g. Checkland 1999). For this project, we used a process known as *systemic inquiry*.

Systemic inquiry is an approach to managing complexity that adapts to changing circumstances and draws explicitly on understandings of systems thinking, action research, cooperative inquiry and adaptive management. In this project, 'systemic inquiry' was conceived as a cyclic process of learning by doing (experiencing), reflecting, conceptualising (and then planning a further cycle of learning). Systemic inquiry was used to progress:

- learning about the benefits and risks of social learning, especially in supporting more effective RBP, POMs and Business Implementation;
- learning how social learning can be extended to the engagement between staff and stakeholders;
- evaluating how social learning approaches have benefited RBP tasks.

Systemic inquiry forces a level of thinking that is conceptually rigorous. It is demanding in terms of thinking skills and also practices. A specialist can conduct systemic inquiry, assisting groups without making the thinking behind the inquiry apparent. Or a group of stakeholders can conduct systemic inquiry in a facilitated and participatory manner. In this project, we have used both approaches.

We do not think it useful to provide a full explication of the theoretical background to systems thinking and practices here. Instead, it might be best understood by considering the following schema of a systemic inquiry (Figure 3) in relation to images captured during our (action) research work with the Environment Agency (Figure 4).

Figure 3 depicts an activity model for conducting a systemic inquiry. The focus is identifying the linked activities, which emphasises the practicality of systemic inquiry as something that can enable situations to be improved. A number of systems levels are depicted. The large system (the main shape) has two main activities:

- (i) set up structured exploration of a situation experienced as problematic (complex);
- (ii) take action to change or transform the situation.

To operate as a system, though, this larger system depends on the activities of one sub-system (represented by an inner circle within the large shape). The sub-system has three activities depicted by the verbs (actions):

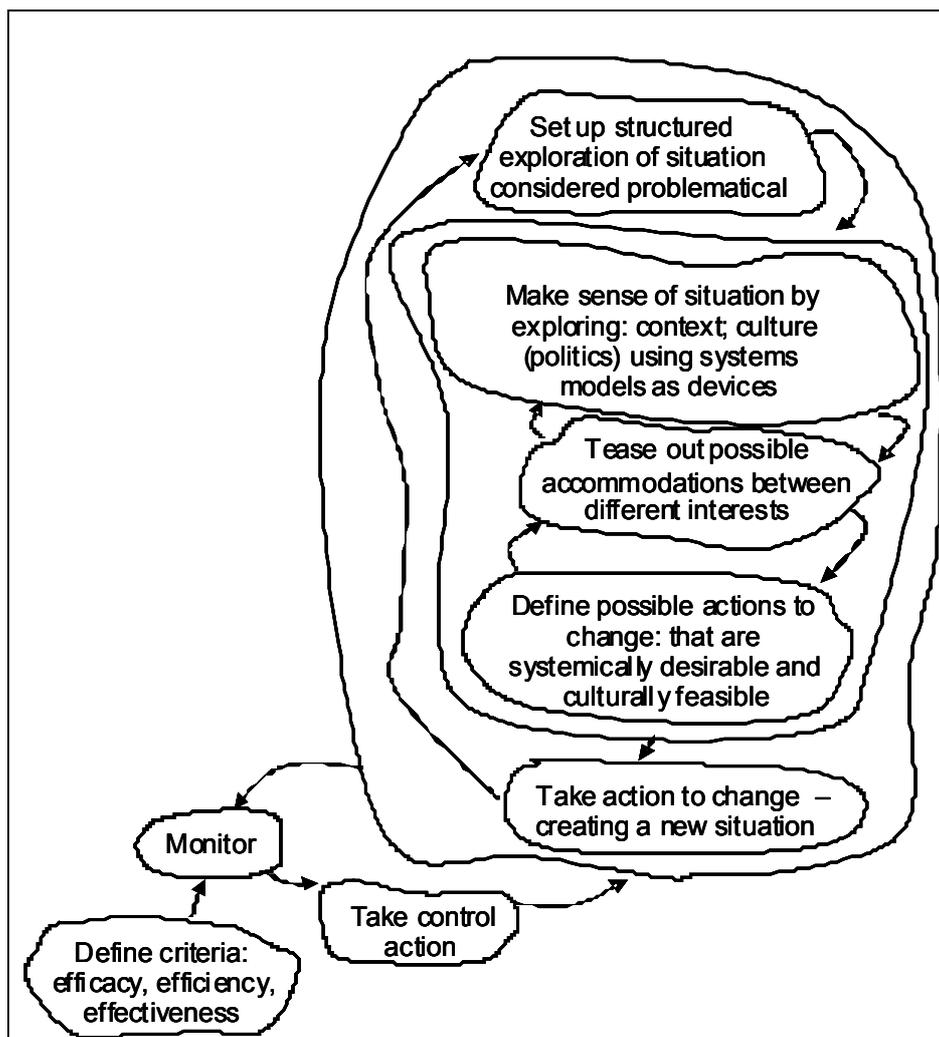
- (i) 'make sense of..';
- (ii) 'tease out ...accommodations';

(iii) 'define possible actions'.

In Figure 3, systemic inquiry begins with a process of making sense of differing contexts and identifying areas where differences can be accommodated. It moves on to define possible actions. The overall inquiry (system) has to be monitored, measures of performance articulated against acceptable criteria (the three Es of efficacy, efficiency and effectiveness depicted here) and control action taken.

In practice, the steps in this process are never systematic. Iteration and concurrent action in different stages depicted within different parts of the system are common. When key stakeholders take joint action to change, having learnt their way to an understanding of what needs to be done, then social learning can be said to have occurred. This is because both changes in understanding and practices result (see Figure 4), and the situation is progressed or transformed.

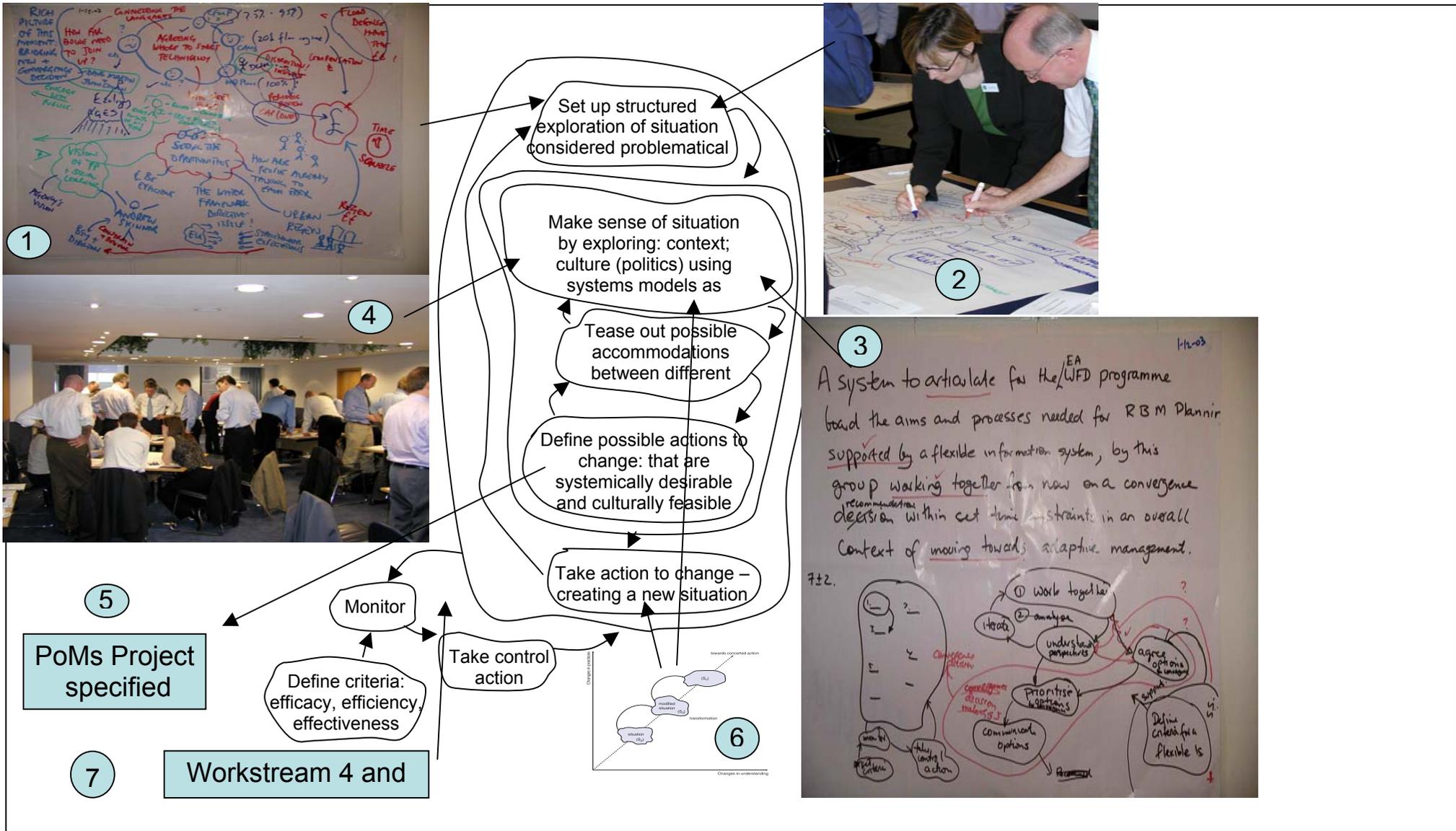
Figure 3 An activity model of a system to conduct a systemic inquiry



The schema set out in Figure 4 below duplicates Figure 3. It adds examples of specific activities from this project, which relate to different stages of the overall inquiry process. A systemic inquiry begins by setting up a structured exploration of a situation characterised by uncertainty. This was the situation we found during our first event with key Environment Agency stakeholders in the WFD implementation. We used rich pictures (1) to initiate a dialogue, reveal mental models (different perspectives), reveal connectivity and begin to converge on the nature of the issue(s). In other events, conversation mapping (2) was used to similar effect.

Following page:

Figure 4 Systemic inquiry into river basin planning



In some, but not all workshops, systems models as devices were used.³ The example shown here (3) is of developing a root definition of river basin management planning as a 'system to do ...'. Doing this participatively with key internal stakeholders (4) dealt in part with the politics and cultural context. It facilitated moves towards concerted action that were seen as feasible, for example the definition of the POMs project (5). The understandings and practices of those in the River Basin Management Project (RBMP) team clearly changed such that the situation was progressed as depicted within the SLIM heuristic (6). The Project Steering Group (as part of Workstream 4) monitored the overall inquiry and took control action when required. As we progressed, we developed measures of performance. These continue to be articulated, based on our reflections on the overall process and addressed in Workstreams 4 and 5 (7). We have also built capacity to use some of these tools – though more capacity is needed within the Environment Agency. Nor has awareness of the constraints to concerted action been widely experienced.

2.5 Co-researching in practice

By starting out systemically, the research team sought to work in a more innovative way with Environment Agency staff in terms of what was done, and how. One of the most important framing devices in the project was an emphasis on developing a co-researching role for managing it. The willingness of staff to accept this framing meant that other work streams could be explored and an agreed response developed as appropriate. This allowed all those involved (including the researchers) to learn their collective way towards progressing the RBP project.

In practice, this meant the role of the researchers differed from traditional forms of research or consultancy in two important ways.

First, the OU researchers and the Environment Agency agreed to compile an ethical statement to inform our practices and dealings with each other. The process of developing the ethical statement in itself became a means of building mutual trust and understanding. Second, the project was couched in terms of co-research, such that both parties agreed to work together to develop the project's focus, work and learning (see Appendix 2).

Co-research is a process of inquiry that draws on the perspectives, interests, skills and knowledge bases of the researchers and practitioners. The researchers and Environment Agency project team worked together to explore our collective understanding about river basin planning and generated knowledge by interacting with and talking to each other. This is in contrast to more traditional forms of research, where the researcher is considered as a 'neutral', 'outside' observer – separate from and looking into the system under study; or an 'insider' working directly within the system. Co-research activities can be distinguished further on four key points:

- its primary purpose is to develop practical knowing;
- it has collaborative intent;

³ Figure 2 is an example of a conceptual model which can be used heuristically at this stage as well (hence the arrow to this stage from number 6).

- it is rooted in each participants' in-depth, critical and practical experience of the situation to be understood and acted in;
- it takes into account many different forms of knowing (Reason & Bradbury, 2001).

The practical consequences of this approach varied. They manifested themselves in ways as diverse as agreeing to convene a workshop on a new emergent theme, facilitating a new stream of workshops associated with stakeholder engagement, holding a one-off meeting with senior staff to assess the implications for the future of the RBP and providing greater flexibility on budgets and work planning within the project.

Within this diverse set of activities, we identify at least two parts to the roles of the researchers.

First, to provide conceptual advice and feedback from the research team on, for example, parts of what was to become the Stakeholder Engagement Framework, the RBP project and the WFD programme more generally. The OU researchers provided advice that was meant critically to engage, support and develop the Environment Agency's thinking and practices and to reflect more widely on the RBP project as a whole. This was not intended to be along the lines of 'do it this way'. Instead, the researchers used systems concepts to help the Environment Agency think through some of the possible consequences of particular actions so that more informed choices could be made about courses of action. This role was informed by the ethical statement developed between the project staff and the researchers.

