Chapter Ten –

Conclusion

10 Chapter Ten - Conclusion

10.1 Introduction

The next fifteen years of implementing the Water Framework Directive will require considerable investment of finance, human resources and expertise. It provides an opportunity for innovation, an opportunity to rethink 'business as usual'. Integrated, meaningful participation is not easy. The challenge lies in summoning the political will to make up-front investments in participation, and in changing the culture of decision making to support integrated planning, in order to realise sustainable benefits in the long run.

10.1.1 Structure of this Chapter

This chapter begins with a summary of the key findings of this research. The nature of the research is discussed in the context of assessing its quality. This consists of a discussion of the research objectives and how they have been met, a critique of the methodology and a review of the reliability, validity and generalisability of the research process and results. A summary of the contribution to knowledge made by this research is followed by recommendations for further research.

10.2 Summary of Discussion

A focus on sustainability can act as a powerful tool for integration in river basin planning. In the DesignWays process participants assess new ideas against clear criteria of sustainability principles, thus helping to filter out 'quick fix' solutions that may cause problems later.

At the same time, Williams (2002, pg. 198) has commented:

> *"Sustainable development is often misunderstood and misrepresented… it has led to action primarily around*

the traditional green agenda and has failed to act as an integrative and cross-cutting mechanism".

The templates used in DesignWays are designed to encourage a holistic view, and the process asks participants to look at many different aspects of the same phenomenon and consider them as integrated wholes. Such a 'whole systems view' encourages the reuse of resources and the forging of connections between resource flows, such as the use of by-products of industrial processes as the inputs for further manufacturing. In DesignWays the development of long-term goals and the use of the metaphor 'think like an ecosystem' are the organising principles for the process. The design process encourages participants to relate ideas for development to both the assets of the area, and their future aspirations. The holistic templates encourage consideration of social, economic and environmental issues. The design process encourages a consideration of their interrelationships.

An emphasis on underlying dynamic processes is an important area in which DesignWays differs from many participatory planning methodologies. These aim to produce a physical plan, but do not necessarily give as much emphasis to the underlying dynamics of ecosystem interactions and social processes that inform the physical plan. A framework of sustainability principles provides background to the dialogue. Applying principles of ecological design animates the process, and provides tools to operationalise the principles of sustainability in a particular context.

Encouraging participation of stakeholders and community members in the process of planning is essential for developing solutions that will work in a particular context. This is more likely to achieve lasting benefits and support from residents than a process without such participation. DesignWays provides a bridge for productive dialogue between local and professional participants. The need for behaviour change amongst a wide range of stakeholders in order to improve the environmental quality of river catchments implies the importance of the *'role of learning as an agent of change'* (Clark, Jäger and van Eijndhoven 2001, pg. 6). This research suggests that learning the skills of ecological design and dialogue through active involvement in planning can provide multiple benefits. Whilst participation in planning is widely accepted as a valuable concept, *'the*

quality of the process' (WWF - Scotland 2003, pg. 2) plays a critical role in encouraging a broader base of participation.

If this participation is combined with skills training, and encourages social learning the resultant capacity building can enable participants to better contribute to 'planning for sustainability' and action to achieve it.

Forman's (1998) *'paradox of management'* implies the necessity of planning at a regional level of scale to realise strategic benefits, whilst recognising the difficulty of engaging participation and implementing change at this level. Gibson et al (2000) talk of the difficulties of working at different levels of scale, whilst emphasising the importance of doing so if environmental problems are to be ameliorated. The design language and principles of DesignWays that can be applied at different levels of scale were considered by many participants to be an important aspect of the process. Several participants mentioned the value of having the same structure in the toolkit for both site and landscape levels of scale in terms of facilitating communication between stakeholders and community members.

Speaking of different modes of research and the metaphors that inform them, McClintock, Ison and Armson (2003, pg. 717) state, *"environmental planning and management have as much to do with our modes of thinking and acting as they do with the phenomena themselves".* This implies a need to carefully rethink the ways in which our actions impact on the environment. For example, the nutrients that emerge from our body can either be seen as 'waste' or as part of the bio-geophysical cycle. These two concepts lead to very different technologies for dealing with sewage.

Interviews with participants pointed to the value of the metaphorical underpinnings of the DesignWays process, both in terms of increasing understanding of complex, dynamic systems and in enhancing the process of design. The dialogue that ensued from the design exercises assisted participants in developing eco-systemic solutions, giving them mental models to ask questions about alternative possibilities for regeneration. The challenge is to link this process to one of questioning the direction and processes of regeneration, in order

to better realise the twinned goals of improving quality of life and of the environment.

10.3 Assessing the Research Process

In this section, a brief assessment of the way in which the research aim and objectives have been met is followed by a discussion of the research process, and its reliability, validity and generalisabilty. This assessment of research quality is followed by a summary of the research's contribution to knowledge, and recommendations for further research.

