# Chapter Four – Challenges of the Water Framework Directive for Participatory Planning

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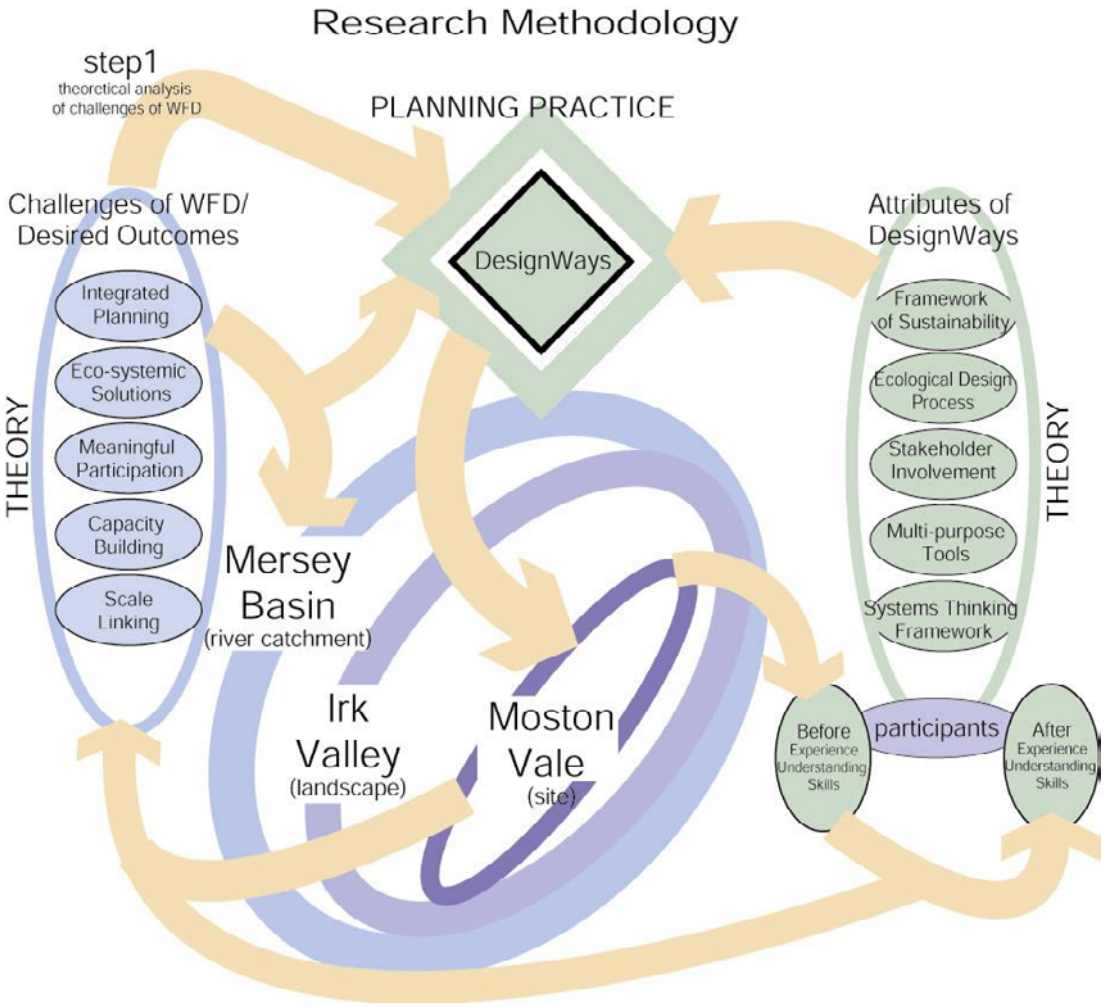
## 4.1 Introduction

Prof. Moss (2001) has described the WFD as *"red hot and revolutionary, the most significant piece of legislation affecting ecology for decades".* It offers an opportunity to put into practice many of the lessons learned from decades of developing Integrated Catchment Management, as described in Chapter 2. The process of participatory planning is seen as essential in order to deliver the WFD. In keeping with the renewed focus on public participation heralded by the Åarhus Convention (UN ECE 1998b), the WFD requires a higher level of participation in river catchment planning than previous European water regulation. There are several key challenges to be met if participation in river catchment planning is to help meet the objectives of the Directive. This chapter develops the theoretical underpinning of this research, which explores ways of maximizing the benefits of participation in meeting these challenges.

### 4.1.1 Structure of this Chapter

The five challenges of the WFD identified in Chapter 2 are explored through key concepts. These were derived from academic and practitioner literature in the fields of sustainability planning, the emerging field of ecological design, and of participation in planning. Criteria for assessing each of the five challenges are developed. These are later used in Chapter 8 as criteria to assess the DesignWays process as a methodology able to help meet these challenges.

**Figure 4-1 Research Methodology - Step 1**




## 4.2 Key Challenges Posed by the WFD

Article 14 of the WFD states *"Member States shall encourage the active involvement of all interested parties in the implementation of this Directive, in particular in the production, review and updating of the river basin management plans"* (European Commission 2000). Engaging active participation is seen as a central pillar of both the planning and implementation of the Directive. Plans should be created with a high degree of involvement from stakeholders, different sectors and NGOs.