Examples of the work in this area are varied. At the beginning of the project, we spent considerable time with members of the project management team, helping them to clarify their needs and aspirations for the RBP project. Much of this work centred on dealing with the unintended consequences of the use of the PRINCE2 project management tool to provide systematic, but not systemic, understanding. This had major implications for developing the RBP project generally.

The range of conceptual advice offered also extended to the general planning and management of the RBP project. Early in the summer of 2004, the Environment Agency said that the RBP consultation document needed to be completed soon so that the Environment Agency Board could publish it in autumn 2004. This would have meant the consultation document being a purely internal document. The researchers advised against this on several grounds. The first was that such a strategy might save time now, but would likely require more time in revisions to accommodate the views of stakeholders at a later stage. Second, and more importantly, it was the view of the researchers that to publish a consultation document with almost no prior contact with stakeholders would probably undermine the development of the relationship between the organisation and its stakeholders. Overall, publishing the document so soon was felt not to be consistent with ideas of social learning. On the basis of this advice and other internal decision-making processes, the publication date was delayed so that stakeholder engagement workshops could be held in the summer of 2004.

More widely, the researchers were able to draw upon their experiences and knowledge of water management practices in Scotland, other parts of the EU and elsewhere to help the project team reflect on its own approaches. This took the form of several learning review meetings and ongoing advice during all stages of the project.

Another significant contribution to the project was the provision of conceptual advice on the specific aims, design, and facilitation of the RBP workshops and also workshops convened specifically to develop the Stakeholder Engagement Framework.

This naturally led to the second part of the researcher's role as facilitators of the various workshops and project team meetings. This is discussed in later sections.

We used various methods to highlight the participants' own experiences and enable collective insights into the situation and its context. These are discussed next.

2.6 Methods and tools

We used systems thinking and practice to design a series of activities to enable Environment Agency staff to begin to learn their way towards progressing complex, interdependent issues associated with implementing the WFD. In this respect, the project itself became a learning process about how to think and act about learning approaches to river basin planning. This is what we describe as a learning system.

The defining characteristic of the project – in terms of management of meetings and design and facilitation of project activities – has been to allow for emergence as a vehicle to enable learning. In particular, the workshops undertaken with various representatives from the WFD teams drew out the differing contexts, understandings and expectations of the participants as a prerequisite for progressing jointly negotiated issues.

Consistent with our emphasis on understanding the history of a situation, the context of the RBP project was assessed early on in a series of exploratory planning meetings and telephone conference calls with members of the RBP project team. This helped the researchers understand the project issues and the specific roles and concerns of staff better.

These discussions revealed a diverse range of contested perspectives on the nature of the 'problem'. Participants agreed that a series of workshops based on systems thinking and practice could help them to learn their way towards a collective appreciation of the issues concerning river basin planning. The workshops explored aspects of the WFD implementation process that were of concern to the RBP team. Some of these issues were identified before the workshops started. Others emerged during the course of the project, often prompted by the changing political and organisational requirements within and without the Environment Agency.

The exact format, methods and tools utilised in the workshops varied according to the issues under discussion, the audience, the purpose of the event and its duration. In broad terms, the workshops were divided into four main parts.

The first part of the workshops aimed to expose differences in understanding among the participants. This was done in activities using non-linear ways of presenting, using and analysing information (through, for example, developing rich pictures, metaphors, conversation maps). The second part of the workshops helped define the nature of the issue or problem emerging from the earlier discussions. This was often done through plenary discussion and reflection on what had emerged from the first part, with some

element of distillation of the core themes. The third part identified a series of activity models to enable participants to gain more systemic understanding of the issues and enable staff to progress the situation. The workshops ended with a plenary, next steps and review of learning and evaluation.

All of the workshops were designed to enable movement towards social learning by giving staff the experience of using various skills and techniques to help them learn about their own situations. Though we had hoped to develop a more co-facilitating role, in practice the OU research team facilitated almost all the workshops.

In line with expectations, the substantive part of the overall project, in terms of time and resources devoted to its undertaking, was focused on workstream 3 – river basin planning. Table 1 details the specific activities associated with this work stream, revealing the diverse and developmental nature of much of this work.

Table 1 Summary of main project workshop activities

1 Dec 03	Workshop 1 – Systems approaches, Birmingham
16 Jan 04	Workshop 2 – Systems thinking to explore the WFD, Birmingham
12 -13 Feb	Workshop 3 – Programme of Measures 2 day workshop, Birmingham
11 March	Workshop 4 – Decision-making for RBP , London
26 March	Workshop 5 – Convergence of planning processes for RBP , Birmingham
5 May	Planning meeting re: RBP stakeholder workshops, 5 May, Reading
21 June	Stakeholder engagement framework workshop 1, Leeds
22 June	Review of RBP project, London
25 June	Social learning planning and review with senior agency staff, Bristol
28 June	Stakeholder engagement framework workshop 2, London
1-31 August	Contributions to draft national strategies: 1. Public participation for the WFD 2. Social learning for RBP
11 Nov	Learning Review of RBP project, Reading
24 Nov	Progress review and exploring concepts for RBP, Milton Keynes

The above representation of activities reveals the diverse range of activities and key learning events encountered during the project. The learning which has emerged from these activities is discussed next.

3 Emergent learning

3.1 Key themes

The outcomes of the project can be understood in terms of emergent learning that has helped to improve / progress a number of situations. Some of these situations are associated with river basin planning and the implementation of the WFD. Others relate to the nature of project management, skills and Environment Agency practices. The outcomes of the project are discussed under the following situations, which the project has helped to progress:

- WFD implementation;
- river basin planning;
- Environment Agency practices;
- engaging with stakeholders;
- project initiation – POMS;
- academic reporting;
- project management.

Where appropriate, we have identified key learning points that, in our opinion, summarise important insights for understanding and practice. These are identified as boxed text.

3.2 Implementing the WFD

Though the project focused on river basin planning, the WFD context prompted discussion about the relationship between the WFD and river basin planning. It became clear that the Environment Agency intended to implement the WFD as a series of tasks identified in various internally produced blueprints arising from the project management tool, PRINCE2.

Discussions centred on how and where learning might occur within the WFD programme and on the extent to which the task 'blueprints' might respond to change while being implemented. It became apparent that there was limited appreciation of the WFD as an opportunity for staff to learn about the Environment Agency's own practices and concepts. It also became evident that the timetabling requirements within the WFD could denote a series of learning cycles. The result of these discussions was a development in thinking about learning cycles within the implementation of the WFD over the projected 27-year cycle. The move from a systematic depiction in the various blueprints to a more systemic depiction of the River Basin Planning project is shown in Figure 5. This is taken from the national consultation document on River Basin Planning (Environment Agency, 2005). The basis for this emerged during several workshops (see for example, Figure 7 below) and ongoing separate work by the RBP project team.

Figure 5 – The River basin management process

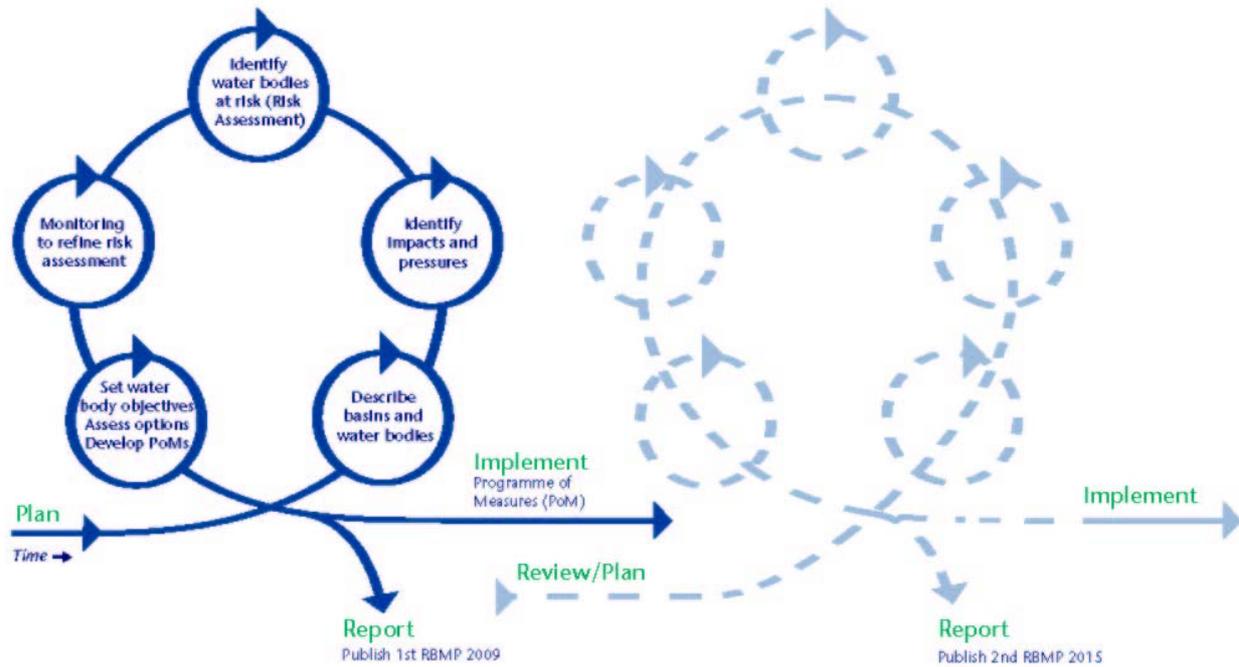


Figure 1: The River Basin Management cycle

Note: A Programme of Measures (POM) is a set of actions to achieve Directive objectives and RBMP is a River Basin Management Plan

The implications of this shift are important: it alters the concept of implementing the WFD to be a systemic process of learning *about* implementation rather than simply *doing* implementation. Within the RBP project and its management, too, there is a shift in the learning process, from a systematic to a more systemic perspective. This has led to insights into the nature of river basin planning. We explore these next.

Learning point

The most important outcome was the recognition that the ‘blueprint’ was systematic in nature and that the WFD offered an opportunity for the Environment Agency and its stakeholders to learn their way towards its implementation. This process would be based on several learning cycles, corresponding broadly to the timetable built into the WFD.

3.3 Complexity, uncertainty and interdependency in river basin planning

The approaches used helped the research team and the Environment Agency understand the nature of river basin planning and its relationships to other parts of the WFD programme. Particularly significant was the explicit analysis of complexity, uncertainty and interdependency, which made the nature of river basin planning much clearer.

At the start of the project, many staff struggled to make sense of the WFD and how it might be implemented. Though they wanted to develop an integrated approach, it soon became clear during the workshops that people felt confused and uncertain about how to do this. There was no clear idea about how the component parts of the WFD could be addressed coherently in river basin plans in the context of various internal and external policy and organisational requirements.

In response to this perceived complexity and uncertainty, staff were keen to 'focus down' on the detail. This was at the expense of understanding the systemic implications for river basin planning in particular. They tended, for example, to focus on 'how' to do something before first getting a clear picture of 'what' needed to be done.

The early workshops in December 2003 and January 2004 revealed widespread uncertainty and differing opinions among participants about:

- the roles and influence of DEFRA, ODPM, OFWAT;
- the interdependencies and hierarchy of relationships between the Environment Agency's other initiatives, eg catchment abstraction management strategies, flood risk management and water quality;
- interdependencies within the organisation concerning other WFD projects;
- scale issues;
- the nature and mechanisms for convergence of the business' practices;
- the role of the Business Implementation Project;
- the usefulness of PRINCE2;
- available resources;
- the language of the WFD and the Environment Agency's own languages;
- the content of the WFD itself;
- the focus of the RBP project team;
- tools and techniques to address the uncertainties.

In other words, individual staff and project teams were often developing very partial, highly differentiated and often incompatible mental models of the WFD. A key benefit of using systems approaches to enable social learning meant that these differences could be exposed and explored from the outset.

For example, in the early workshops, participants were asked to draw rich pictures of the WFD. This simple technique revealed the range of uncertainties, the significant gaps in knowledge, possible areas of controversy and interdependencies between different parts of the WFD project within and without the organisation.

Some examples of the rich pictures drawn in the workshops are shown below. Figures 6 reveals that some staff, by their own admission, had a relatively fragmented and disjointed understanding of the WFD at this early stage. At the same workshop, Figure 7, though drawn mostly by one person in the group, reveals a clearer conceptualisation of river basin planning. This is not to suggest that one figure is incorrect and the other correct. What is important is that the act of drawing clarifies the distinctions and similarities between conceptualisations of what river basin planning might entail and reveals gaps in understanding. At their simplest, Figure 6 and Figure 7 show the different ways in which river basin planning was understood at the beginning of the project. It was

during this workshop that the researchers and staff realised, for the first time, the extent to which there was no common conceptual framework among those responsible for key aspects of river basin planning. This placed limitations on the ability of the Environment Agency to plan effectively.