10.3.1 Meeting the research aim and objectives

The overall aim of the research was to explore the use of a systems thinking paradigm to inform participatory ecological design. In Chapters 7 and 8 this aim was developed from an in-depth exploration of the theoretical underpinnings of DesignWays through analysis of participants' experience of the process. This built upon the analysis of these underpinnings in Chapters 5. In Chapter 9 this exploration was extended to look at the operational and institutional context of planning, which led to a discussion of decision making processes, and an exploration of mental models and images of development. The value of an approach that is grounded in living systems metaphors for approaching long-term sustainability was discussed. The aim of exploring this integrative paradigm as an underpinning for participation was met through the vehicle of action research, and the testing of theory in practice that this allowed.

Table 10-1 shows relationships between the objectives and the research questions, which indicates how answering the questions (discussed in depth in Chapters 8 and 9) helped to meet the objectives.

Table 10-1 Relationship between research questions and objectives

Research Questions \ Research Objectives	1. Test a process of ecologically informed participatory design	2. Provide recommendations to institutional players	3. Develop the theoretical basis of DesignWays	4. Contribute to emerging theoretical underpinnings of ecologically focused planning
1. What are the characteristics of an effective process for developing integrated, ecologically sound solutions in river catchments?				
2. What are the characteristics of an effective process for engaging meaningful participation through capacity building in ecological planning?				
3. What processes and tools help to link such planning across different geographical levels of scale?				
4. What are the operational, institutional and policy implications of a holistic approach to active involvement in planning?				
5. How do these findings fit into the broader theoretical framework of ecological planning and systems thinking?				

Research objective 1. Test a process of ecologically informed participatory design in the context of river catchments, as the basis of a toolkit for 'planning for sustainability'.

This objective was met through the action phase of the research. The process was used to develop a plan for the Irk Valley Project and Moston Vale with stakeholders and local residents. The participants had a range of experiences of participatory planning and 'planning for sustainability' methodologies. Their reflections on the process (from in-depth interviews and journals), and a comparison of their understanding of key themes from before and after the process provided the primary source of data for analysis. In addition, the findings of the research were presented to nineteen key decision makers in the NorthWest. This enabled analysis of their perception of the validity and relevance of the findings, and the differences between the approach taken in this research and other forms of participatory planning that they had experienced. As discussed in Section 10.5 'Recommendations for further research' below, further testing in different contexts is important to complement this research.

Research objective 2. Provide recommendations to institutional players for increasing effectiveness of participation and partnership models in 'planning for sustainability'.

This objective was met through an iterative process of developing recommendations from the findings of the research, and discussing them with key decision makers in the NorthWest. Possible mechanisms for enhancing participation in the Mersey Basin Campaign were discussed in meetings with the Mersey Basin Campaign's Policy Advisor and Research and Information Manager. An initial set of recommendations was drawn up following analysis of participants' reflections of their experience of creating a plan for the Irk Valley, and the limiting factors of implementing such a process. This was then refined in a workshop with the management team of the Mersey Basin Campaign and refined to reflect the insights of the research partner, and their considerable experience of working in the field. The interviews with key stakeholders, discussed above, were used to discuss the significance of the findings of this research and the recommendations for their particular remits and mandates. The recommendations were then refined, incorporating insights from a series of interviews conducted previously by the researcher with key stakeholders of the Campaign.

Research objective 3. Develop the theoretical basis of the DesignWays planning process.

This objective was met through the interplay of theory and practice in the action research cycle. A framework for characterising a range of participatory methodologies was developed from the discussion of the five key attributes of the DesignWays approach. Theoretical concepts that were developed in the early stages of analysis were tested in practice in the action research. Insights into the systems thinking underpinnings of DesignWays, and their value to participatory planning, emerged from this analysis. The next stage of developing this understanding will include further exploration of the nature of the metaphors of living systems and their relationship to participatory ecological design.

Research objective 4. Contribute to the emerging theoretical underpinnings of ecologically focused planning methodologies for long-term sustainable development.

This objective was met through developing the discussion of the theoretical basis of the DesignWays process into a general discussion of the nature of ecological planning. In Chapter 4 criteria for assessing the process were developed from the challenges of the WFD identified in the literature search. These criteria can be used to assess other participatory planning processes aimed at ecologically sound, integrated solutions.

In Chapter 5 a framework for characterising participatory planning processes was developed. Twenty-eight different methodologies were compared using this framework. This framework and comparison has been used as the basis of discussion with practitioners and academics, and has been found useful by both sectors. It was published in the proceedings of a workshop run by the Mersey Basin Campaign (2003) to discuss the role of participation in delivering the WFD.

This framework was used in an in-depth analysis of participants' experience of the DesignWays process in Chapter 7. This analysis contributed to understanding of both participatory processes and ecologically informed design. In Chapter 8 these findings were used in a discussion of participatory planning processes, using the framework of the challenges of the WFD. In Chapter 9 limiting factors which act as barriers to delivering integrated, meaningful participatory planning were discussed, and an alternative model of planning was developed. This discussion led to an exploration of the research findings in relationship to the fields of ecological planning and systems thinking.