As introduced in Chapter 2 the ambitious targets of the WFD pose five inter-related challenges for participatory planning, summarised as the need to:

1. enhance integrated planning;
2. go beyond 'end-of-pipe' to eco-systemic solutions;
3. encourage meaningful participation;
4. develop capacity in stakeholders and planners to meet the above challenges;
5. and link actions and measures across multiple geographic levels of scale.

This section explores these five challenges in more depth, and develops the analytical framework of this research. These challenges are closely related to the five cross-cutting principles seen as essential aspects of implementing the WFD in a series of workshops with key stakeholders led by the WWF (Jones 2001a):

1. Integration;
2. Scale;
3. Timing;
4. Participation;
5. Capacity.

The challenges discussed in this research add the concept 'going beyond 'end-of-pipe' to eco-systemic solutions'. The need to develop ecologically sound plans was implied in the discussions in these seminars, but not considered to be a cross cutting theme. This is added as a separate challenge in this research in order to focus attention on the process of ecological design, which can help to achieve such solutions. Meaningful participation does not happen without conscious attention to the process of participation. Neither will integrated, sustainable solutions in land management, new developments, infrastructure and industry be developed just because they are seen as important. The recommendation of increased attention to the process of ecological design formed a cornerstone of the CURE response[28] to the *Second Consultation Paper on the Implementation of the EC Water Framework Directive* (DEFRA 2002).

[28] This response raised three general concerns (from Tippett, J., Handley and Wilkinson 2003):
1. insufficient discussion about the role of the statutory planning system in implementing the Directive;
2. inadequate attention to the need for timely and effective participation in the development of River Basin Management Plans (RBMPs) and in the development of the Programme of Measures;
3. and missed opportunity to prevent pollution at source by incorporating ecological design into infrastructure and land use planning.

The issue of timing is of central importance, and the author concurs with recommendations in the WWF report that attempts to engage participation and implement the programme of measures should be begun as soon as possible, ahead of the minimum deadlines set by the WFD timetable. The issue of timing is discussed in the analysis of this research under the challenge of encouraging meaningful participation, but is not discussed as a separate issue, as it is seen as a component of programme planning necessary to achieve meaningful participation and integrated planning.

There are other significant challenges posed by the WFD, which are not covered in the five challenges above. These include:

- the scientific research necessary to determine good ecological status;
- need for enhanced monitoring to determine status (e.g. Clarke, Wright and Furse 2003);
- the need to coordinate and harmonise data and information across administrative and national boundaries;
- the need for new methods of full-cost pricing and equitable systems to implement such pricing;
- and the high cost and demands placed on personnel by the need for monitoring, information provision and implementation of measures (e.g. Holland 2002; Kallis and Butler 2001; Kindler et al. 1998).

These issues are tangentially related to participation in planning. They are, however, more policy related questions of implementation than of innovative methodologies in participatory planning, which is the focus of this research. This research does not cover the need for economic analysis of water use, and the difficulties of determining and implementing equitable full cost pricing. The application of the DesignWays process *may* provide information for identifying key management issues and drivers and economic analysis, but this is not its main focus.

An exploration of the five challenges addressed in this research is developed in the following section. Each section about the five challenges concludes with a table summarising the key criteria for meeting that challenge.

## 4.3 Challenge 1 - Enhancing integrated planning

> *"A holistic, systemic approach relying on integrated water resource management must replace the current fragmentation in managing water" (World Water Council 2000, pg. 1).*

More, and better organised, data are an important aspect of meeting the requirements of the WFD. Indeed, increasing the quality and coverage of data is seen as central to improving environmental management in general (Carpenter 1995). Success in meeting the Directive's goals does not, however, hinge simply on the provision of better data. We are not always suffering from a lack of data in attempting to 'plan for sustainability' in the water environment; rather we suffer from a relatively *"data-rich but information-poor syndrome"* (de Pauw 1996). This is a general phenomenon of recent development. Wilson (1998, pg.269) says:

> *"Access to factual knowledge of all kinds is rising exponentially while dropping in unit cost. It is destined to become global and democratic... What then? The answer is clear: synthesis. We are drowning in information, while starving for wisdom. The world henceforth will be run by synthesizers, people who are able to put together the right information at the right time, think critically about it, and make important choices wisely".*

Sustainability of water of resources can be seen as reaching the *"quality objectives of multifunctional use for this generation without compromising the uses for future generations"* (Schneiders and Verheyen 1998, pg. 256). The two important aspects of this definition are the concepts of multiple use and the needs, possibly unknown, of future generations. This implies a need to preserve a high level of flexibility and options for the future in any decisions made today. This definition could be extended to include equity of water use and distribution within this generation. These are particularly important concepts when considering both water transfer schemes and models for provision of water and sanitation to poorer segments of society.

As discussed in the Chapter 2, for sustainable water management, water systems should be treated as holistic entities, incorporating supply (or input), use, and disposal (or output). Sustainable management of water requires integrated planning, recognising the interconnections between systems operating at different levels of scale, and the dynamic

nature of interactions in a complex environment. This is particularly the case when dealing with complex phenomena, where changes can be spread over multiple levels of scale and dispersed over time in a way that is difficult to predict, and even more difficult to measure accurately. Integrated planning (and assessment) *"aims to combine environmental, economic, social and cultural dimensions with spatial development"* (Ravetz, J. 2000, pg. 227). The endeavour of 'planning for sustainability' in the water environment is central in the attempt to enhance integrated planning.