Figure 6 Early Conceptualisation of WFD/RBP

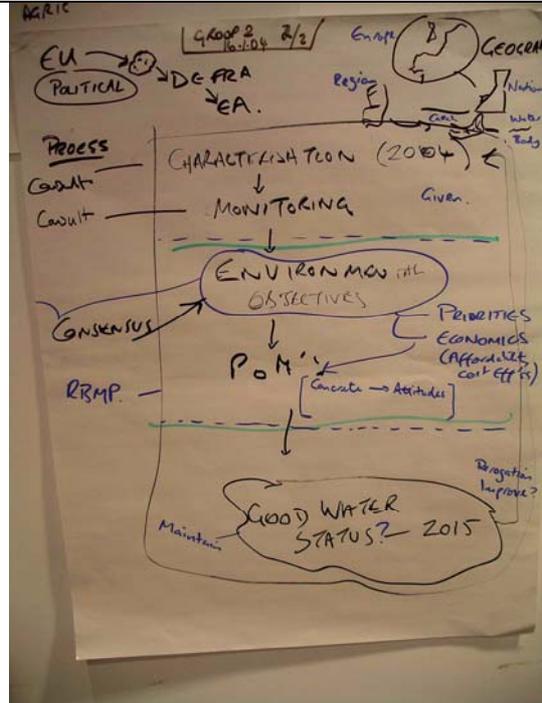
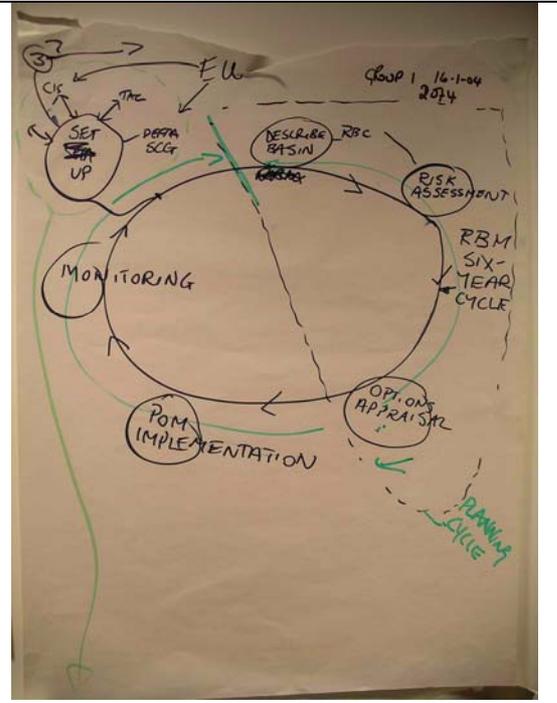


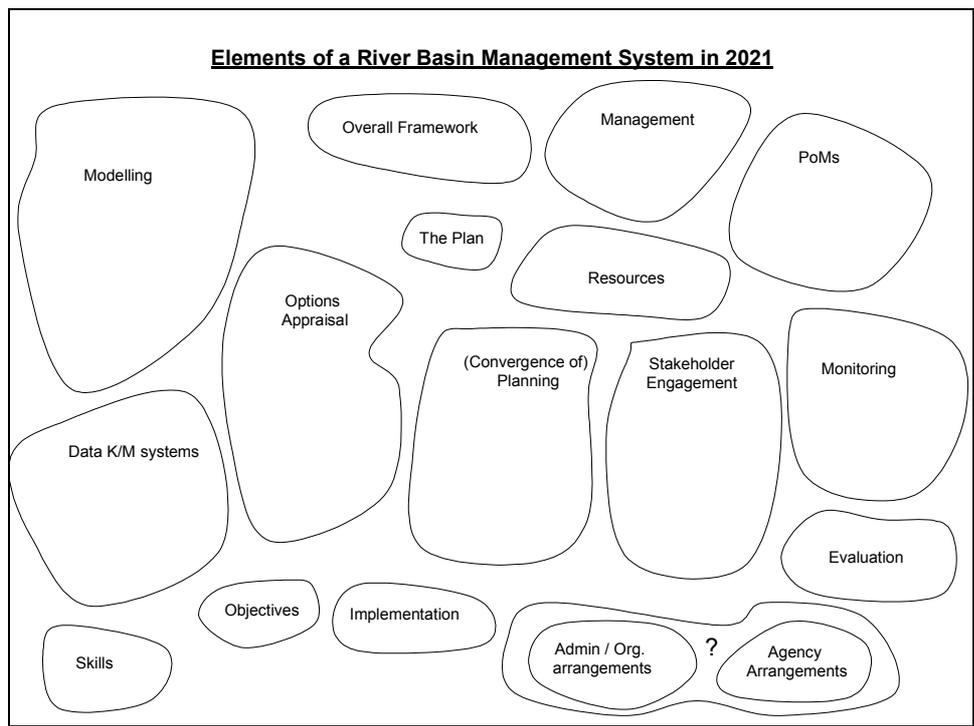
Figure 7 Early Conceptualisation of WFD/RBP



The diagrams, importantly, show uncertainty. But they also reveal a range in ability in terms of modelling a system in diagrammatic fashion. This is more than being able to draw nice, neat pictures. Systems diagramming requires – by drawing – a more rigorous analysis of what is being conceptualised as a system, how it is understood, relationships and areas of uncertainty. In our experience, this is an essential skill if people are to be able to communicate what they understand to others, particularly if the system being represented is perceived to be complex.

On this occasion, the fragmented sense of understanding became clear to the group. It prompted the following first draft of a systems map, drawing on the rich pictures and subsequent discussion. This is shown in Figure 8, which the facilitator drew with input from everyone else at the meeting. This mapping process revealed new insights into a significant interdependency and uncertainty around other Environment Agency activities associated with business implementation and the WFD blueprint.

Figure 9 Draft map of river basin management⁴



Learning point

Using systems diagrams as learning devices to progress these ‘messes’ significantly improved participants’ understanding of the task they faced and meant that ideas could progress rapidly during workshops. These experiences suggest that using more systemic methods to tackle issues perceived to be complex, uncertain and interdependent is a prerequisite for making progress in other, similar situations.

Insights into the complexity and uncertainties of the WFD using systems diagramming continued throughout the project as the WFD was explored in greater detail. The complexity was particularly evident in the development of the Programme of Measures Project and also in engaging with external stakeholders. We address these topics later.

Subsequent workshops began to build on the themes within river basin planning. Participants noted that significant advances had been made in identifying three main streams of work (RBP; economic appraisal and Programme of Measures). According to some participants, the workshop on convergence in March 2004, “revealed what we don’t understand” and “opened up new opportunities to work inside other people’s plans”. This marked a further shift in perspective from seeing river basin planning and/or the WFD as the cardinal determinant of the organisation’s activities to one where the convergence of the WFD with other existing activities became equally important.

⁴ If reading an electronic copy of this report, double click on the above diagram to reveal the individual suggestions made by participants. It is important to note that in conceptual terms this diagram is only a beginning and more work is required to fully develop it as a legitimate systems model and to build ownership amongst key stakeholders of any final outcome.

This shift in thinking emerged because we took the time to explore what convergence meant to different participants. Discussions raised questions around resource requirements, existing responsibilities, stakeholder engagement and the culture of Environment Agency's decision-making. These provided the context for the more focused discussions around the meaning of convergence itself: Was it 'streamlining'? Integration? Co-ordination? Efficiency planning? A transition phase? Or something else? Was it convergence of processes, of ideas or of practices? What would have to happen if convergence could be said to have occurred? These were not idle questions. The diversity of answers suggests there is much work to be done here among staff at all levels, and also among external stakeholders. This is because each different answer has an implication in terms of how people understand convergence and how it might happen. Addressing these questions during the workshops helped expose the different interpretations and understandings among staff.

Learning point

The workshop on convergence revealed many different understandings about what convergence is for and how it might happen. Significantly, it revealed that convergence was not simply about the Environment Agency converging *to* the WFD. Convergence of the WFD *with* other existing activities of the organisation became equally important. The dynamics and implications of this set of interdependencies remain to be explored in more detail.

3.4 Ways of working within the Environment Agency

In this section we draw attention to a range of ways of working ('practices') within the Environment Agency, based on our experiences in this project.

To our surprise, this was the first time that many members of staff taking part in the workshops had reflected, using a systems perspective, on their individual roles in the context of a wider set of activities and responsibilities. They appeared to welcome the opportunity to do so.

Given the range of inter-dependent, complex and uncertain issues with which the Environment Agency deals every day, we were surprised at the lack of appreciation of alternative, systemic project management approaches that are able to complement PRINCE2 (see Checkland & Winter 2004). We were also struck by the general unfamiliarity with systemic thinking prevalent among staff. Many were struggling (and, by their own admission, failing) to tackle complex issues using linear methods of thinking, which do not sit easily with the complexity, uncertainty and inter-related sets of issues within the WFD. In many instances, this produced, at best, a sense of frustration, unease and confusion. At worst, it resulted in a lack of critical reflection to the point where these inherent difficulties remained unrecognised, simply accepted as 'given' or even too difficult to deal with. This unease was perhaps most marked in the efforts to develop activity models about various sections of the WFD programme and associated events.

We suggest the prevailing situation was exacerbated by traditional meeting procedures. In our experience, these rarely dealt creatively with the agenda nor facilitated systemic practice. By contrast, the meetings held for this project used intellectual and conceptual

rigour, in order to develop agreement on the nature and purpose of the activities. This helped prompt new insights into the implications of the WFD for individuals' current practices and how these might be used to engage in more coherent action.

Any long-term benefits from our activities are, though, likely to be piece-meal at best. Our mandate was not to work at wider capacity-building, nor to suggest and develop ways for such new practices to be institutionalised.

3.5 Project initiation – The example of the POMS project

An experiment in using systemic inquiry coupled with learning approaches to launch the Programme of Measures (POMs) project within the WFD programme was held in February 2004. The RBP project steering group invited the research team to help design and facilitate the POMS workshop.

The two-day workshop used a combination of soft system methodologies (rich pictures, conversation maps and activity models) to highlight key issues associated with POMs and how to design the POMs project in order to address these issues.

As in the workshops on other themes, discussions revealed the complexity and 'messiness' of the conversations, the diversity of expectations, the range of themes connected to POMs; and general uncertainty and understanding about the project.

By the end of the first day of the workshop, some second order learning was emerging. People realised that the tasks associated with POMs would require new ways of working, particularly in relation to making decisions in complex situations. They were also getting new insights into the meaning of integration.

The second day of the workshop continued to raise concerns about the nature of POMs. These were explored in detail, by developing draft activity models of the POMs project. This proved to be useful in shaping some of the thinking around what the project needed to achieve.

Some felt that this significantly advanced the thinking around what POMs might entail and the nature of the POMs project. For some staff, it was the *"most important and useful workshop in years"*. Others found the workshop had enabled them to have new conversations. As one participant it, *"In the Agency, we use the word integration all the time. But this was the first time we've ever sat down and talked about what integration actually means"*. For others, the workshop process had helped *"generate a sense of ownership"* of the project.

Most participants seemed to feel that the workshop was worthwhile. Some, though, felt that the techniques used had not helped them clarify the nature of the POMs project or progress operational thinking. The primary reasons given centred on concerns that existing work and information was not used in the workshop, and issues of complexity were not progressed. Though we value this criticism as useful learning, it also suggests a pronounced mismatch between the requirements of newcomers to the workshops and core participants.

The POMs team provides a different perspective on this criticism. After the workshop, they admitted that having a blank sheet, no clear agenda and inviting some 30 participants to help define the project was “risky” and “terrifying”. A traditional meeting style, with presentations and question-and-answer sessions, would have felt “safer”. They had been anxious because the success of the workshop would determine people’s future involvement and interest. At the end of the meeting, though, a key member of the POMs team remarked that the workshop design and process had enabled “*Real progress to be made.*” The person added, “*I’ve become aware of the talent and support from colleagues to draw on in the future.*”

It is more difficult to assess the extent to which the workshop has shaped the POMs project in the long term, since the researchers have not been involved in the ongoing development of POMs.

Learning point

Project initiation relies on competencies in issues analysis as well as managerial skills. The involvement of other stakeholders to help learn about the issues and shape the design of a project can result in rapid progression of thinking and, importantly, provide an early steer. Bringing ‘newcomers’ up to speed on the issues can, though, hold back the core group’s work. The transformative potential of this way working relies on working with a core group that is willing to risk learning from possible failure as well as success.

3.6 Project management – an area of practice in need of systemic improvement

The use of project management tools such as PRINCE2 did reveal some of the systematic interdependencies inherent within the WFD implementation project. It also made clear the complexity of the WFD. Comments made during the early RBP workshops revealed, though, that some see PRINCE2 as a deadening ‘weight’ which imposed its authority on work practices. Individuals reported they felt ‘chained’ to preconceived ideas, often with little prospect of moving out or beyond the confines of ‘functional chimneys’. In our opinion, systematic coherence was being achieved at the cost of systemic understanding and practice.