10.3.2 Critique of methodology

> *"Seldom, very seldom, does complete truth belong to any human disclosure; seldom can it happen that something is not a little disguised, or a little mistaken" (Emma originally published 1816, Austen 1983, pg. 971).*

A criticism of action research is that involvement of the researcher in the process reduces the possibility to develop theory outside of that researcher's bias. This difficulty was compounded in this research, as the investigator developed the subject under test. This could exacerbate a potential for a *'bias towards verification'*, a criticism that has been levelled at case study approaches (discussed in Flyvbjerg 2001, pg. 80). Flyvbjerg (2001, pg. 82) goes on to say, however, that case studies have their own kind of rigour, as they *"close in on real life situations and test views directly in relation to phenomena as they unfold in practice".* These issues were discussed in Chapter 3, and issues of reliability and validity in relationship to this research are discussed below.

In this research five complementary attributes of the DesignWays process were explored. The in-depth exploration of these variables revealed important interdependencies and relationships between the attributes. What was *not* explored was how the process would work without one or more of the attributes. The proposition underlying this research was that these were each necessary and work together in order to meet the challenges of the WFD.

Due to the bounded timescale of a Ph.D., it was not possible to instigate a long-term assessment of the outcomes of the DesignWays process in terms of its long-term effects on the social and political situation, and physical environment of the Irk Valley.

It was outside the scope of this research to develop a comparative evaluation of the effectiveness of different participatory methodologies. This would have provided further information about the value of different attributes of such methodologies.

The time available did not allow for a further cycle of application of the learning from the action research. Further application of the DesignWays process should include improvements suggested by participants, and the effect of these improvements should be tested in further research.

The following section discusses possible factors that could affect the conclusions of this research, through considering possible alternative explanations for the findings.

10.3.2.1 Alternative explanations for research findings

> *"There are particular problems in evaluating any 'human service' programmes, as these never exist in isolation and it is therefore extremely difficult to assess the specific contribution of a particular programme to any given outcome, especially in view of the constantly changing policy and political contexts (Warburton 2002).*

It is possible that if a similar amount of time was invested in any participatory process, similar results might have been achieved without the particular approach of DesignWays. The questions to be asked are: 'Would similar results have been achieved by having the participants in the room for the same amount of time and leaving them to their own devices to plan a project?' and 'Would similar results have been achieved with similar resources using a different process?'.

In some ways these questions are unanswerable, and are mainly useful as a prompt for reflection. Unconscious bias is best combated by a reflective attitude, and an exploration of possible bias, as developed in this section. The research methodology encouraged an exploration of the facets inherent in the DesignWays approach that may have produced the results in several ways. An attempt was made to engage involvement from stakeholders with a range of experiences, so that the experience of the participants with very little prior knowledge of similar processes could be compared to that of participants with a greater experience of similar processes. Participants were asked in 'before' interviews about their understandings and experience of key aspects of the approach (e.g. 'planning for sustainability', ecological design, active participation, systems thinking). This was compared with their understandings emerging from the 'after' interviews. Participants were asked to reflect upon differences between the DesignWays process and other processes they had experienced. Four participants had considerable experience of processes as participants, including: 'Planning for Real', long-running, facilitated community planning workshops, creative conservation, and strategic thinking using creative thinking techniques.

In addition, a comparison was made with the outcomes of two reports developed for the area under study (ABROS 1999; Glen Kemp Hankinson 1997). This could

not be called a comparison of apples and apples. These reports were not developed using participatory workshops, but were developed following consultation with stakeholders in the area. Their remit was narrower, focusing on the regeneration of the open spaces. This comparison did, however, point to some significant differences that emerged from a more integrated, participatory planning process.

The difficulty of bias on behalf of the researcher could be compounded by vested interests on behalf of participants for the research process to show good results. For instance, it could be seen that it would be in the research sponsor's (Mersey Basin Campaign) interest for the research project to be seen as successful. This project could be seen to have succeeded as a piece of *research* if it showed that a particular process did not produce 'good' results. In this case, however, the MBC may gain more credit for supporting research into a process that is considered as 'successful' than one that wasn't. Whilst staff members of MBC were very helpful in offering contacts and support, the process was run entirely by the researcher and did not directly involve the MBC in its operation. Most of the participants were not part of the MBC, and had no vested interest in the success of the MBC. These factors reduced the potential for this particular bias. In addition, the MBC has an international reputation to uphold. They are well aware of the value of rigorous research.

Participants in the process could have a vested interest in demonstrating the success of a process into which they had devoted time and effort, sometimes having to make considerable effort to convince their superiors of the value of doing so. In terms of this analysis, their self-reported assessment of learning may have been most affected by this factor. Several sources of data, including the artefacts developed during the process, were used in analysis, reducing the impact of this potential factor. In terms of participants' discussion of justifying the process to their workplaces post-hoc, the main points they emphasised were the quality of the plans produced and the fact that they were having an impact on decision making in the area.