The European Sustainable Cities & Towns Campaign (2003) recognises that the *"lack of integration at many levels, [including a] lack of common sustainability vision and interest"* is a key challenge for sustainable urban management.

'Planning for sustainability' inherently implies planning for the future. Several researchers have stressed the need to plan for long-time scales, as *"short time horizons constrain if not completely mask the recognition of big picture issues and threats"* (Tonn 2004). The creation of long-term goals facilitates incremental planning, which implements change in units small enough to be manageable, taking advantage of opportunities as they arise, and responding to community needs. Whilst each step should be seen as moving towards the larger goals, the ability to make small changes within this larger framework builds credibility by achieving short-term successes (Riley 1998).

Commonly shared, ambitious goals help to sustain a long-term planning process through political change and other difficulties, for instance *"the broadly supported long-term goals embedded in any green plan make it resilient to change"* (Resource Renewal Institute 2001, pg. 50).

**Table 4-1 Criteria for WFD Challenge 1**

| Challenge 1. Enhancing integrated planning |
|---|
| information shared and capable of being meaningfully interpreted by many actors |
| actions are coordinated, with the aim of achieving beneficial synergies |
| long-term effects of measures considered, attempt to preserve flexibility of action for future generations |
| ideas are placed into a larger context and a holistic view is taken |
| create a vision to aspire to and test options against long-term goals |

## 4.4 Challenge 2 - Going beyond 'end-of-pipe' to eco-systemic solutions

After several decades of writing about the environment, Commoner (1992) writes that many aspects of environmental degradation are in fact worsening. He suggests that the only way this trend can be changed is through a fundamental redesign of the way that we produce and use goods. This research contends that 'end-of-pipe' solutions will not deliver sufficient reductions in pollution entering the water to meet the ambitious objectives of the WFD. 'Filters' end up in landfill, or are incinerated, and the pollutants eventually end up in groundwater, which is also covered under the Directive.

Thus, there is a need to follow the injunction of ecological designers to *'put the filters in the minds of the designers'* (McDonough and Braungart 2002), and to focus on 'upstream solutions', such that the *causes* of pollution and waste are designed out of manufacturing, land management and construction. This observation is consistent with changes in regulation for pollution, culminating in the Integrated Pollution Prevention and Control Directive (IPPC), which is concerned with highly polluting industrial activities in Europe (Council of the European Communities 1996). The WFD and IPCC directive are complementary, and the WFD was developed to incorporate learning from the IPPC Directive (Chave 2002).

The challenge is how to actually develop such 'upstream solutions'. This research contends that such changes will have profound implications for manufacturing, architecture, urban planning and landscape design and management. This will require a qualitative shift away from 'business as usual' and a more fundamental change in processes than those often touted as 'sustainable development'.

As well as dealing with water quality, the WFD aims for sustainable management of water resources in order to allow for ecosystem protection and sufficient water for human use. There are significant pressures on fresh water reserves. The whole system of water management requires careful consideration in the light of sustainability objectives. The ambitious nature of the environmental objectives of the WFD offers an opportunity to push forward integrated solutions to environmental problems, which go beyond fixing symptoms of problems once they are manifested. Rather, a holistic view of all of the activities that could lead to problems in the environment can be taken, with an attempt to devise solutions that are more likely to be sustainable from the beginning.

As discussed above, the concept of creating eco-systemic solutions can be applied to the infrastructure and production processes of industry and buildings. The challenge is to design systems that run off the sun (and the wind), build soil, biodiversity and freshwater reserves and release only clean water, oxygen or matter that can be composted. Ecological design can also be applied to agriculture and other land uses, such as forestry, attempting to apply insights from ecosystems to culturally used landscapes.

As Jones (2001a, pg. 7) suggests, integrated river basin management *"depends crucially on reconciling all natural processes and human activities that influence the water cycle in a given river basin".* Thus, the need to develop eco-systemic solutions implies the need to look at the landscapes in which human infrastructure is embedded. This is recognised in the requirement to protect ecosystems and to bring water bodies to 'good ecological status' in the WFD. Ecological restoration is *"an intentional activity that initiates or accelerates the recovery of an ecosystem with respect to its health, integrity and sustainability"* (SER 2002, pg. 1). It is a process that attempts to restore a system to its *'historic trajectory'*. Given that humans have had an impact on ecosystems throughout history, this requires a degree of cultural choice and discussion about which historical aspects of rivers should be restored. Cultural landscapes, in which humans have shaped the landscape over time, can still be considered as sustainable and in 'good health'. Cultural practices and traditional land uses can help to maintain both biodiversity and long-term productivity of the land (SER 2002). At the same time, one of the aims of river restoration is to create a landscape that is *"more self-sustaining than existing conditions"* (Riley 1998, pg. 28).

Many attempts at creating sustainability criteria mention the need to conserve biodiversity, but fail to address the spatial patterns that may be essential to preserving ongoing processes of ecosystems, and which maintain the vitality and resilience of ecosystems.

The WFD offers a valuable opportunity to look at the integration of water resources and land management. Water carries the chemical imprint of the pollution it picks up as it falls through the air and travels through the landscape. Any attempt to effectively improve water quality requires the integration of the land planning system in the process of creating RBMPs. This will be particularly important in achieving the reduction of

diffuse pollution, and the implementation of sustainable land use measures, such as Sustainable Urban Drainage schemes. The process of ecological design is discussed in more detail, including critiques of the concept, in the following chapter.