The comments from Environment Agency staff suggest that the PRINCE2 methodology and/or its deployment was not particularly suitable for helping individual members of staff work out how to implement the WFD in a collective manner. In our experience, such tools tend to promote a singular view or definition of the problem; most often determined by a project manager. The definition can easily exclude the perspectives of those who might be responsible for implementing the change required. These drawbacks must be balanced against the undoubted benefits of this kind of project management tool – that is, it requires an explicit assessment and reflection on objectives, products or outcomes and interdependencies and can be used to check progress.

In practice, though, PRINCE2 seemed unable (or perhaps was not fully used as a learning device) to reveal the wider systemic relationships within and between different parts of the WFD projects. Instead, staff seem to be presented with a series of discrete tasks, while not really understanding their interdependencies. In turn, this presented a

potential trap for staff. It locked them into reductionist thinking (breaking things down into small parcels of separated activities) as the way to resolve complex systemic problems. Once in this trap, awareness of the wider systemic effects of an activity can quickly be lost. Project implementation then risks becoming an unresponsive progression through a list of allocated tasks and targets, accompanied by reliance on someone(s) or something else(s) to maintain a systemic perspective.

Instead of using PRINCE2 to drive practices, learning practices, if developed, could determine the more effective use of PRINCE2. This could help open up conversations about the definition of a problem and elicit understanding of different perspectives on the nature of the issues (i.e. embedding the systematic within the systemic – see Appendix 3). This is more likely to foster an understanding of the project context in which individual staff and project groups are working.

More widely, the involvement of staff in this project shows that much of the power and ability of learning to alter perspectives and change practices requires some form of experiential event. The power of these experiences is, though, difficult to communicate to others not involved directly in the event.

The absence of experiential learning opportunities and a reliance on written communications may, in part, explain the difficulty the RBP project team experienced engaging with the WFD Programme Board as a body. Other reasons probably centre on the emergent understanding of the project team themselves. The team members were very much in the process of learning about learning. With this uncertainty and emergent understanding, in the context of changing political circumstances, it is not surprising that the project team found it difficult to engage fully with the Board. Nonetheless, individual members of the Board who did participate in the workshops expressed considerable public support for the approaches used (personal comment made by senior RBP manager to the Ribble Conference, Preston, October 2004)

Learning point

In the RBP project workshops, the researchers noted that Environment Agency staff were not able to conceptualise the WFD as ‘a system to do...’ and could not therefore develop a set of activities that would enable the system level operations to be achieved. As a consequence, the nature of systemic relationships was either rarely explored, understood or actively managed. Unreflective or unknowing reliance on project management tools to deal with the system level issues is, we suggest, an increasingly precarious position for the organisation. Experiences of using systems practices in the workshops were generally positive and often accompanied by more creativity, insight, clarity and enjoyment. This suggests the skills for systems thinking and practice of key staff could be developed and enhanced so that the advantages and disadvantages of using project management tools are better understood from a systemic perspective. Soft systems methodology (SSM), a particular form of conducting a systemic inquiry, could be introduced as a project managing platform to complement PRINCE2. This would allow systematic and systemic perspectives to be maintained.

3.7 Continuity of engagement in an issue

Many participants attended only one workshop. As a result of changing memberships, the capacity of the workshops to clarify and progress the RBP project as a conceptual system was often undermined. This meant that a large proportion of each workshop was often focused on bringing people 'up to speed' on the different aspects of the WFD and the use of systems approaches. While this was still a valid activity, the more regular participants were 'held back' from refining their ideas and being given more opportunities to progress their thinking on the activity models they had developed in earlier workshops. This trend was also compounded by the shift in focus of each of the RBP workshops (decision-making; programme of measures; convergence etc). This meant that the work of previous workshops tended to be overlooked or remain relatively undeveloped.

Core staff were frequently redeployed to other activities or different parts of the organisation, which also made this process difficult.

This under-development of the conceptual thinking also stemmed from a failure by both parties to set aside time to develop an overall model of the RBP project that would emerge alongside and be informed by each workshop. This would have helped to 'ground' each workshop and enable connections to be made with emerging ideas. As it was, the workshops were, on occasion, covering old material and also operating in a vacuum.

With hindsight, it might have been more productive for a smaller core team to follow through the process of discussion, building activity models and reviewing to complete a 'cycle of learning'. This could then have been subjected to a new cycle of learning in workshops, bringing together a wider set of Environment Agency staff. There is, of course, a danger that the process would stall early on, precisely because the wider set of perspectives would not be included in the initial stages. There is no easy answer to this potential conundrum. In our experience, the boundaries of the learning cycle have to be negotiated so that they are useful to those involved and also responsive to users in later cycles.

Learning point

The shortcomings associated with the transience of group membership needs to be addressed in future project design and management, particularly for Phase II. A core group needs to be established to consolidate ongoing learning. This should be situated within the context of one or more rigorous conceptual models of the emerging systems of interest. More time should be allocated to consolidating the outcomes of workshops and promoting critical reflection for on-going model-building.

3.8 Daily working practices

The Environment Agency is a large and complex organisation. Its working practices can, at times, undermine the development of relational capital (see SLIM 2004) and the development of new communities of practice, which are required for implementing the WFD.

The workshops revealed the tensions that staff experience and the barriers to new ways of working that they encounter. They report that much of this difficulty arises from a combination of the organisational and decision-making cultures and the central need to meet the statutory responsibilities of the organisation. In many workshops, participants commented that the wider organisational culture was a key concern. The different parts of the Environment Agency were often described as a set of 'functional chimneys' or 'silos', illustrating the negative experiences of staff seeking to implement more integrated policies and working practices. On the more positive side, the search for opportunities for convergence and streamlining suggest that staff are keen to progress these issues.

Their ability to do so depends in large part on whether senior managers are willing to use this enthusiasm effectively. Ways to do this might include greater flexibility about budget allocation and spending in response to learning as it occurs. In tandem, ongoing review of tasks and activities to identify learning points and implications for current activities and future directions can lead to improved responsiveness. This is more than 'end of project' evaluation. Just as the Environment Agency has come to regard end-of-pipe pollution prevention solutions as inefficient, the research team would encourage the organisation to begin to embed learning processes throughout the life of complex and inter-dependent projects such as the WFD.

In many respects, the management of this project is itself an illustration of one way to proceed. From the outset, there was a commitment from the research team and project staff to explore the context of the RBP project. Rather than specifying in exact detail the nature of the work at the outset, we agreed to do this by working together to gain a better understanding of each others' needs, explore the nature of the issue and identify some possible jointly agreed activities. This learning approach to the development of the project resulted in the identification of the five work streams noted above. The activities within each work stream were subject to review and development throughout the life of the project.

At a wider level, the project also benefited from a review workshop convened with staff in April 2004. This provided an opportunity for participants in earlier workshops collectively to assess their learning to date and to reflect on its implications for future activities within the RBP project. We would emphasise the collective nature of this activity, since it was evident from all the workshops that there was no single shared perspective on the nature of the RBP project.

The review workshop – and also the final review by the project team in November 2004 – highlighted the importance of acknowledging differences and taking time to develop understanding among the different stakeholders. The role of language was considered particularly important.

Even so, in terms of organisation of the WFD programme, during the first workshop it became apparent that the boundaries between its different component parts overlapped significantly. As thinking by senior management developed, the relative roles of the RBP project, the WFD programme management team, and other areas of WFD strategic planning shifted. Much of this was outside the control of the project team and the researchers. It was beyond the scope of the project effectively to manage the further development of the 'big picture' underlying the RBP project and its business implementation.

We noted several key events that led to this dissonance. In particular, projects were added to the WFD brief without significant discussion among the existing projects. This led to more overlaps and confused roles and responsibilities. A 'panic' also ensued during the summer of 2004, when staff learned that Environment Agency Directors wanted business implementation plans for the WFD to be produced by the early autumn 2004. This meant attention and energies were rapidly focused on getting the RBP mapped into the operational side of the organisation. This was unsettling for the project team. It led to some loss of focus and impetus to the developmental work up to that point. The situation was not fully clarified until late August 2004, when it became apparent that implementation was to be undertaken without new money against a backcloth of a reduction in budgets for Environment Agency plans. As one senior manager put it, "The WFD ran into the business," and experienced this episode as being directed to "Tell us [the Environment Agency] what to do, but don't expect any money." We suggest that many of the key staff involved found this disheartening.

Members of the RBP project team believe that their role would have been easier if there had been greater clarity about the overall programme, more dialogue at the start with other projects and more time for ongoing discussions. This would have been easier to accommodate if the WFD programme had been conceptualised as a learning process from the outset. Instead, it was an implementation process, where it was assumed that the 'what' of implementation was known.

The project team, in reviewing Phase I, attached considerable importance to the style of meetings. They suggested that meetings needed to be slowed down to have more meaningful conversations. This was perhaps in reaction to the urgency attached to many aspects of the WFD programme. These sentiments were echoed more widely in several workshops where participants expressed concern about the lack of discussion on the underlying meanings or assumptions of key concepts.

Learning points

The learning emerging around daily working practices can be summarised as follows:

- refinement of models as devices for conversation to enable reflection;
- good design and good workshops can enable these conversations and lead to learning;
- establish early dialogue with other projects;
- slow down meeting styles to have meaningful discussions;
- clarify ownership of projects and responsibilities;
- establish greater clarity about the WFD programme;
- situate the systematic PRINCE2 methodology within a more systemic SSM-oriented project management framework and build capacity to benefit from such a shift.

3.9 Meeting culture, design and facilitation

Many Environment Agency staff commented informally that the organisation's culture of meetings and decision-making tended to constrain thinking and practices along existing lines. This characteristic is often reinforced by managerial hierarchies. Anecdotal evidence from a number of projects within the WFD portfolio suggests that this experience is not limited to the RBP project. Frustration was evident, but there was accompanying uncertainty how to change this culture.

This suggests that the Environment Agency has yet to develop its skills and competencies associated with designing good processes. These kinds of skills are often under-rated. Our research and experience suggest such skills can underpin or undermine the success of learning processes in meetings and workshops with internal and external stakeholders.

To this end, the OU research team had hoped to be able to develop the Environment Agency's experience of workshop design and facilitation skills. From the outset, project staff were actively encouraged to contribute to the design of workshops through face-to-face meetings, telephone conferences and email exchanges and, of course, during the workshops themselves.

The design aspects were often keenly discussed. In practice, though, the researchers facilitated almost all the workshops. On the one hand, this was entirely appropriate. It ensured that project staff could participate in the meetings and to contribute their ideas and experiences without being distracted by process concerns.

On the other, facilitation experience within the organisation is unlikely to increase if this situation continues to prevail. An internal trawl for possible co-facilitators for some internal workshops in the regions during 2004 revealed a paucity of experienced 'in-house' facilitators. While there is a loose internal network for skills-building in this area, it does not seem to be particularly invigorated or supported. This suggests that the Environment Agency has yet to recognise facilitation as a core part of staff skills and training.

Until this is addressed at a managerial level, the organisation will have to continue to rely on outside consultants to develop appropriate processes and facilitation. In practice, this often means that the learning associated with the 'doing' of a project tends to remain with the consultant. In short, facilitation skills will remain 'something someone else does for us'.

We agree with views expressed in some of the workshops that the Environment Agency has already made significant progress in changing the ways it engages with stakeholders. But we also encountered an underlying perspective that construes stakeholder engagement and/or public participation principally as 'opportunities for the organisation to educate members of the public and stakeholders about the WFD and its implications'. This does not equate with a learning approach, since it privileges a particular set of perspectives (the Environment Agency's), reinforces existing, often one-sided power relations and gives little suggestion that the Environment Agency may itself change as a result of stakeholder engagement.

In contrast, a learning approach requires the Environment Agency to reflect on the ways it constructs its relationships with stakeholders such that diversities, complexities and uncertainties are openly acknowledged and progressed collectively rather than being overlooked or ignored.

Increasingly, organisations such as the Environment Agency will have to work with stakeholders in many different ways. Developing an awareness and sensitivity to stakeholders' ideas and developing good process design and facilitation skills is, we suggest, an increasing part of the core skills that staff will need to implement complex environmental initiatives in ways that respond to the stakeholders affected and who affect the organisation. This is particularly important now, as the more public phases of the WFD programme progress.

Learning point

Many staff experience the Environment Agency's 'meeting culture' as constraining. More widely, the level of facilitation skills and process design skills within the organisation are essentially unknown. Too often in vital events, they appear poorly developed. The end result is that stakeholders have a poor experience, compatible with the processes associated with many internal meetings.

A key message emerging from the project is that learning approaches require new forms of thinking and practices. Workshop design and facilitation skills are an important aspect of engaging with internal and external stakeholders, since they underpin the potential for learning. A key step towards enabling learning processes would be to recognise facilitation as a legitimate and valuable skill for staff to develop and to ensure that resources are allocated to increase the competency levels in this area. .

3.10 Engaging with stakeholders

The experiences of acknowledging and working with uncertainty through learning approaches within the RBP project and with other parts of the Environment Agency, prompted the project team to experiment with a similar learning-based process with external stakeholders. As one member of the project team suggested, seeing it work within the organisation gave them the confidence to use the 'blank sheet' approach with external stakeholders. Convened during June and July 2004, the workshops aimed to test early responses to the emerging RBP strategy and stakeholder engagement framework.