There was a degree of self-selection in terms of participants, with a bias towards those who were interested in sustainability issues. This factor was recognised by participants, who reflected on it in interviews and made comments such as:

> *"We were all workers and hand picked" (Environmental Education Warden at Mersey Valley 2003).*
>
> *"We thought, this is something that we are interested in and we want to do it, and we just carried along, although we didn't really know where we were going to end up" (Environmental Studies Lecturer at Greater Manchester HEI 2003a).*

The main source of data for this process was participants' experience of the process, supplemented by comparison with their perceptions from before the workshops, which helped to minimise this bias. In this research, the questions for this group of interested, fairly well informed people were: 'Did this process add something that they had not experienced before, and what were the key factors in this?'.

In addition, there was a potential for what Foucault (1984b) termed the *'normalisation of discourse'* to occur, in which the dominant paradigms of the process were accepted and internalised by the participants who agreed to do the process. Most of the participants had heard the original presentation, and had some sympathy with the aims of the process before deciding to participate, so that even the 'before' interviews will have been coloured by the language and expectations of the research process.

In addition to the experience and personalities of the participants, other factors that could have an effect on the results included:

- the fact that there was a professional facilitator;
- and the skill and personality of the facilitator (see Section 9.2.2.4 'Requires change of culture and capacity' on pg. 398).

Such variables are a common problem in research into complex issues, and are best accounted for through taking account of context and possible alternative explanations during analysis. In the case of action research, a reflective approach on behalf of the researcher is important in taking into account factors that their own circumstances and biases bring to the analysis process.

Instrumentation in the data gathering process can affect the results. For instance, the fact that interviews allow for interaction between interviewed and interviewee could colour results. This was offset by triangulation of different data sources

(including an opportunity for participants to respond to an anonymous survey), from peer observation of the process and offering participants an opportunity to comment on a summary of the analysis. Action research inherently implies an effect of the researcher on the researched, which could compound the possibility of 'facilitator effect'. This could imply that as participants became acquainted with the researcher, their personal like (or dislike) of the facilitator could bias their responses to questions.

Whilst it could be seen as a weakness of the research, the facilitator effect can also have the tendency to increase trust, and thus willingness to speak openly, in interviews. In this research most interviews included frank criticism of the process and offered suggestions for improvement. These were discussed in Chapter 8.

Maturation of factors outside of the particular planning process under test could have affected the results, for instance the Irk Valley Project had been in existence for two years at the time of the research, and was starting to gather success stories from its earlier actions. For instance, at times community members conflated their experience of the IVP with their experience of the DesignWays process, which was taken into account in analysis. There was a very short time lapse between the participatory process and the interviews, which helped participants to focus more closely on the effects of the process itself.

The practical difficulties the researcher experienced in identifying a case study and setting up the action research led to refinement of ways for making the process more valuable for stakeholders. The use of such 'added-value processes' in encouraging participation was an important finding of the research.

10.3.2.2 Reflection on process

This research has offered me a remarkable opportunity to learn and develop my ideas, and to meet committed and interesting people. Setting up the action research project was a very difficult process, which would be easier now that I understand more about the regional context and have built a good network of contacts. If I were to do this again, I would begin with a more systematic mapping of stakeholders and interest areas to enable me more quickly to develop the networks and relationships that would facilitate setting up such an integrated process.

This action research was carried out in a rapidly changing field. This fact was recognised by the decision makers I interviewed, some of whom I had interviewed nearly four years earlier for my Masters thesis, when the Water Framework Directive was just beginning to be widely recognised as an important new driver for integrated water management. The fact that the context is changing and the stakeholders are also confused about priorities and ways of delivering the imperatives in new legislation added to the difficulty of deciding how to best go about setting up a project. It also, however, allowed me to explore the limiting factors inherent in such processes, which was important both in improving the robustness of the DesignWays process and in terms of making recommendations for setting up programmes for delivering integrated planning.

When I started this research, I wished to test the DesignWays process in a more rigorous way than had before been possible. The difficulties I had experienced in the past in initiating planning processes made me aware of the likely difficulties in setting up a larger scale trial within the current decision making structures. Now that a larger scale trial has been conducted, it will hopefully become easier to focus on the process and research into key themes that it raises, rather than on the mechanics of gaining support for a new process.

A weakness of this project was the lack of input into the planning process for the Irk Valley from key stakeholders, such as the Environment Agency and United Utilities. As the Project Officer for IVP commented, it was difficult at first to understand the value of these workshops, and it took involvement in the process to be able to see its full value. Several stakeholders who attended the final presentation said they hadn't realised how the workshops could be of value to them until they saw the final results.

Experts and decisions makers have very limited time. As discussed in the previous chapter, they are also under pressure to predict the outcomes of programmes and projects. Because the DesignWays methodology is relatively new, and does not conform to typical planning processes, many people would need to see it work to be able to understand its benefits, and to be willing to sponsor such an approach, as suggested in the following quote from one of the interviews with decision makers:

> *"The NWDA will want to know that the theory is tried, tested and works. Once it is convinced of that, and the benefits, then it may consider how the organisation may be able to use it" (Head of Environment and Sustainable Development at NWDA 2004).*

In the future I will be able to use the results of this research to demonstrate the potential value of the process, which will help in terms of recruiting stakeholders. I will make a concerted effort to engage key stakeholders early in the process, working on better ways of communicating the potential value to them.