**Table 4-2 Criteria for WFD Challenge 2**

| Challenge 2. Going beyond 'end-of-pipe' to eco-systemic solutions |
|---|
| design systems which do not cause pollution during life cycle and which reduce total resource throughput |
| consider human infrastructure and technologies as whole systems, looking at all their interactions |
| 'build' upon existing assets, ecological and social |
| focus on appropriate scale, matching technology to end need |
| focus on maintaining and restoring ecosystem health |

## 4.5 Challenge 3 - Encouraging meaningful participation

Gardiner (1995, pg. 94) suggests that there are four possible mechanisms for achieving sustainable development:

- legislation;
- land use planning and control;
- economic instruments;
- and consensus.

He suggests that the first three have proved insufficient to date, and in many instances, we are left with consensus as the only viable mechanism.

Participation in integrated river basin planning is implied by the need for consensus as a mechanism. Participation is defined as *"a process in which stakeholders influence policy formulation, alternative designs, investment choices and management decisions affecting their communities, and establish the necessary sense of ownership"* ( quoted in Gardiner 1995, pg. 97; International Bank for Reconstruction and Development 1993).

Howe and White (2003) discuss the need to explore the relationships between stakeholder engagement, environmental land use planning and water regulation required to deliver the WFD. Stakeholders can be defined as *"anyone who has a stake in what happens. The term forces us to think about who will be affected by any project, who controls the information, skills and money needed, who may help and who may hinder"* (Wilcox 1994, pg. 5). This term is taken to include the public, whilst recognising that special attention may need to be paid to engaging

participation from a broad section of the public, using different approaches to those for engaging representative groups (e.g. nature conservation interest groups), and professionals (e.g. planners, water company representatives). In this research the term 'community members' is used to denote residents, who are seen as a particular form of stakeholders, as they have a stake in what happens in their areas.

Increased interest in participation over the last several decades can be attributed to advantages grouped under four basic categories (from Warburton 2002, pg. 5):

1. ethics;
2. effectiveness;
3. strengthening governance and democracy;
4. and opportunities for learning and change.

In the context of participation, **ethics** are associated with basic rights. Increased opportunities for participation can be seen as a development of the democratic principle, which has developed from giving the right to vote to all peoples (women, people of colour and indigenous peoples), to extending the *process* of democracy, enhancing the right to be actively involved in decision making. The *Convention on Access to Information, Public Participation in Decision making and Access to Justice in Environmental Matters* (Åarhus Convention) came into force on Oct. 30 2001 (UN ECE 1998b). It is the first convention to link explicitly environmental and human rights, and is seen by the UN Secretary-General, Kofi Annan as *"the most ambitious venture in the area of environmental democracy so far undertaken under the auspices of the United Nations"* (UN ECE 1998a). Implementation of the WFD will have to take into account requirements of this convention.

Increased **effectiveness** arising from participation stems from the creation of better plans and policies, and improved implementation of those plans.

The practical benefits of participation can be summarised as (adapted from InterAct 2001; Tippett, J. 2001; Warburton 2002):

- enhanced access to wide range of information and perspectives to produce sound plans;
- exploration of linkages between areas and sectors through dialogue process;
- use of human judgement as valuable adjunct to models and data, which are inherently incomplete and contain uncertainties;
- reduction in staff time wasted on duplication due to improved communications;
- increased support for measures, hence enhanced ease of implementation;
- decreased loss of time and money due to opposition;
- reduced costs in the long term by establishing appropriate solutions at an early stage that satisfy stakeholders' needs;
- greater 'community ownership', which can lead to reduced vandalism and better maintenance;
- and increasing the potential to change behaviour of actors in watershed.

The World Bank's internal `Learning Group on Participatory Development' conducted a study into 42 participatory projects. They found that the initial costs and investment of staff time were higher than in those conducted without extensive participation, but these disadvantages were felt to be outweighed by several benefits, including:

- increased uptake of services;
- decreased operational costs;
- and increased rate of return (Harrison et al. 2001, pg. 6).

The need for integration of ideas from many different disciplines requires attention to the process of communication between different stakeholders. A widely recognised benefit of increasing participation in planning is the ability to include more information from different sources, and to test plans through challenges from stakeholders with different aims. Stirling (2001, pg. 66) writes, *"greater inclusivity is too often seen simply as a 'bolt-on' to the 'real' business of expert scientific*

*assessment".* He suggests that increased inclusivity has an important role to play over and above allaying public concerns about risk assessment, which lies in improving the quality of decisions, due to the inherent *"limits of expertise and rationality".*

Sustained support for a project is more likely when the people who are supposed to benefit feel that they have had a say in planning and development (e.g. Handley et al. 1998; Luz 2000; McFarlane 2000; Trenam 2000). Interest in a long-term process is built and sustained when people are able to see their concerns reflected in actions on the ground.

**Governance and democracy** can be strengthened through enhanced participation. Decisions gain enhanced legitimacy. When the decision making process is more transparent, the likelihood of accountability in both civil society and government bodies is increased. An attempt to involve traditionally 'excluded' groups in participation can help to extend democratic franchise and reduce 'social exclusion'. This is discussed further in the Section 4.6 'Challenge 4 - Developing capacity in stakeholders and planners' on pg. 129.