Both internal and external stakeholders commented that these were useful learning events. In particular, many felt it was an important opportunity to hear different perspectives, even if this simply resulted in recognition of agreement or differences. Understanding implementation in the context of the different Environment Agency regions proved to be particularly important. It enabled staff to learn about specific issues not immediately obvious to the core project teams working on RBP or stakeholder engagement.

For example, one workshop raised concerns about the effectiveness of decision-making and differences in participants' understanding between consultation and participation. It also raised concerns about the status of stakeholders and how the Environment Agency

could enable stakeholders to participate through resourcing and training. Referring to some new information from an external stakeholder about WFD planning processes, one Agency staff member commented, *“I am really very, very glad that we found that out now rather than later.”* The external stakeholders commended the project team on its openness, willingness and ability to engage with stakeholders in ways that promoted this kind of exchange and learning.

Learning point

Engaging with stakeholders can be a learning experience for all those involved. It provides opportunities to hear different perspectives, which can inform understanding and practices and provide a basis for developing ongoing relationships. It is also a process of building relational capital.

4 Social learning & the Environment Agency

4.1 Introduction

This section discusses some of the wider issues associated with adopting social learning approaches in the Environment Agency's WFD activities and practices. These include:

- developing conceptual clarity about social learning within the organisation;
- learning within the project team;
- benefits associated with social learning;
- risks associated with social learning.

4.2 Developing conceptual clarity about social learning in the Environment Agency

Social learning through enacting particular forms of systems practice became the organising principle for this project. This meant that all of the activities undertaken were attempts to learn our (staff, stakeholders and researchers) way towards an understanding of river basin planning in the context of the WFD. This commitment to social learning underpinned many aspects of the project, including the documentation, design, practices and reporting of the activities and events associated with the project.

A key contribution has been to enable the Agency to recognise the WFD as a complex issue, with interdependencies and multiple stakeholding, which therefore requires approaches that can take these characteristics into account. The SLIM heuristic device (Figure 2) and its component variables provide insights into to progress situations towards more concerted action.

Before becoming transposed into law, the development of the WFD set in train certain tendencies and practices, not least the imperative for learning approaches in participation, as set out in official guidance to member states.

Around the core issue of implementing the WFD (and in particular the development of the River Basin Planning), this project also revealed different ways in which multiple stakeholders construct stakeholding. It showed that their views are consistent with their different understandings of ecological constraints and that they are shaped by a myriad of institutional practices and policies. These differences – as well as common ground – were brought to light. This was done using systemic devices to enable social learning about river basin planning.

To this end, the project has increased stakeholding through facilitation. But it has changed institutional arrangements and practices only in terms of experimentation

around project start-up of POMs and in terms of engaging with external stakeholders. Ideally, more co-facilitation of this process by staff could have taken place. This would have left a stronger internal legacy to perpetuate and spread these practices.

Learning about learning may have progressed significantly within the project team. Our collective experiences suggest, though, that most participants did not recognise or understand the *intellectual* framing of social learning as an organising principle. In other words, few are likely to have understood the activities they experienced as social learning. At one level, this does not matter. The practices themselves can lead to participants learning about their roles and activities within the Agency. At another level, though, we feel that ongoing learning depends largely on the capacity for critical reflection on what is being done and how it might be improved. This requires a more developed awareness of one's actions and roles in relation to others. This is unlikely to be achieved easily if practices remain 'automated', since there will be limited conceptual understanding of reasons why these practices might need to be changed, or how.

There are various reasons why the conceptual clarity about social learning as an activity did not develop.

The main reason was the changing membership of participants within each workshop. This hindered the development of skills and understanding of those who had attended previous workshops. And it meant that those attending only one workshop did not progress beyond a basic level. The project team identified time constraints and a failure to introduce more formal review sessions in the management of the project as other key reasons. A diverging focus between the RBP consultation document and stakeholder engagement strategy during the summer of 2004 probably contributed, too.

Learning point

Based on the experiences in this project, we suggest that membership of future workshops be developed so that a 'core' learning group is maintained as much as possible. This will enable a more sophisticated understanding of learning processes to emerge. Newcomers can be accommodated as required, but this needs to be done carefully to ensure actions, understanding and critical reflection progress together. Learning reviews need to be integrated into the main project activities.

4.3 Learning within the project team

Several critical incidents helped to open up the intellectual framing of social learning within the project team. The first was the close role developed between the researchers and the project manager(s). This helped to expand our collective understanding of the intellectual framing of social learning in the context of the Environment Agency's needs and requirements. This has been progressed further in on-going discussions with the project manager around the conceptual paper on social learning (see Appendix 1). In addition, several academic papers are being prepared for publication (see Appendix 4).

The early workshops in December 2003 also exposed the intellectual framing of river basin planning, through the use of systems diagramming and processes of eliciting the

system of interests associated with the WFD. In June 2004, a meeting with senior project management staff explored the notions of, and distinctions between, difficulties and messes and ways of improving 'doing' and understanding within the organisation. Further meetings with various project staff in November 2004 also helped to explore the framing of social learning through discussions about participation and land-use planning. We have also become aware of new conversations within other parts of the Agency about 'messy' issues and how to deal with inter-dependencies.

While the project team has been more exposed to the intellectual framing of social learning and systems thinking, it is clear that this has yet to translate into an improved conceptual model of river basin planning and social learning. This will be a key focus of the next phase of the research, beginning in early 2005.

4.4 Benefits and risks of social learning approaches

There are several difficulties of assessing the benefits of social learning. In the first instance, what is considered as a benefit by one person may be considered a risk by another. Even within the RBP project team, some saw certain events or activities as risks or of no value, while others saw them as benefits. In addition, risks and benefits may take time to materialise – only then can an informed assessment be made. What may appear as unhelpful initially can, over time, be later understood as a benefit. Third, the relative unfamiliarity of social learning approaches, especially as new groups of staff became involved, made it more difficult accurately to assess participants' views on the possible benefits and risks at any one time. For these reasons, the risks and benefits of social learning approaches to river basin planning are difficult to quantify with certainty. This must be borne in mind in the following paragraphs.

4.4.1 Benefits

One starting point to explore the potential benefits is to focus on the risks of continuing with existing practices. For example, participants in several early workshops expressed their dissatisfaction with the PRINCE2 as an overly rigid and complex management tool. Its usefulness in enabling implementation of the WFD of river basin planning hinges on one question. Would the river basin planning project be limited to an administrative function? Or would it be a higher level attempt to conceptualise the practices and ideas the Environment Agency might need to address in implementing the WFD? We think that PRINCE2 *per se* is inadequate for managing the initial stages of a 'convergence' process. Convergence has major implications across the whole business. It will require considerable shared conceptual and systemic understanding among key stakeholders. This is also unlikely to ever be knowable in advance. Therefore, 'blueprinting' and/or disaggregating into component parts can be misleading and constraining.

In terms of the current work, this suggests that one risk of 'doing what we've always done' would have been to relegate river basin planning to an extended version of Local Environment Agency Plans or similar area-based management plan. It is doubtful that this would have addressed or enabled the level of integrated working across a wide range of stakeholders, which the WFD will ultimately entail.

At the end of the project, some members of the project team noted some key benefits. Perhaps the most easily overlooked benefit was creating the circumstances in which experienced managers were able to give themselves permission to acknowledge that they did not know how or what to do in a given situation. Though simple, this acknowledgement was a powerful development. It enabled a stepping back, to reflect on the purpose of a particular goal, the nature of the issue under consideration and current understandings, skills and approaches to achieving that goal. This typifies double loop learning – when the underlying understandings (goals) are questioned and challenged. (Single loop learning involves continuing to do the same thing – even if it might be the wrong thing – more effectively).

In the case of the RBP project, comments from participants and the project team suggest that a learning approach embedded in the use of systems ideas helped to provide the conceptual tools to express and explore confusion and uncertainty. Systems type approaches then enabled these to be progressed in a collective discussion. This encouraged creativity and exchange of ideas, leading to new insights about possible practices. In other words, using systems thinking became a way to enable social learning among staff about what river basin planning might be about and how it might be understood and enacted. In its simplest form, this was expressed by some members of the project team, who said that it was "a relief" to realise and *admit* that the project was complex and not easy to progress.

In our opinion, this kind of realisation is necessary to help move the Environment Agency away from the notion that 'expertise' about what and how 'to do' the WFD resides with one or two key staff or as a single organisation. Instead, within their limitations, the workshops allowed participants to have an improved sense of their uncertainties and better understand their roles in relation to others towards a common goal. It also led to the emergence of ideas on ways to progress the issues being considered.

This was particularly the case with the early workshops, the two-day workshop on developing the POMs project and also the external stakeholder workshops. The emerging views of participants helped to raise and clarify many areas of uncertainty. They gave significant initial shape and impetus to the POMs project. As a result, the project team altered its management style by opting for a larger project board to incorporate the diversity of views and experience. In the instance of the external workshops, these fed directly into the development of the draft river basin planning documents that were being developed for national consultation in January 2005.

Despite these positive aspects, there was an underlying failure to marry soft and hard aspects of the RBP project with the political realities of the environment in which the RBP team was working. This is perhaps unsurprising given the significant changes that occurred in the context and management of the WFD programme over the lifetime of the project. Given the investment in PRINCE2 type methodologies, a new management and learning environment within the RBP project which combines both 'soft' and 'hard' elements, where PRINCE2 is seen as part of the context of managing projects and not the chief feature, will take time to emerge and stabilise. A commitment has been made to begin to develop this aspect within the context of Phase II of the project.

Learning point

For Environment Agency staff, combining systems thinking and practices is a way to enable social learning about what river basin planning might be about and how it might be understood and enacted. By highlighting confusion and uncertainty, this method can lead to greater understanding of the nature of the issue and how it might be progressed. Recognising that an issue is beyond the capabilities of one individual, team or one organisation can result in a more positive approach to learning through facilitated stakeholder engagement.

4.4.2 Risks

Risks associated with continuing with existing practices have been noted above. In terms of risks associated with adopting social learning approaches, the experiences of this project suggest there are a number of generic risks pertaining to the general procedures of the Environment Agency and how they relate to its staff and external stakeholders.

Expectations

Opening up discussions among a wide range of staff about ways to enable concerted action can cause an individual's or organisation's expectations to shift and rise rapidly. If these are unrealistic – or if they are not supported by parallel changes in organisations and institutions, either to enable the new understandings to be acted upon or the expectations to be met – frustration and disappointment can follow rapidly. Some evidence for this was noted with the RBP project. At various workshops, the researchers became aware of significant and widespread concerns relating to management of the RBP project and the WFD in general. In contrast with the more open deliberative experiences in the workshops, staff experienced some aspects of decision-making for the WFD project as very 'top-down' and felt powerless to change this.

Expectations need not be positive. Some staff expressed the view that the social learning approach was not necessary or led to more confusion. They felt either that existing practices were sufficient, and/or that these already incorporated learning practices. Many staff who already consider themselves overburdened by process and administrative requirements may express similar levels of reluctance.

It is difficult, though, to be precise about how widely this view is shared among the Environment Agency staff who participated in this project, or the exact reasons for this view. Informal responses suggest that poor management, overwork, administration, geographic separation of staff and bureaucracy are key issues that undermine staff motivation to get involved in something that they perceive to be as 'extra' to their core role and skills.

Similarly, there is a clear risk that the level of investment in building trust and relationships among many staff in any individual or all the RBP workshops is not continued. There is also the risk that the outcomes, in terms of organisational practices and approaches to implementing river basin planning, do not reflect the aspirations of those who took part in the workshops. The extent to which these risks might occur is difficult to predetermine, since final decisions are often outside the remit of the RBP project or its Board.

The changes that Environment Agency directors wanted made to drafts of the RBP national consultation document are an example. This can send a signal to middle management that there is little point in trying to be innovative or open up new opportunities for new conversations, if these will then 'closed down' or by-passed by other parts of the organisation. On the other hand, the Environment Agency operates in a rapidly changing political and resource context. This can lead to lags in awareness of current 'political realities' at different levels within the organisation.

Learning point

Social learning approaches can raise expectations among staff. This can place increased pressure on managers to support and enable the expectations to be realised to some degree, or to demonstrate adequately why they cannot be met. Equally, it will be important to acknowledge that some staff will be reluctant to engage with social learning approaches for many reasons. The key to managing both sets of expectations is to demonstrate how social learning approaches embedded in systems thinking and practice can enable staff to do their *existing* jobs more effectively, even if there are up-front costs in skills investment. In keeping with a learning approach, this would be achieved by enabling staff to experience the techniques and approaches for themselves, in a way that does not impose, and in an environment that is supportive. This is more likely to enable staff to determine the relative merits and disadvantages of the approaches for their own work.

Time

The increased up-front investment in time required to build relations, trust and understanding for learning is an important consideration. On the one hand, social learning approaches risk slowing down processes and timetabling requirements and generating a sense of 'only talking and never acting'. Again, this applies to internal and external stakeholders. On the other hand, not allocating enough time to enable up-front investment in trust and relationship building can lead to the failure of later substantive discussions. This leads to a further associated risk: that the Agency does not recognise this possibility and sets aside these concerns.