The interviews I conducted, and the experience of working with people in the MBC, has shown that there are very committed, intelligent people working in agencies, who can see the advantages of a more holistic way of planning. There are, however, very real barriers to implementing such an approach, no matter how interested these people are in doing so. Whilst this has made this research more difficult, it has also enabled me to gain a better understanding of the pressures that different sectors and agencies work under, which will strengthen my ability to work with these organisations in the future.

A further difficulty with this research was the fact that I was both the researcher and the facilitator. Since the action research phase, I have had the opportunity to work with several of the participants in workshops where they have been facilitators, using the DesignWays toolkit. This was not possible before they had gained experience of the process. In the future I look forward to being able to conduct research in which I am able to observe other people facilitating the process, so I can gain an understanding of it from a different perspective.

10.3.3 Reliability

Reliability in research is related to striving for *"relative neutrality and reasonable freedom from unacknowledged research biases"* (Miles and Huberman 1994, pg. 278). Positivist research is related to the concept that an experiment could be repeated at any time by any other researcher and achieve the same results. In research into complex systems this ideal is seen as impossible, both for the practical and theoretical reasons. Practically, the exact conditions of a system that changes in time cannot be re-created later. This problem is compounded in action research, as the research itself creates conditions of change.

In theoretical terms, major shifts in understanding have occurred with regard to complex systems and interactions. An increased understanding of the importance of non-linear interactions and irreversibility has shaken the presumption of an ability to predict interactions between components. A further shift has occurred with a realisation of *"the inability of the older scientific theories to offer plausible solutions to the difficulties encountered as scientists sought to solve problems concerning ever more complex phenomena"* (Wallerstein et al. 1996, pg. 61).

Instead of the criteria of reliability for systems based research, Checkland and Holwell (1998) propose the notion of *'recoverability'*, or the ability of people from outside of the research process to be able to 'recover' the steps and reasoning behind the steps. They suggest this requires an explicit discussion of the framework of the research, its aims and the methodology used to meet those aims. This can assist interested parties in *'recovering'* the process of research (Champion and Stowell 2003).

In this research the aims and overall design of the research were clearly explained to all participants and to the CASE partner. The framework of the research, the epistemology, ontology and the aims were set out in detail in Chapter 3 - Methodology. The researcher also described her role in the process, and the assumptions behind the research. The stages of the research process were described in detail. The sources of data, which covered a wide range, were cited in Table 3-2 on pg. 85. The database of transcribed and coded interviews is available for review and several of the models and codes developed in this database are displayed in the analysis. In addition, the Irk Valley planning process was accredited through the Open College Network, requiring records of learning assessment for each learner and an external moderation process.

10.3.4 Validity

> *"Establishing the value and worth of an inquiry undertaken within a complex human social setting, where the validity of the inquiry cannot be demonstrated through repetition, is fraught with difficulty" (Champion and Stowell 2003, pg. 21).*

Validity of research is related to its truth value. Miles and Huberman (1994, pg. 278) suggest this is the point to ask *"Do the findings of the study make sense?".* Three types of validity are discussed in the literature on action and qualitative research, catalytic (or critical), dialectical and reflective validity.

Catalytic validity is shown when the participants in the research and researchers find that the process enables them to *"understand the world and the way it is shaped in order for them to transform it"* (Kinechloe and McLaren 2000, pg. 297).

Greenwood and Levin (2000, pg. 94) suggest a definition of action research that involves the testing of research validity through *"collaborative insider-professional researcher knowledge generation and application processes".* This implies a process of creating knowledge through dialogue. In the *Report of the Gulbenkian Commission on the Restructuring of the Social Sciences* the authors discuss the nature of objectivity in a post-positivist world, suggesting *"the fact that knowledge is socially constructed also means that more valid knowledge is socially possible"* (Wallerstein et al. 1996, pg. 93).

In this process data for analysis were generated through acting with stakeholders, and elicited from discussing their perceptions. Findings were checked against participants' perceptions through several stages of in-depth analysis of interview transcriptions. Participants were given opportunities to comment on summaries of analysis (this could have been strengthened through focus groups). Several different academics and practitioners commented on the comparative review of participatory methodologies (see Chapter 5). Interim findings were presented at several workshops, including a workshop with key practitioners and academics in the field of participation in water management organised by the MBC (2003). Findings and recommendations were discussed with the management team of the research partner. Comments from these different presentations and discussions were taken into account in the analysis.

A further stage of testing the findings was provided through a series of interviews with nineteen key decision makers in the region. The research findings were presented, and questions asked to elicit feedback on their validity. The potential

value of such an approach for the decision makers' areas of influence was explored, as were the factors that could act as barriers to its wider application.