Stakeholders need to be well informed and learn new skills in order to maximise the benefits of their participation (for themselves and the process). The process of participation can itself provide **opportunities for learning and change**. Participants gain access to specialist knowledge through interaction, learn about key issues that affect their areas, and are able to learn new skills.

The next phase of water quality improvements stipulated by the WFD will require a profound redesign of energy and material flows in sectors as diverse as housing, agriculture, transport and industrial systems. This will involve behavioural change amongst a very broad range of water and land users, ranging from SMEs to householders to farmers. Such changes will be facilitated by early involvement in the planning process. The World Water Vision warns that sustainable management of water *"will not happen unless attitudinal shifts occur, resulting in the mobilization of political will [and] behavioral change by all"* (World Water Council 2000, pg. vii).

Recognising the potential benefits of enhanced participation, the Common Implementation Strategy (CIS) for the WFD highlights the *"need to involve stakeholders and the civil society in the implementation of the WFD".*

The CIS *"recognises the importance of an active involvement of stakeholders, NGO's and the civil society"* (European Commission 2001b, pg. 5). This recognition is part of a broader shift in recognising the value of multi-stakeholder participation in science, such as the development of the concept of *'civic science'*, with its purpose *"to recognise that groups in society have to be involved, if fairer and more comprehensive decisions are to be made"* (O'Riordan 2000a, pg. 9).

Early work by Arnstein (1969) on the range of levels of participation has been influential, with various aspects of her *'ladder of participation'* (Figure 4-2) discussed in many works on participation. The ladder metaphor helps to clarify the difference between active engagement and passive information sharing, with the top rung of the ladder being devolved community empowerment, and the bottom manipulation.

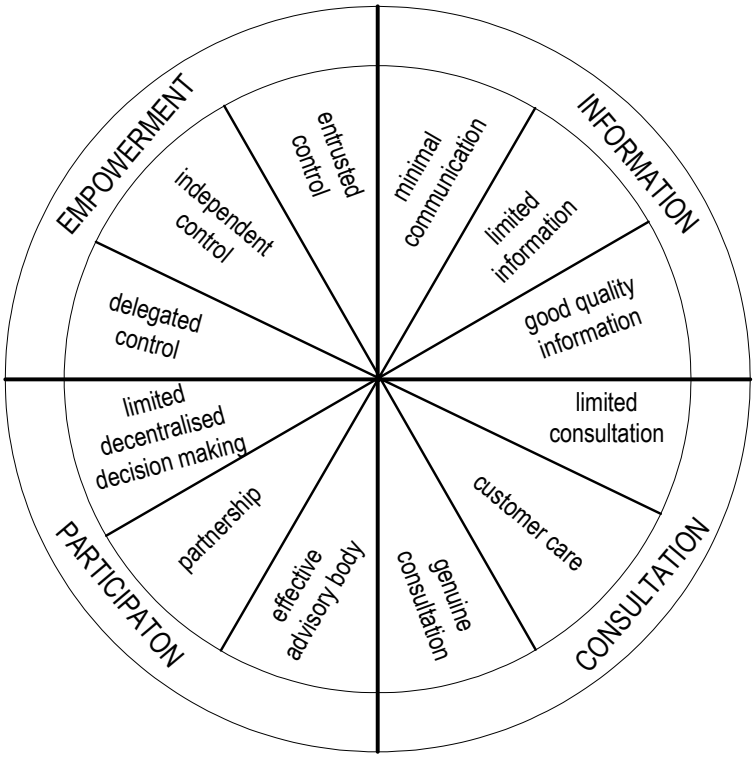
**Figure 4-2 Ladder of participation**

| | |
|---|---|
| Citizen control | Degrees of citizen power |
| Delegated power | |
| Partnership | |
| Placation | Degrees of tokenism |
| Consultation | |
| Informing | |
| Therapy | Non-participation |
| Manipulation | |

Some practitioners have challenged the metaphor of the ladder as leading to the view that the top of the ladder is the ultimate aim of all participation exercises. Further criticisms stem from a suggestion that this view proposes a simplistic view of power, and with the suggestion that manipulation can occur at each rung of the ladder (e.g. Abbott 1996).

The metaphor of a ladder has been supplemented with the metaphor of the *'wheel of participation'* (Figure 4-3), which implies that different types of engagement are appropriate for different occasions and circumstances (Davidson 1998).

**Figure 4-3 Wheel of participation (adapted from Davidson 1998)**




The rungs of the ladder could perhaps be usefully reconceptualised as falling into five major processes of participation in planning[29]:

- **inform** - information provision and communication;
- **design** - active engagement in developing options and plans;
- **consult** - consultation to elicit response to options and plans;
- **deliver** - community devolved implementation and management of plans;
- **monitor –** review of effectiveness, learning cycle to incorporate learning from implementation.

All five of these processes are necessary to delivering meaningful participation in planning. In particular, the opportunity for participants to actively develop new options and ideas, as opposed to only being given the opportunity to comment on ideas that experts have developed, could be considered to be central to the concept of meaningful participation. Each of these processes can be more or less participatory, and offers opportunities for empowerment and creativity in delivery of programmes. This concept

[29] Thanks to Caroline Riley, Policy Advisor to Mersey Basin Campaign, on secondment from United Utilities, for insight into this concept.

is developed more fully in the following chapter, in the table 'Table 5-1 Components of participatory planning' on pg. 142.