There were relatively few instances of this eventuality in the RBP project. Even so, in June 2004, pressures to meet internal deadlines for publishing consultation documents came close to being the most important criterion in deciding whether to hold a series of workshops with external stakeholders. If this had occurred, it would have risked undermining the ethos of the learning approaches in decision-making and notions of participation in the context of national stakeholder consultation.

Learning point

Social learning approaches are based on trust and building relationships between multiple stakeholders. Enough time needs to be allocated at managerial and project level as a key part of the learning approach to implementing the WFD.

Evaluation

Evaluation is an increasingly high profile topic in all projects (ODPM, 2004). Learning approaches provide opportunities to learn about the topic (first order learning) and the

doing of that topic (second order learning). In general terms, the risk is always to focus on first order learning at the expense of the latter. End-of-project evaluation tends to be seen as the main vehicle for learning. Even where second order learning is identified, if done at the end of a project, it is too late to implement the learning. This has much to do with the time required to review second order learning, and perhaps also the willingness to engage in what can sometimes feel like 'uncomfortable' examinations of one's own practices.

Learning approaches are significantly more demanding than 'end of project' type evaluations. This is because learning requires more on-going analysis of what is occurring in a project at any given time, an exploration of the reasons why these events might be occurring, and a willingness to take responsibility to alter activities and behaviour in response.

In the RBP project, as already noted, this aspect could have been enhanced with better time and management procedures or some reallocation of roles and responsibilities among Agency staff. For example, it became clear quite early on that the RBP project did not have enough staff to achieve what was required of it.

In many respects, the relative failure to achieve a higher level of on-going learning – even in a project about social learning – demonstrates the ease with which it is side-lined, overlooked or simply forgotten amid the demands to complete 'everyday' activities in a dynamic context. In our experience, this is exactly the kind of instance where learning can be most useful.

Learning point

Learning and evaluation should be distinguished as different activities undertaken at different stages, for different reasons with different outcomes. More emphasis should be placed on learning cycles *within* projects and activities to enable the learning that emerges to shape the remaining activities. Time needs to be set aside regularly to step back from the immediate concerns and needs of the RBP. This will be addressed in the design of Phase 2 of the RBP project.

5 Concluding comment

One of the key aims of the project was to provide members of the RBP team with an ongoing opportunity to learn their way towards a meaning and practice of river basin planning, first in conjunction with a range of other Environment Agency staff and, later, with external stakeholders.

This aim has certainly been achieved in many different ways, both at project and individual levels. Participants commented favourably about the project on numerous occasions. There were also many insights into the nature of the tasks facing the RBP project team and its internal and external stakeholders. Much of this clarity arose because applied systems thinking and practices was used to enable social learning.

Despite this, the project did not result in a 'final' robust conceptual model of river basin planning built on the work from earlier workshops. This was principally because of continual shifts in priorities and agendas and changes in personnel and project resourcing.

Some members of the project team saw the lack of a 'final' model as a failure. Others felt that the groundwork undertaken in the early workshops helped the RBP structure at project level to retain its shape. Developing a more robust model of river basin planning will be addressed in Phase 2 of the project.

APPENDIX 1

Social learning theory – a review

Chris Blackmore
Open Systems Research Group, Open University
c.p.blackmore@open.ac.uk

What if we assumed that learning is as much a part of our human nature as eating and sleeping, that it is both life-sustaining and inevitable? And what if, in addition, we assumed that learning is a fundamentally social phenomenon, reflecting our own deeply social nature as human beings capable of knowing? Etienne Wenger

*The word 'learning' undoubtedly denotes change of some kind.
To say what kind of change is a delicate matter.* Gregory Bateson

Introducing this review – theorising social learning

Social learning can have many meanings depending on how it is theorised. This short paper aims to give an overview of the different theoretical traditions and interpretations which have relevance to our understanding of the development and use of social learning.

The paper introduces some models and theories of social learning which have arisen from a range of authors working in diverse fields. In this respect, social learning theory refers to a group of theories not to one specific theory. Ideas that inform or could inform the practice of social learning come from a wide range of sectors, traditions and disciplines. The discussion reveals that our understanding of learning has moved away from an educational emphasis, with its focus on individual learning, to one where learning occurs through some kind of collective engagement with others.

While there are many strands, the notion of single, double and triple loop learning emphasises the need for a more critical awareness of implicit conceptual models, which are embodied in practices and recognition of traps in our thinking and behaviour. The review also identifies a close link between learning theories and debates about sustainability, in particular the importance of learning as part of adaptive management approaches. This builds the foundation for the notion of communities of practice.

A key insight from many of the learning literatures is that our beliefs and practices are underpinned by theory of some sort. The difficulty arises when our awareness of the mental models we use to inform practices remain implicit or trap us into limiting the ways that we ask questions and organise data, what structures and relationships we notice or what meaning we take from a situation. Traps in thinking can be recognised by understanding a range of theories of learning. Greater understanding leads to more choice of conceptual, and potential methodological, tools to use in different situations.

Such tools, when used effectively, have the potential to improve discourse in many sectors, both on learning and on sustainable development; support purposeful and concerted action for natural resource management; and support cultural and institutional change through challenging individual and group values and assumptions.

While there is much diversity, there is agreement on the existence of a social dimension in nearly all theories of learning, even if they are centred on an individual. So, what constitutes a theory of social learning rather than a theory of learning? This review details elements of social learning theory that the Environment Agency might find most insightful and relevant to the questions it is currently facing and will face in implementing the Water Framework Directive. The measure of 'relevance' is also based on the practical work on social learning the research team has undertaken with the Environment Agency over the past 12 months.

Some models and theories for social learning

(i) The place of social learning within learning theories

The Danish author Knud Illeris (2002) has positioned a wide range of learning theorists and theories in what he calls the tension field between the cognitive, the emotional and the social. He positions these three aspects as points of a triangle and places theories and traditions as well as people on this model (see Figure 1).

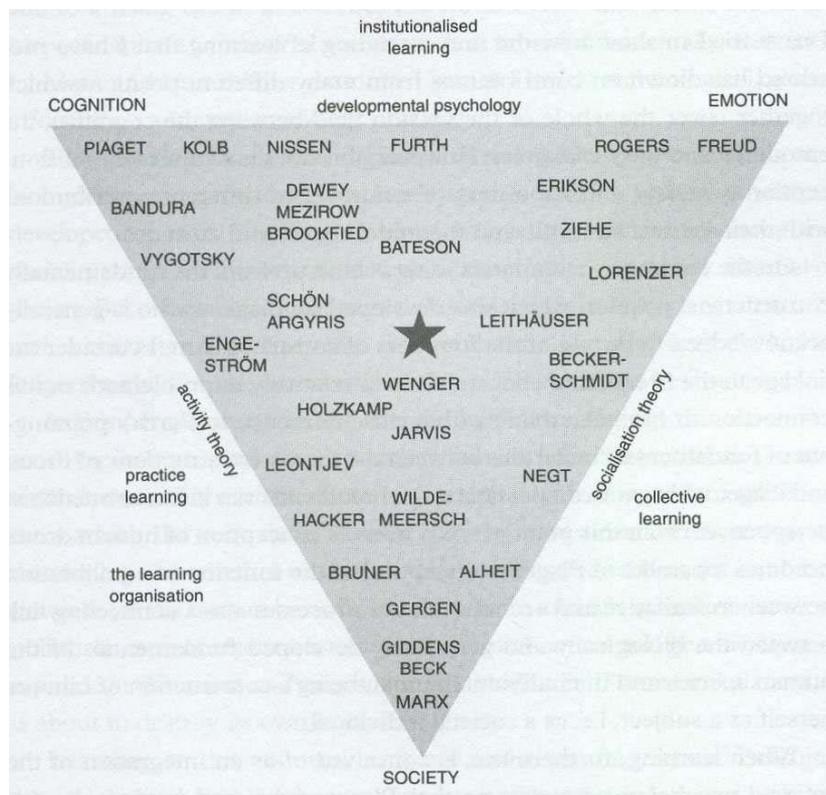


Figure 1 Knud Illeris' model of positions in the learning theoretical tension field. (Source: Illeris 2002 p. 237)

Illeris' model contextualises social learning among other perspectives on learning. He comments that "the term social learning crops up in many contexts but even so has

never quite achieved the status of an independent sphere of research" (p123). Given ongoing developments regarding social learning, e.g. its appearance in calls for bids and projects funded by European Union, this may well change.

(ii) Three levels of learning – from 'more of the same' to breaking habits.

Bateson appears in Illeris' model quite close to the centre of the field as he made many contributions to learning theory. In 1973, he offered a structure of three levels of learning that has been highly influential among learning theorists. He started by applying Russell's theory of logical types to the concept of learning and actually conceptualised more than three levels but thought only Learning I, II and III were those likely to occur on earth! These three levels can be described as Level I – first order learning: that is routine learning that takes context as given. Level II – second order learning – is not confined and involves learning about the context of level 1 so that it is possible to compare different approaches. Level III learning takes another step back again, in order to learn about the contexts of level II or, as Bateson suggests, to break the habits of level II learning.

Bawden (1995) cites cognitive psychologist Karen Kitchener's (1983) suggestion that Level I learning is about cognition and deals with *knowing*, Level II learning is about meta-cognition and deals with *knowing about knowing* and Level III learning is about epistemic cognition and deals with *knowing about the nature of knowledge*.

While these three levels are not specific to social learning theory, they raise some important questions regarding what may be going on in social learning processes that might be wanting to move away from routine learning by questioning assumptions and doing something quite different. Use of the three levels of learning as a hierarchy may also help contextualise learning and encourage a systemic approach. Many theorists have built on Bateson's work on levels of learning.

(iii) Single, double and triple loops of learning used interactively and in a social context

Chris Argyris and Donald Schon's ideas on single and double loop learning in the context of organisational learning (Argyris 1976, Argyris & Schon 1978) have some similarities with Bateson's learning levels, but single loop learning is often mapped onto Level II learning, and double loop learning onto Level III, which can be confusing. Double loop learning theory is linked to a theory of action (Argyris and Schon 1974) from a starting point that by uncovering their own theories of action, managers could detect and correct errors.

"When the error detected and corrected permits the organization to carry on its present policies or achieve its present objectives, then that error-and-correction process is *single-loop* learning. Single-loop learning is like a thermostat that learns when it is too hot or too cold and turns the heat on or off. The thermostat can perform this task because it can receive information (the temperature of the room) and take corrective action. *Double-loop* learning occurs when error is detected and corrected in ways that involve the modification of an organization's underlying norms, policies and objectives." (Argyris and Schon 1978)

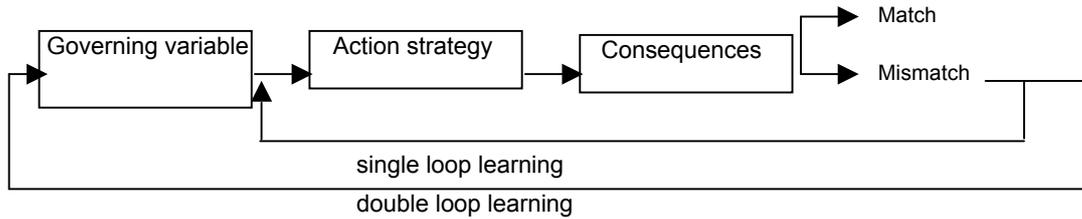


Figure 2 Single and double loop learning (Source: Argyris and Schon 1978)

Social learning is implicit when a theory of double loop learning is presented in an organisational context, as an organisation's norms, policies and objectives would very rarely be determined by an individual but in processes of interaction. However, the role of *both* individual and collective learning is described in the work of Argyris and Schön.

Many people have used and adapted Argyris and Schon's ideas on loops of learning (e.g. Senge 1994) and some have extended them to ideas of triple loop learning. (e.g. Flood and Romm 1996)

(iv) Learning approaches to sustainable development – the triple bottom line.

Whether expressed as three Ps – people, planet and profit or three Es – environment, economy and equity – all approaches to sustainable development include a social dimension and usually acknowledge the need for learning approaches to change.