A test of the validity of an action research project is whether or not it proves useful to stakeholders, and in particular whether or not stakeholders feel that the knowledge is valid enough to act upon. Such *'pragmatist underpinnings'* of action research can be seen also in the work of Dewey (1954), for whom participation was *"a core element in meaningful knowledge creation processes"* (Greenwood and Levin 2000, pg. 95). This approach, in which validity is indicated by the fact that participants can see the practical value of the research, is echoed in soft systems methodology (e.g. Checkland 1991) and interdisciplinary futures studies (e.g. Aligica 2004). It should, however, be borne in mind that criteria of usefulness of research can be problematic. The immediate usefulness of research may not be apparent. Sometimes research is not immediately useful in the context in which it is carried out, but proves to have use for another context or at a later date.

In this research all participants were free to choose whether or not to attend the workshops. They could 'vote with their feet' if they found the process not useful. The fact that stakeholders continued to attend the intense series of workshops, many attending both the Irk Valley and Moston Vale workshops, was one indication they felt the process was useful for them. In addition, participants said that the process was useful in interviews. Of the respondents to the anonymous surveys, three participants said the process 'far exceeded' their expectations, three said it 'exceeded' and two said it 'met' their expectations. None said that the process was lower than their expectations.

Critical validity involves analysing the process of change. Waterman (1998, pg. 104, emphasis in original) writes of the difficulties of effecting change in action research in nursing, and suggests that *"the validity of action research projects does not reside in their **degree** to effect change but in their **attempt** to improve people's lives".*

The plan for Moston Vale is seen as the basis for regeneration of the site, a sign that the DesignWays process itself produced knowledge that was seen to be of use to participants. This will have a direct impact on community members'

circumstances. The interest shown in the recommendations of the research by the CASE partner, and the decision makers interviewed as part of the research, offers an indication that the results are seen as useful. The next stage of dissemination will give a further indication of the value of the results.

In early action research the main focus was on elucidating the knowledge of expert practitioners (e.g. Argyris and Schon 1974). The difficulty of clarifying tacit knowledge has been highlighted in research into Artificial Intelligence (e.g. Varela 1999) and developed into a phenomenology of learning by Dreyfus and Dreyfus (2000). As Waterman (1995, pg. 781) states *"the enunciation of practical knowledge is not easy, and inescapably, hinders the process of moving from practice to theory".* Dialectic validity *"refers to the constant analysis and report of movement between theory and practice"* (Badger 2000, pg. 204). The cyclic nature of action research implies a *"dynamic relationship between practice, understanding and theory"* (Waterman 1995, pg. 783).

The stages of this research demonstrate such interplay, echoed in the writing about the process. Chapters 4 and 5 offer an in-depth exploration of theory. Chapter 6 offers a step-by-step description of the practice undertaken in the research, and in Chapter 7, the 'how' of the process is analysed against participants' experience of it. In Chapter 8 the results of the process and the participants' experience are assessed against the theory developed in Chapter 4. In Chapter 9 the insights of a further set of practitioners are brought to bear on the analysis, ending in a discussion of the theoretical implications of the research.

Reflexive validity refers to *"the researcher's recognition and exploration of biases, demonstrating validity through considering the process of interpretation"* (Badger 2000, pg. 204). It is strengthened by an attempt to incorporate different viewpoints from those of the researcher, which helps to develop *'self-reflective practitioners'* (Kemmis and McTaggart 2000), in and of itself a goal of action research.

At the moment, the researcher is the only person who *can* facilitate the DesignWays process, as a train-the-trainers programme has not yet been developed. This heightened the need for a highly reflexive research project to actively attempt to deal with inevitable research bias.

The researcher maintained a journal, keeping track of the process, her role in the research and her reflections on the process. The 'memo' function of the NVivo software was used to capture reflections and questions about the analysis and the research process during the coding of interviews. The researcher gave three seminars on her research methodology to staff and other PhD researchers in the School of Planning and Landscape, in which issues of objectivity were discussed at length. These discussions helped to sharpen her awareness of the particular challenges facing this research project.

Additional methods that were used to enhance the validity of this research are summarised in Table 10-2.

Table 10-2 Methods used to enhance research validity

Method	Expression in this research
'Thick description' (Geertz 1983), grounding in context	• in-depth description of settings, process, and context • close attention paid to participants' explanations and voice
Careful and rigorous coding of data	• all interviews were transcribed and carefully coded in full • significant features of participants and possible anomalies were searched for and coded to draw attention in analysis
Triangulation of data sources to seek replication of findings	Several different data sources used in analysis including: • interviews with participants on both landscape and site level planning processes • participant observation of both planning processes • questions in 'before' and 'after' interviews about participants' criteria for, and sense of, success of project • anonymous surveys • peer observation of workshops • discussion arising in workshops • workshop with regional stakeholders and the observations of Irk planning process core participants from these workshops • interviews with key decision makers in the North West reflecting on findings from action research
Consideration of alternative explanations for results	• alternative explanations explored and taken into account in analysis (summarised on pg. 451)
Peer review	• interim findings were presented at several conferences and discussed in workshops with practitioners and academics
Participant checking	• participants were given the opportunity to comment on their quotes and comments, results of analysis and the recommendations made
Prolonged engagement with stakeholders	• engagement with stakeholders on Irk Valley Planning process over a period of six months • significant engagement with CASE research partner (essential context for research) over a period of 3 years • development of the DesignWays process over a period of ten years in different contexts