These processes should not be seen as a linear sequence, but more as a participation cycle, with different, often overlapping, inputs. Information provision and communication is a necessary component of all participation efforts. It is necessary to inform people about events, give opportunities to engage, communicate about issues in an area and disseminate information about the outcomes of participation. Recognising that not all stakeholders and community members are able to, or wish to, actively engage in participatory planning, information provision should be seen as a necessary complement to more active forms of engagement. Arnstein's insight into the possibility of using participation as a tokenistic gesture, however, should be borne in mind in any endeavour to engage participation. It is also important to be aware of the possible use of participation to reinforce the status-quo, for instance, Mosse (2001, pg. 23) described Participatory Rural Appraisal thus: *"charts and diagrams provide attractive wall decorations, making public statements about participatory intentions, legitimising decisions already made".* Further critiques of participatory processes are discussed in the following chapter.

**Table 4-3 Criteria for WFD Challenge 3**

| Challenge 3. Encouraging meaningful participation |
|---|
| attempt to involve and inform all relevant stakeholders, including those outside 'normal sphere' |
| process is seen as fair, with attempt to give all stakeholders a voice in resultant dialogue |
| opportunity to proactively design solutions and options, beyond responding to predetermined ideas |
| the process is seen as valid and engaging |
| participants are able to exert change in the decision making process and results of participation are used |
| sufficient resources for participation are provided (e.g. information, tools for analysis) |
| diversity of technical expertise integrated with community and stakeholder knowledge and aspirations |
| uncertainties in data and predictions are discussed |
| encouragement to question fundamental assumptions and goals |
| resultant plans are seen as innovative *and* viable |
| use of participation is communicated to participants and the wider public |
| process is designed to add value to existing activities and to fit in with participants' context |
| an attempt is made to reduce the effects of entrenched power positions on outcomes |

## 4.6 Challenge 4 - Developing capacity in stakeholders and planners to meet the above challenges

> *"The skills, aptitudes and attitudes necessary to industrialise the earth, however, are not necessarily the same as those that will be needed to heal the earth or to build durable economies and good communities. Resolution of the great ecological challenges of the next century will require us to reconsider the substance, process, and purpose of education at all levels" (Orr, D. 1994, pg. 77).*

People's motivation is linked to their understanding of a situation. Thus, participation in decision making and developing a shared understanding of problems and options, may increase the likelihood of changing behaviour (Allen, W., Kilvington and Horn 2002). This relates to a shift in understanding of the process of planning, which has been termed *'planning as learning'* (e.g. Therivel and Partidario 2000). Discussing findings from the research programme Global Environmental Change Programme (Economic & Social Research Council 2000), Allen (2002) states *"Consequently, environmental policy itself has come to be seen as a learning process where the interaction between policy makers and stakeholders is as important as the rules themselves".*

Capacity building is defined as *"strengthening people's capacity to determine their own values and priorities, and to organize themselves to act on these"* (Gensamo 2002, pg. 6). A process of capacity building to help stakeholders deliver the objectives of the WFD is tied to education, and offers opportunities to deliver several objectives at once. As discussed in Downie and Elrick (2000, pg. 251), community planning in environmental issues offers the opportunity to weave together policy objectives of *"social inclusion, lifelong learning and active citizenship, key overarching policy themes for the Scottish Parliament".* Much of the development of participatory methodologies has originated in 'less industrialised regions' of the world, and this link between participation and capacity building is stressed as a key benefit of participatory planning (e.g. Roberts 2002).

Wilcox (1994, pg. 52) reminds us that effective participation requires skilled facilitation. Jones (2001b) states that *"river basin authorities must be prepared to devote time to careful planning and to invest meaningful financial and human resources. Such investment has the potential to be extremely cost-effective in terms of the benefits derived for (EU)WFD implementation".* If this investment includes attention to capacity building in stakeholders, not only can some of the costs for continuous involvement be born by stakeholders and partnerships, but also the quality of the participation and plans is likely to be enhanced.

Learning is an essential component of management. Whilst it is individuals who learn, they do so in social groups. Social learning can be seen as a *"combination of adaptive management and political change"* (Lee, K. N. 1993, pg. 8). It is *"a dynamic process which enables individuals to engage in new ways of thinking together to address problems such as the unsustainable use of water"* (Social Learning for the Integrated Management and sustainable use of water at catchment scale - SLIM Project 2003). Social learning can be seen as a desirable outcome from participation in planning, and a necessary component of political change (e.g. Sabatier and Jenkins-Smith 1999).

A participatory planning process that encourages participants to develop plans requires skill development. Skilled designers will also be required to develop ideas and to integrate complex technical information into the concepts in participatory processes. These designers will need to develop skills of communication and ecological planning in addition to the more traditional skills of design, drafting, and engineering.

New forms of production suggested by ecological design will require new forms of economic and social structures. Soderqvist et al (2000, pg. 1) suggest that in addition to formal means of changing behaviour, such as laws and regulations, *"social norms, codes and other informal constraints for human behaviour"* will be required. Capacity building can thus be seen to be necessary for both individuals and organisations.

The concept of capital is inherent in economic theory. It implies an accumulation, a build up of wealth from which interest can be derived. Several sociologists have extended the concept from financial capital, defined as monetary wealth, to include human capital, defined as skills and education. The link between human capital, or skills

and knowledge, and the economy was highlighted in the 1995 World Bank's report. The *'Wealth Index'* compared the financial and manufactured capital reflected on global balance sheets with the total value of human capital. It was found that the human capital was worth three times the more tangible measures of capital (World Bank 1995).