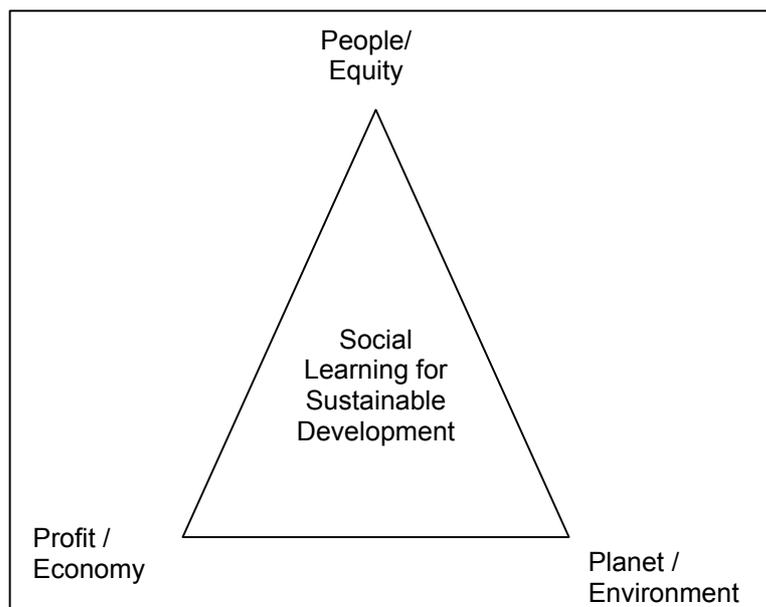


Figure 3 The triple bottom line of sustainable development

Examples of social learning theories, developed and used in this context, have come from Finger and Verlaan (1995) who developed a conceptual framework for social-

environmental learning, Daniels and Walker (1996) who considered collaborative learning and improving public deliberation in ecosystem-based management and Woodhill & Röling (1998) who looked into the human dimension in learning our way to more sustainable futures. This work has since been built on and there are many others who have written about social learning (e.g. Leeuwis, C and Pyburn, R. 2002, Finger and Asun 2001, LEARN group 2000, Wildemeersch et al 1998).

Some of these authors have made links to work on complex adaptive systems explored in the works of Lance Gunderson, C.S. Holling and Carl Folke who link up through organisations such as the *resilience alliance* (<http://www.resalliance.org/>). The main aim of this group is to:

‘improve understanding of the dynamics of social-ecological systems with a view to learning how to effectively influence their *resilience*, *adaptability* and *transformability*.’

Use of these three concepts is often attributed to a tradition of 'adaptive management' as well as resilience. Social learning theory is used both implicitly and explicitly in this tradition, as can be seen from the following quote cited by Carl Folke (2003) in a paper that highlights social and institutional dimensions of catchment management.

‘Adaptive co-management is a process by which institutional arrangements and hydrological and ecological knowledge are tested and revised in a dynamic, ongoing, self-organized process of learning-by-doing. The sharing of management power and responsibility may involve multiple institutional linkages among user-groups or communities, government agencies, and non-governmental organizations. Adaptive co-management relies on the collaboration of a diverse set of stake-holders operating at different levels, often in networks, from local users, to municipalities, to regional and national organizations, and also international bodies’ (Olsson et al. 2004).

Folke (2003) was considering adaptive co-management systems in Sweden. The 'systems' dimension of social learning has also been commented on by Ison et al (2000) who reviewed theoretical approaches to learning in the context of sustainable agriculture. They noted the frequent occurrence of a cybernetic⁵ paradigm in learning process approaches.

(v) Social learning and environmental development; sustainable development education and public learning

There is obvious overlap between this category and the last, but it warrants a special mention because some of the traditions of environmental, development and sustainable development education and learning are long-standing and still evolving, particularly among those who identify with 'the education community'. Meanings attributed to

⁵ Cybernetics involves study of communication and control often comparing biological and artificial systems in terms of action, feedback and response. The word 'cybernetics' is derived from the Greek for 'steersman'.

concepts of environment, development and sustainable development and education and learning are almost as variable *within* a concept (e.g. among different concepts of environment or learning) as *between* concepts (e.g. between environmental education and sustainable development education). So identifying the relationship between social learning and these traditions is not a simple matter. Social dimensions have long been included in more systemic definitions of environment with people as a part of rather than apart from nature. In recent years, there has also been a trend towards referring to learning rather than education but the activity of learning has always been central to education.

Smyth (2002) offered an overview of some of the conceptual and practical issues associated with these different terms, highlighting a concept of environment that was much used in international conferences – *“the total environment of humankind, biophysical and social, natural and anthropogenic, economic and cultural, with a past, present and future.”* And taking education to mean *“the guidance of learning, usually towards identified goals, whenever and wherever it is undertaken and noting that education has both formal and non-formal sectors.”* He also noted a community of educators who had been trying to improve public learning about human-environmental relationships since the 1970s. In Smyth's view, the distinctions between sustainable development education and environmental education lie in perceptions and practice rather than in theory. In the context of this review of social learning theory, I find Smyth's distinction an important one. A difference in language does not necessarily mean a difference in theory.

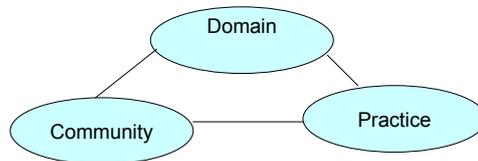
Scott and Gough (2003) have usefully categorised environmental learning with focuses ranging from nature and conservation to social change to learning about learning. Their idea of environmental learning that focuses on social change comes close to what others (e.g. Finger and Verlaan 1995) would describe as social-environmental learning.

'Public learning' is a focus also identified by David Wilkinson and his colleagues (Wilkinson & Appelbee, 1999, Attwood *et al*, 2003) as a part of whole system working and change. In considering blocks to organisational and systemic learning, Attwood *et al* note (i) a heavy reliance on 'experts' (ii) top-down propensity towards programmatic change and (iii) learning perceived as an individual rather than collective activity. They stress the importance of encouraging collective learning and 'making sense together' to improve thinking about systemic change.

(vi) Communities of Practice – a social theory of learning

Many have found the work of Etienne Wenger inspirational regarding social learning. At the very core of his social theory of learning (Wenger 1998 & Wenger *et al* 2002) is the idea of the Community of Practice (CoP) with its three-way relationship between community, domain and practice.

Structural elements of a community practice



A CoP is a unique combination of three fundamental elements:

- (i) a domain of knowledge, which defines a set of issues,
 - (ii) a community of people who care about this domain,
 - (iii) a shared practice that they are developing to be effective in their domain.
- Wenger 2002*

Figure 4 A Community of Practice (Source: Wenger et al., 2002)

Wenger is currently building more theory furthering the convergence of learning theory and social theory. Having developed theory at the level of Community of Practice, he is now turning his attention to large scale learning systems that involve complex constellations of CoPs and to individual identity, constructed as a learning trajectory through these complex systems (Wenger 2004).

(vii) Social learning for the integrated management and sustainable use of water at catchment scale (SLIM)

The European SLIM project found three reasons for using social learning theory: to understand, facilitate or co-construct the resource 'issue' (SLIM 2004a).

What is considered as *social learning* depends on what focus is taken; it can be on:

1. The convergence of goals, criteria and knowledge leading to more accurate mutual expectations and the building of relational capital. If social learning is at work, then convergence and relational capital generate agreement on concerted action⁶ for integrated catchment management and the sustainable use of water. Social learning may thus result in sustainable resource use.
2. The process of co-creation of knowledge, which provides insight into the causes of, and the means required to transform, a situation. Social learning is thus an integral part of the make-up of concerted action.
3. The change of behaviours and actions resulting from understanding something through action ('knowing') and leading to concerted action. Social learning is thus an emergent property of the process to transform a situation. (SLIM 2004b)

⁶ Concerted action here refers to stakeholders in hydrological systems acting together to manage common pool resources in a sustainable manner.

Conventional policy responses to environmental problems can be broken down into three options:

- 1 Attempting to modify practices directly through *regulations*, incentives and penalties targeting human activities.
- 2 Relying on *market* forces, either by assuming that the invisible hand of the market will resolve the problem, or by adjusting market forces through fiscal policies (green tax, for example).
- 3 Raising awareness through the dissemination of *information*.

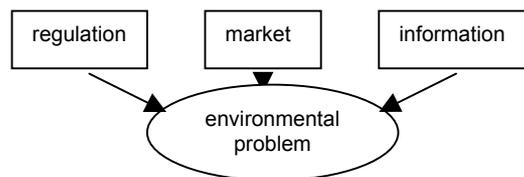


Figure 5 The three established policy-making options for addressing an environmental problem (Source: SLIM 2004a)

The SLIM project has shown that more could be done alongside, through social learning.

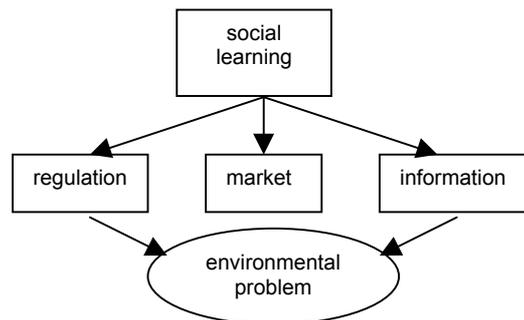


Figure 6 The three established policy-making options for addressing an environmental problem, with the addition of social learning as a fourth policy-making option (Source: after SLIM 2004b)

SLIM (2004c) also concluded that social learning was not a policy option that has been used much in the UK but that the Water Framework Directive seems to have provided some opportunities for change.

SLIM has developed an alternative framework for social learning that might be useful in supporting change (SLIM 2004a). It can be used from three positions:

- 1 As an *observer*, observing an environmental management situation with an interest in understanding the factors at play in a complex environmental management situation.
- 2 As an *enabler*, enabling the environmental policy-making process with an interest in identifying and helping to create conditions conducive to social learning.

- 3 As an *insider*, within a situation jointly reflecting upon an environmental management situation with other stakeholders who wish to gain a deeper and more comprehensive understanding of the situation in which they find themselves.

More detail can be found in the SLIM documentation (2004).

Conclusion

Social learning theory refers to a group of theories, not to one specific theory. Theories that explicitly use the language of social learning are only a part of the picture. There are many ways of theorising social learning. There are also many theories of learning that have implications for enabling social learning. This paper has reviewed some of them and has given a brief overview, drawing from theories used in the areas such as adult education, systems, knowledge management, organisational learning, adaptive management and sustainable development. References given include more detail on the case for social learning, the ambiguities of the language and what has been and could be claimed as social learning.

Theories influence each other, merge and evolve. Many theories and traditions are recognised as being in their second or third generations as they influence and adapt to paradigm shifts. Social constructionism, for example, contributed to changes in other theories (e.g. in knowledge management and in education.) Second order cybernetics and third generation activity theories are other examples of evolution. Ideas that inform or could inform the practice of social learning come from a wide range of sectors, traditions and disciplines. Redefinition of terms and situating social learning within different discourses is ongoing as many individuals and groups who have previously worked on issues of participating, educating, communicating, managing, collaborating, policymaking and action researching identify with social learning. People coming from a range of theoretical traditions are making social learning theories their own.

What they identify as social learning varies, but an exploration of underpinning theories is likely to reveal links to one or more of the theories discussed in this review. The theories offer both conceptual and methodological tools that have the potential to:

1. improve discourse in many sectors, both on learning and on sustainable development;
2. support purposeful and concerted action – for instance for integrated management and sustainable use of water;
3. support cultural and institutional change through challenging individual and group values and assumptions.

Whether that potential is fulfilled depends not just on theories and tools, but also on how and the extent to which they are used to inform understanding and practice.

References

- Argyris, C. (1976) *Increasing leadership effectiveness*, New York: Wiley-Interscience.
- Argyris, C., & Schön, D. (1978) *Organizational learning: A theory of action perspective*, Reading, Mass: Addison Wesley.
- Attwood, M., Pedler, M., Pritchard, S. and Wilkinson, D. (2003) *Leading Change: a guide to whole systems working*. The Policy Press: Bristol.
- Bateson, G. (1972) The logical categories of learning and communication pp279-308 in *Steps to an ecology of mind*. Ballantine Books, New York.
- Bawden, R. (1995) *Systemic Development: a learning approach to change*. Occasional Paper for Centre for Systemic Development, University of Western Sydney, Hawkesbury.
- Brockbank A & McGill I. (1998) What is learning? – a review of learning theories in *Facilitating reflective learning I Higher Education*. Published by Society for Research into Higher Education and Open University Press.
- Daniels, S. and Walker, G. (1996) Collaborative Learning: Improving Public Deliberation in Ecosystem-Based Management, *Environmental Impact Assessment Review* 16 pp. 71-102.
- Finger, M. & Asun, J. M. (2001) *Adult Education at the Crossroads - learning our way out*. Zed Books: London & New York.
- Finger, M. & Verlaan, P. (1995) Learning our way out: a conceptual framework for social-environmental learning. *World Development* 23, 505-513.
- Flood, R.A. and Romm, N.R.A. (1996) *Diversity management and triple loop learning* John Wiley & sons:
- Folke, C. (2003) Freshwater for resilience: a shift in thinking. *Philosophical Transactions*. The Royal Society London. Vol 358, No 1440 pp2027–2036.
- Graça, M. 2004 *Establishing A Knowledge Link Between University And Industry In Portugal*, chapter 4 of PhD thesis in Behaviour in Organisations, at Lancaster University Management School.
- Illeris, K (2002) *The three dimensions of learning*. Contemporary learning theory in the tension field between the cognitive, the emotional and the social. Roskilde University Press. (Translated from Danish edition *Læring*, which appeared in 1999.)
- ISCID (2004) Website of the International Society for Complexity, Information and Design. http://www.iscid.org/encyclopedia/Actor-Network_Theory
- Ison, R., High, C., Blackmore, C. & Cerf, M. (2000). *Theoretical Frameworks for Learning-Based Approaches to Change in Industrialised-Country Agricultures* in Cerf, M.,

Gibbon, D., et al., Eds. Cow up a tree - Knowing and learning for change in agriculture: Case studies from industrialised countries. Paris, INRA.