10.3.5 Generalisability

In qualitative research a grounding of concepts in the context in which they are discovered is seen as important in order to enhance the possibility of transferring the results of a study from one case to another. Reflection on the context and how it influences results helps to clarify aspects that could be transferable. This process follows two stages, first contextualising knowledge, second an exploration of the ways in which the context might affect the applicability of a theory in another context (Greenwood and Levin 2000, pg. 98). In this research, the context was explored in depth. The results were discussed in relationship to the theory and descriptions of practice of participatory planning from both the literature, and the researcher's discussions with practitioners. This was taken into account when developing the recommendations in Chapter 9.

The possibility to generalise results from research can be enhanced in an iterative process, whereby elements of a theory, which might be applicable to a wider field, are tested in different contexts. Such further testing forms the basis of one of the recommendations for further research below.

10.4 Contribution of research to knowledge

This doctoral research had two major outcomes: a contribution to theory through an in-depth exploration of the theoretical basis of participatory, ecologically informed design, as exemplified by the DesignWays approach; and a contribution to practice through investigating its potential to meet key challenges of the WFD. This work augments previous research, in both methodological and substantive areas.

This research contributes to the literature on action research, building on recent developments in ecosystem studies (e.g. Linehan and Gross 1998). Much action research has been in the fields of education (e.g. Darling-Hammond and Snyder 2000; de Venney-Tiernan et al. 1994), information systems (e.g. Baskerville and Wood-Harper 1996; Davison and Vogel 2000) and health studies (in particular nursing) (e.g. Coghlan and Casey 2001; Hampshire 2000; Kelly, D. and Simpson 2001).

Parkes and Panelli (2001, pg. 96) applied *'Community Orientated Action Research'* to a catchment and community health project in the Taieri River Catchment, New Zealand. They worked with a multi-stakeholder partnership (the Taieri Catchment and Community Health Project) to look at *"the coordination of existing resources within the community to prevent (catchment-related) harm".* The research described in this thesis also used action research to explore issues of integration within partnerships, as elucidated in the sections on integrated planning in Chapter 8, and limiting factors and recommendations in Chapter 9. In addition, it has explored the design process used to produce plans for a catchment.

Enserink (2003) evaluated information management in the context of participatory co-design for a major transport project in the Netherlands. The research in this dissertation also looked at the potential for co-design to integrate participation in planning earlier than is currently the norm. DesignWays differs from the participatory process explored in Enserink's (2003) work in the addition of ecologically informed design and the explicit consideration of sustainability principles in the planning process.

The WFD heralds a new approach to European legislation, setting a framework with ambitious targets, and requiring a more integrated approach to implementing legislation than has often been the case in the past. It represents the most ambitious application of Integrated Catchment Management (ICM) to date. This research has explored the role of participatory planning in meeting the challenges of the WFD. Following an in-depth exploration of the literature in the field of ICM, a set of criteria was developed from the five challenges of the WFD, which can be used to assess participatory planning processes.

There are several similarities between this research and the research Oels (2002) conducted, investigating the use of Future Search conferences to launch LA21 process. Both methodologies used an in-depth, interpretive approach to assess participants' experience of the process. In contrast, in Oels's work the researcher was a non-participant observer of the process whilst in this research the researcher was engaged in action research. Whilst Future Search is based on an understanding of systems thinking as it relates to organisational theory, it does not include ecological design, nor an educational framework of sustainability (see

comparisons of processes in Chapter 5). Oels (2003, pg. 317) discussed the possibility that with Future Search conferences, the focus on consensus may lead to dilution of the understanding of sustainability. To counteract this, she suggested the *"conscious use of explicitly normative theory to evaluate the failures and benefits of (participatory) action. It is only on such grounds, that current practices can be challenged".*

In this dissertation such an approach was explored, in which participants learn and apply ecological design skills. An aim of DesignWays is to enhance participants' ability to understand sustainability principles and possible trade-offs between different design options. As discussed above, the challenges of the WFD were used to develop normative criteria against which to test the planning process. This research points to the importance of understanding participatory planning as a societal process, aiming to make the process engaging and meaningful. It demonstrated the benefits of an iterative process in which planning at the landscape level of scale informs, and is informed by, work at the site level.

This research has focused on an approach to ecologically informed participatory planning. It has pointed to the need to see participatory planning and education for sustainability as an integrated process.

The DesignWays approach is a novel combination of existing methodologies and practices, which derives its main claim for originality from its attempt to incorporate the insights of new paradigm systems thinking into its tools and processes. In an article discussing analysis of the strengths, weaknesses and opportunities of systems thinking as a discipline Maiteny and Ison (2000, pg. 563) stated,

> *"the Systems literature, with the exception of Salner (1986) is devoid of meaningful research which illuminates the effects of systems thinking and practices on individual learning or personal transformation".*

In this dissertation participants' experiences and learning were explored through action research. This has demonstrated that an approach consistent with a living systems paradigm can contribute to development of more integrated, ecologically sound plans.