In the oft-quoted article *Bowling Alone*, Putnam (1995, pg. 67) defines social capital as *"networks, norms and social trust that facilitate coordination and cooperation for mutual benefit".* He sees it as a holistic, emergent property associated with places, which develops above the level of individual. Networks constitute the irreplaceable social capital of a city, which once lost can only be replaced by a slow rebuilding of the networks (Jacobs 1961). Gilchrist (2000, pg. 264) emphasises the role of developing well-connected networks to *"shape an integrated and dynamic social and organisational environment".*

Foucault (1982, pg. 224) reminds us *"power relations are rooted in the system of social networks".* Building social capital involves a process of stratification and consolidation, which can allow the more advantaged to *"reproduce and consolidate advantage"* (White, L. 2002, pg. 256). Policy networks, for instance, can serve to consolidate the voices of those 'in' the network, making it harder for the views of those 'outside' of the network to be heard, they *"privilege certain interests, not only by according them access but also by favouring their preferred policy outcomes"* (Rhodes 2001, pg. 10). Participatory processes can help to enhance the voices of the already powerful in decision making (e.g. Cooke and Kothari 2001a). Social capital can help to maintain conditions of inequality. This understanding helps to avoid blaming poor people for not using their capital, it may exist at the community level, but does not necessarily allow them to rise above the institutionalised networks from which they are excluded (White, L. 2002).

In a landmark, decades long, study into regional governance in Italy the existence of social capital and civic engagement was seen to be a prerequisite for successful governmental structure. Commenting on this study Putnam (1993, pg. 101) suggests that there is an *"almost perfect correlation between civil engagement and effective government".* De Tocqueville contended that an abundance of civil associations contributed to the stability of American democracy. Civil associations, he insisted, were more crucial than political associations to a democratic society (de Tocqueville 1969).

There is a reciprocal relationship between social capital and participation in democracy. The act of participation creates relationships and networks, which can help to build social capital. At the same time, the social capital may be the necessary prerequisite for civic engagement, and development of the *"cultural will to solve community problems collaboratively"* (Wilson, P. A. 1997, pg. 747). O'Riordan (1998, pg. 99) discusses the value of attempts to measure natural capital in stimulating debate about sustainability and encouraging *"society to look more carefully at those phenomena which society has never sought properly to measure or to care for in a comprehensive way".* He goes on to suggest that *"the coupling of social and natural capital accounts is likely to be a concept that will attract political attention in the near future"* and gives examples of the interrelationship between these two areas in South Africa's transition to a more democratic society. In this analysis capacity building is posited as an essential step in terms of improving the possibility for ecological sustainability. In a reciprocal relationship, the involvement of stakeholders in the process of ecological planning can in and of itself provide a powerful mechanism for capacity building.

**Table 4-4 Criteria for WFD Challenge 4**

| Challenge 4. Developing capacity in stakeholders and planners to meet the above challenges |
|---|
| develop a shared understanding of problems and options |
| encourage social learning |
| develop communication and networking skills |
| develop creative thinking and planning skills |
| develop integrated decision making skills and encourage an adaptive management approach |
| professionals and practitioners develop skills for *facilitating* meaningful participation |
| develop institutions, trust and norms that support implementation of eco-systemic solutions |

## 4.7 Challenge 5 - Linking actions and measures across multiple geographic levels of scale

Over the last three decades there has been an increased awareness that local actions have regional and global effects, and in turn local environmental issues can be affected by regional and global environmental change. Many environmental problems have only become apparent over time, due to delays between cause and discernible effect. This lag is further complicated by the fact that global climate change, pollutants and ecological problems cross boundaries of scale, such that effects from a source of pollution or a

human activity may be manifested at a different level of scale than its cause (Gibson, Ostrom and Ahn 2000).

A focus on river basins can provide an effective tool for organising thought about environmental impacts in the landscape. Due to its fluid nature, water flow provides a framework for thinking of impacts throughout the landscape and atmosphere, as well as across political boundaries. River basins are inherently nested in scale, with smaller tributaries feeding into larger rivers. The need to link local planning to catchment wide processes is seen as a key difficulty in implementing the Water Framework Directive, and is identified as a key difficulty in integrated environmental planning in general (Carley and Christie 2000).

Issues of scale are important in four interrelated areas of concern in 'planning for sustainability'. These are:

1. ecological integrity;
2. economically productive resource base and infrastructure[30];
3. effective public participation;
4. and management and policy considerations.

The relationships between these areas and issues of scale are discussed below.

### 4.7.1 Ecological integrity

Forman (1998, pg. 499) suggests that ecological integrity could be *"measured as the single most important or sensitive attribute of an ecological system".* There are significant advantages to planning for ecological integrity at large levels of scale. Research into threats to biodiversity suggests that important factors include both the total habitat area available to species, and the degree to which habitat areas are connected in space (e.g. Baschak and Brown 1995; Peterken 2000; Steiner et al. 2000). Connectivity is important to extend the range over which organisms can travel and to enhance their ability to respond to stress in a particular area. The importance of spatial

[30] This refers to economic forms of production in the broadest sense, the ways in which humans interact with the environment to meet their needs, through activities such as agriculture, industrial processing, forestry and waste processing. Sustainable design implies that these needs can be met in a way that integrates with ecological processes thus reducing negative impacts on the global environment and protecting, possibly even enhancing, local landscapes.

coherence for preserving biodiversity was introduced with the theories of island biogeography (the effects of habitat fragmentation on populations) and meta-population theory (e.g. Jongman 1995). From a management perspective, larger scale ecological habitats are more likely to develop their own dynamic of succession, and hence maintain a mosaic of diversity over time.