Kitchener, K. (1983) Cognition, meta-cognition and epistemic cognition: a three level model of cognitive processes. *Human Development* 26: 222-232.

LEARN Group (Learning in Agriculture Research Network) Cerf, M., Gibbon, D., Hubert, B., Ison, R., Jiggins, J., Paine, M., Proost, J., & Röling, N. Eds. Cow up a tree - Knowing and learning for change in agriculture: Case studies from industrialised countries. Paris, INRA.

Leeuwis, C and Pyburn, R. (eds) (2002) *Wheel-barrows full of frogs - social learning in rural resource management*, Koninklijke Va Gorcum: The Netherlands.

Olsson, P., Folke, C. & Berkes, F. 2004 Adaptive co-management for building resilience in social-ecological systems. *Environ. Management*. (In press.)

Scott W.A.H. and Gough, S.R. (2003) *Categorising Environmental Learning*. NAAEE Communicator 33, 1:8.

Senge P et al (1994) *The Fifth Discipline Fieldbook: Strategies for Building a Learning Organization*, Nicholas Brealey Publishing.

SLIM (2004) Social Learning for the Integrated Management and sustainable use of water at catchment scale. Project funded by the European Union as part of the research programme *Energy, Environment and Sustainable Development* in the Fifth Framework Programme. Contract no. EVK1-2000-00064. SLIM Publications which include the following are available at <http://slim.open.ac.uk/>

SLIM (2004a) Introduction to SLIM Publications for Policy Makers and Practitioners

SLIM (2004b) SLIM Framework: Social Learning as a Policy Approach for Sustainable Use of Water

SLIM (2004c) Case Study Monograph 12 Blackmore, C., Collins, K., Furniss, P., Morris D. and Reynolds, M. (2004) *The UK policy context for water management. I The English and Welsh policy context*.

Smyth J.C. (2002) *Are educators ready for the next Earth Summit?* Stakeholder Forum for our Common Future: London Millennium Paper Series No 6. , available at <http://www.unedforum.org/publications/millennium/millpaper6.pdf>.

Wenger E (1998) *Communities of practice - Learning, meaning and identity*. Cambridge University Press: Cambridge.

Wenger, E. McDermott, R and Snyder, W.M. (2002) *Cultivating Communities of Practice* Harvard Business School Press: Boston, Massachusetts.

Wenger, E (2004) Learning for a small planet - a research agenda v1.1 March.

Wildemeersch, D., Finger, M. & Jansen, T (eds) (1998) *Adult Education and Social Responsibility*. Peter Lang: Frankfurt.

Wilkinson, D. and Appelbee, E. (1999) *Implementing Holistic Government: joined up action on the ground*. The Policy Press: Bristol.

Woodhill, J. & Roling, N. (1998.) The second wing of the eagle: the human dimension in learning our way to more sustainable futures. In Roling, N.G. and Wagemakers, M.A.E. (eds) *Facilitating sustainable agriculture. Participatory learning and adaptive management in times of environmental uncertainty*. Cambridge: Cambridge University Press.

APPENDIX 2

Statement of Ethics agreed between The Open University (Open Systems Research Group – incorporating the SLIM-UK Project) and the Environment Agency (EA) funded project ‘WFD (Water Framework Directive) and River Basin Planning Project – Social Learning’.

Background

This is not a code of ethics. It is a statement of how we intend to work together in undertaking a collaborative research project. It is thus about our ambitions concerning joint practice, our ways of relating and conversing.

There are important distinctions to be made about the connection between research and ethical practice⁷. For example, a distinction can be made between ‘fixed rule language games’ like the judicial system, and ‘emergent rule language games’⁸, as in contract law. We consider, for the purpose of this research, ethics in research to be an emergent language game, that is, rather than being captured in pre-specified codes, ethics arise in lived experience. The meaning of what counts as ethical for that conversation is brought forth in the conversation and in the practices that emerge from these encounters (e.g. in writing documents, papers, reporting on what has happened). Thus ‘it is working on developing a Code [of Ethics] that foregrounds ethical issues rather than the code itself’⁹. From this perspective, our project will not predefine what our Ethics are, but will carry this as an ongoing conversation throughout our joint activity. It will not however be implicit – we will always come back to it in our joint engagements.

The mutuality of conversations is also recognised by Clandinin & Connelly¹⁰ who claim that the conversational form in qualitative research is marked by:

- equality among participants;
- flexibility to allow participants to establish the form and topics important to their inquiry;
- listening;
- probing in a situation of mutual trust, and caring for the experiences described by the other.

We agree with this as a starting point in our on-going activities.

⁷ For example as outlined by Marion Helme (2002) *Appreciating metaphor for participatory practice: constructivist inquiries in a children and young people’s justice organisation*. PhD Thesis, Systems Discipline, The Open University.

⁸ Wittgenstein, L. (1999) *Philosophical Investigations*. (first published 1953 edition) Oxford p.1107

⁹ Marion Helme (2002) *op. cit.*

¹⁰ Clandinin, D.J. and Connelly, F.M. (1998) Personal experience methods. In N.K. Denzin and Y.S. Lincoln, (Eds) *Collecting and Interpreting Qualitative Materials*. London: Sage.

An ethical agenda

The agenda below is an invitation for us to talk about these matters, not a set of imperatives:

- we will be open with each other about our mutual expectations;
 - we will commit to reflective practice;
 - we acknowledge that certain contractual obligations will need to be codified and we will work to ensure that these keep open, as much as possible, the space for our ethical conversation;
 - we will discuss and agree practices relating to writing-up, reporting and presenting about our joint activities and we will be clear with each other about matters of confidentiality and anonymity;
 - in our practices, we will acknowledge the work of others and invite others with whom we work to accept the same practice.
-

APPENDIX 3

Managing Complexity – distinctions between messes and difficulties¹¹

When reflecting on his own professional experience of engaging with complex situations, Donald Schön, author of *Educating the Reflective Practitioner* (1987) had this to say:

In the swampy lowland, messy, confusing problems defy technical solution. The irony of this situation is that the problems of the high ground tend to be relatively unimportant to individuals or society at large, however great their technical interest may be, while in the swamp lie the problems of greatest human concern. The practitioner must choose. Shall he [sic] remain on the high ground where he can solve relatively unimportant problems according to prevailing standards of rigour, or shall he descend into the swamp of important problems? (p.28)

Schön argues that:

all professional practitioners experience a version of the dilemma of rigour and relevance and they respond to it in one of several ways. Some of them choose the swampy lowland, deliberately immersing themselves in confusing but critically important situations. When they are asked to describe their methods of inquiry they speak of experience, trial and error, intuition or muddling through. When teachers, social workers, or planners operate in this vein, they tend to be afflicted with a nagging sense of inferiority in relation to those who present themselves as models of technical rigor. When physicists or engineers do so, they tend to be troubled by the discrepancy between the technical rigor of the 'hard' zones of their practice and apparent sloppiness of the 'soft' ones. People tend to feel the dilemma of rigor or relevance with particular intensity when they reach the age of about 45. At this point they ask themselves: Am I going to continue to do the thing I was trained for, on which I base my claims to technical rigor and academic respectability? Or am I going to work on the problems – ill formed, vague, and messy – that I have discovered to be real around here? And depending on how people make this choice, their lives unfold differently (1995, p.28).

The argument Schön presents is simple: there are many domains of human activity where professionals fail to take action in situations of uncertainty, complexity, uniqueness and conflict or where past actions have had unintended, sometimes surprising and catastrophic, consequences. It seems to be a common human experience, for example, that a well-meaning attempt to improve a complex and problematic situation has the effect of making the situation worse in quite unexpected ways. Such situations also arise when experience is at odds with intuition about how things should behave or should be. This class of experiences is described as counter-intuitive understanding. Exploring one's own mental models, notions of causality and influence, theoretical bases of understanding (as in use of metaphor), being aware of negative and positive feedback processes and being open to experiential learning are all ways to develop counter-intuitive understanding.

Several generations of OU Systems students have found the distinction between messes and difficulties helpful.

¹¹ This material is taken from the Open University course 'Managing complexity. A systems approach', (course code T306)

Some features of messes and difficulties

- (a) A problem or an opportunity is an ultimate element abstracted from a mess. Ultimate elements are necessarily abstractions that cannot be observed.
- (b) Problems, even as abstract mental constructs, do not exist in isolation, although it is possible to isolate them conceptually. The same is true of opportunities. A mess may comprise both problems and opportunities. What is a problem for one person may be an opportunity for another – thus a problem can be an opportunity from another perspective.
- (c) The improvement to a mess – whatever it may be – is not the simple sum of the solutions to the problems or opportunities that are or can be extracted from it. No mess can be solved by solving each of its component problems/opportunities independently of the others because no mess can be decomposed into independent components.
- (d) Simple situations do exist that can be improved by extracting one problem from them and solving it. These are called difficulties and they are seen as exceptions rather than the norm in terms of decisions that are needed in environmental, organizational and other information-related contexts.
- (e) The attempt to deal with a system of problems and opportunities as a system – synthetically, as a whole – is an essential skill of a systems practitioner.

(Following Ackoff, 1974a and 1974b)

Russell Ackoff first coined the term 'mess' in 1974. He did so in response to the insights of two eminent American philosophers, William James and John Dewey. These philosophers recognized that problems are taken up by, not given to, decision-makers, and that problems are extracted from unstructured states of confusion. Ackoff (1974a; b) argued, in proposing his notion of mess that:

What decision-makers deal with, I maintain, are messes not problems. This is hardly illuminating, however, unless I make more explicit what I mean by a mess. A mess is a set of external conditions that produces dissatisfaction. It can be conceptualized as a system of problems in the same sense in which a physical body can be conceptualized as a system of atoms.

From this definition of mess, Ackoff recognized a number of features of messes and difficulties that, if one is aware of them, affect the way a practitioner engages with a 'real world' situation.

Ackoff, in his definition of a mess as a system of problems and opportunities chose systems thinking as his strategy to make sense of the mess of the 'swamp' described by Schön. His strategy was to look for system within a mess as a means to do something about it. Please note we are not referring here to 'discovering' **the** system or **a** system but the process of distinguishing one or many systems of interest in a context. The end product of the process of finding system within a mess is called formulating a system of interest. This is a key task in systems practice, and is conducted to develop systemic awareness, learning and practice. Drawing diagrams, and finding ways of drawing diagrams, is an important way of doing this.

References

- Ackoff, R.L. (1974a) 'The systems revolution', *Long Range Planning*, vol. 7, pp.2–5.
- Ackoff, R.L. (1974b) *Redesigning the Future*, New York, Wiley.
- Chapman, J. (2004) *System Failure. Why governments must learn to think differently*, 2nd Edn. London, Demos, 104p.
- Checkland, P.B. (1999) *Soft Systems Methodology: A 30 Year Retrospective*, Chichester, John Wiley & Sons.
- European Union (2003) *Common Implementation Strategy for the Water Framework Directive (2000/60/EC) Guidance Document No 8, Public Participation in Relation to the Water Framework Directive*, Brussels, European Commission.
- ODPM (2004) *LSP Evaluation and Action Research Programme Case-Studies interim report: A baseline of practice*, ODPM, London.
- Reason, P. and Bradbury, H. (2001). 'Inquiry and Participation in Search of a World Worthy of Human Aspiration' in Reason, P. and Bradbury, H. (Eds). *Handbook of Action Research: Participative inquiry and practice* (pp1-14). London: Sage Publications.
- Rees, Y. et al. (2005) *Developing a national strategy for public participation in river basin planning for the WFD*, Bristol, Environment Agency.
- Schön, D.A. (1987) *Educating the Reflective Practitioner: Toward a new design for teaching and learning in the professions*, San Francisco, Jossey-Bass.
- Schön, D.A. (1995) 'The new scholarship requires a new epistemology', *Change* November/December, pp.27–34.
- The SLIM Project (2004) *Social Learning as a Policy Approach for Sustainable Use of Water: A field-tested framework for observing, reflecting and enabling, SLIM (Social Learning for the Integrated Management and Sustainable Use of Water at Catchment Scale) Framework* (accessed at <http://slim.open.ac.uk>).
- Winter, Mark & Checkland, Peter (2003) Soft systems: a fresh perspective for project management. *Civil Engineering* 156 (4) 187-92.

APPENDIX 4

Several papers have been identified for development and are being prepared for publication.

Paper A – ‘The Public Story’ Characterises the situation in terms of the Environment Agency as competent authority; social learning in WFD; the OU’s role. Why the Agency commissioned the research. *Journal of Planning and the Environment*.

Paper B – ‘River Basin Planning’ Focus on the workshops themselves: what was learned / not learned about the conceptualisation of RBP; characterising the situation; responses; overview of what we did; results and implications; concluding comments. *Journal of the Environment or Planning and Management*

Paper C - ‘Action Research’ Meta enquiry level about the project: how it was negotiated and the skills required to undertake the process; issues.