Whilst this research pointed to several positive potential outcomes from using a more holistic approach to active involvement in 'planning for sustainability', it has also analysed the significant limiting factors that can militate against a broad application of such an approach. A model of a more holistic approach to planning was developed, and the experience of this action research was used to elucidate pragmatic steps that can be taken within today's context to begin moving towards this model. The importance of capacity building to support this shift was highlighted.

10.5 Recommendations for further research

- Develop the contribution of this action-based research to the theoretical basis of systems thinking, through an exploration of the relationship between autopoiesis and metaphors used to animate ecological design.
- Further research should explore the use of DesignWays in different contexts, and its potential uses and impacts. This could include testing the process in the context of an established RVI in the Mersey Basin Campaign, with a cluster of business and other stakeholders to develop models of ecological industry, and in the context of rural regeneration.
- Carry out a larger scale action research pilot, using the DesignWays process in area based integrated planning in the context of regeneration. Work with delivery agencies to secure participation on behalf of decision makers to provide data about potential implications for planning practice.
- Research decision makers' perceptions of integrated participatory planning processes and opportunities for integration with more formal decision making processes, with a particular focus on mechanisms to encourage integrated planning at the landscape level of scale.
- Over time, longitudinal data for both the social aspects of the design process and the ecological effects of the process could be gathered. Longer-term research should include focus on the substantive ecological changes that arise in areas where the design process is applied.

- Carry out an in-depth comparative review of different participatory methodologies, their characteristics and impacts, building on this research and Oels's (2003) evaluation of Future Search. This could develop a systematic evaluation of the different methodologies.

- Develop a Decision Support Tool for planning the overall process of engaging participation in planning. This should include processes for choosing and combining methodologies, including an understanding of the underlying principles to avoid a 'grab bag approach'.

- Carry out an in-depth exploration of ways to make participation in planning more attractive to businesses. In-depth interviews with business managers and the on-the-floor employees could explore what would make such participation more attractive for them, and develop recommendations as to how to build this into planning programmes.

- Research possible synergies between regional data portals for technical information, such as the Regional Intelligence Unit in the NorthWest of England, and participatory planning. This could include the potential for such ports to act as a coordinating framework for community mapping, and to show features of significance for communities.

- In this research, the process and the physical toolkit were tested. A combination of software packages was used to analyse results and to develop maps and plans: spreadsheets (Excel), GIS (ArcView), graphics packages (Adobe Illustrator) and a mind-mapping package (MindManager). The potential exists to develop an integrated software package for recording and analysing results of participatory workshops. This could be developed and tested with stakeholders in further research.

- Research into the nature of funding and the role of community economic development in endogenous regeneration. This could be carried out by a comparative case study of regeneration partnerships, such as LSPs, contrasting those that have received a large amount of funding (in the Housing Market Renewal Pathfinder areas) and those that have not (such as in Cheshire).

- Carry out a critical examination of ongoing participatory programmes, e.g. Groundwork, Newlands, and the WFD Pilot in the Ribble Catchments, using the challenges of the WFD elucidated in this research as an analytical framework.

10.6 Conclusion

> *"The environment is not an 'other' to us. It is not a collection of things that we encounter, rather, it is part of our being. It is the locus of our existence and identity. We cannot and do not exist apart from it" (Lakoff and Johnson 1999).*

The Water Framework Directive calls for all the waterways of Europe to be restored to a state of good ecological health, or good ecological potential by 2015. The spirit of this law lies in considering how these ecosystems would function if operating as 'natural' systems, and striving to create conditions of minimal human impact. This implies extensive restoration of ecosystems and changes in land management. It will also require significant changes in the way that human societies operate, in terms of material and energy use, and in their effects on the environment. A major challenge is to think how this ambitious goal can be achieved, whilst improving the quality of life for humans in the river basins.

It is possible to say in broad terms what such a sustainable system will require. The challenge lies in working out how to imagine and design human settlements that function more like ecosystems, and in working on ways to help change people's existing paradigms so that developing these systems becomes the goal of planning processes. This will require the efforts and understandings of a multitude of stakeholders rethinking their relationship to the environment. Participation in planning is accepted as an important component of achieving environmental improvements. Teaching participants skills and principles of ecological design can help produce designs that go beyond 'end-of-pipe' to eco-systemic solutions. Thus, economic and productive infrastructure modelled on ecosystems can be developed.

Systems thinking paradigms provide useful tools for rethinking the relationship between humans and the environment and developing practical solutions to embody these new relationships. This research has shown the value of creative, engaging models of participatory planning to help galvanise new thinking about development and regeneration. It has shown that the mental models underlying decision making can be influenced through the quality of participatory processes. This has helped to develop several recommendations for improving planning practice that can help to maximise the value of participation in planning, both for the participants and for long-term sustainable outcomes from the process.

Figure 10-1 The River Irk