Planning at a large geographic scale is necessary to identify important areas of habitat and to locate appropriate corridors for creation of wildlife corridors (Rookwood 1995). Due to issues of resolution and the coarse grain of analysis, policies and plans at the large scale can be insensitive to the integrity of ecosystems and valued characteristics in the landscape at a smaller level of scale (Handley et al. 1998). Thus planning to enhance ecological integrity needs to combine large-scale consideration of patterns of landscape, and analysis at the small level of scale, which can point to areas of particular significance.

### 4.7.2 Economically productive resource base and infrastructure

Speaking of the sustainable design of manufacturing and infrastructure, Hawken, Lovins et al. (1999) discuss the advantages of whole system optimisation, which requires working at a large level of scale, where solutions can be found to problems that would not be possible at a smaller level of scale. Whilst individual businesses and projects can make significant savings and changes in shifting towards sustainable production, it is often necessary for several projects and sites to work together to achieve synergies to create truly eco-systemic processes. An oft-cited example of such synergy is the eco-industrial park in Kalunborg, Denmark (e.g. Tibbs 1993). The possibility for efficient use of resources is enhanced at larger scales. For instance, multiple functions can be found for the same infrastructure development, and resources for development can be concentrated into areas with a greater probability of success. Working at a large level of scale is particularly important in shifting infrastructure to sustainable technologies, such as in transport, renewable energy supply and water provision (Marshall 1998).

As can be seen from the discussion above, the first two considerations derive considerable benefits from treatment at a large geographic level of scale. The last two considerations, however, tend to be more easily *managed* at smaller levels of scale.

### 4.7.3 Effective public participation

It tends to be easier to engage participation at the local level of scale. At this level participants are aware of issues as they impinge on their daily lives. They can more easily voice their concerns and needs, as it is within the *'span of human experience'* (Moss, J. et al. 2003, pg. 37). It can be difficult to generate enthusiasm for planning at a larger scale, as participants are less likely to see how they will be affected by changes. It can also be more difficult to make abstract concepts meaningful for participants. The larger number of potential stakeholders and participants at a larger level of scale adds a degree of complexity and expense in terms or planning and managing participation processes. The direct impacts of strategic planning tend to be hard to discern in short time scales. Thus it can be difficult to direct resources and stakeholder time towards thinking at this level, as stakeholders have to meet targets and show quick returns in a *"quantifiable measurement and performance culture"* (Pain and Francis 2003).

The issue of linking across scales includes both aspects of space and time. van der Helm (2003, pg. 563) asks *"Can long-term policy and plans be made (and implemented) in a participatory way?"* An example of future visioning in water policy is the World Water Vision (Cosgrove, Rijsberman and For the World Water Council 2000), a two year visioning project which has involved at least 15,000 people, probably the largest participatory project in the water field (van der Helm 2003).

### 4.7.4 Management and policy

There are many difficulties implementing changes at a large level of scale. Land tends to be fragmented under different ownerships, making plans difficult to enact. There are often many different jurisdictions and governance bodies involved, increasing the difficulties of coordinated cross-sectoral action. It is a challenge to match the level of scale of planning to the appropriate level of scale for implementation. The principle of subsidiarity, important in European policy, requires that decisions be made at the lowest practicable level of scale. The need to *"coordinate 'top-down' and 'bottom-up' approaches is seen as essential in the implementation of the WFD in order to ensure that many physically separate actions at local scale are sufficiently coordinated to reach, in combination, the objective of 'good status' at river basin"* (Jones 2001b, pg. 21).

The landscape level of scale acts as an important mediator between the local and the regional levels. In the article *Future landscapes and the future of landscape ecology*, Hobbs (1997, pg. 1) suggests, *"There is an increasing recognition that many conservation and land-use issues can only be tackled in a sensitive way within a landscape framework".* The importance of intervention at the landscape level of scale was underscored at a recent conference entitled *Landscapes and Sustainability, the European workshop on landscape assessment as a policy tool* (European Centre for Nature Conservation and Countryside Agency 1999) and in the technical report: *The Face of Europe – Policy Perspectives for European Landscapes* (Wascher 2000).

Coordination between different levels of scale will require active involvement from participants and stakeholders in participatory planning, and also from the managers and policy makers who are required to coordinate these processes. This will require new skills and capacities amongst a wide range of people. The need to link actions at the local level to strategic planning implies the need for an ongoing process of communication between stakeholders and actors at different levels of scale.

**Table 4-5 Criteria for WFD Challenge 5**

| Challenge 5. Linking actions and measures across multiple geographic scales |
|---|
| develop an awareness of scale related issues in planning |
| provide opportunities to develop strategic, integrated plans at the landscape level of scale |
| planning tools to encourage synthesis of 'bottom-up' and strategic planning in a two way relationship |
| ongoing process of communication between actors working at different levels of scale |
| programmes and processes to integrate planning at different levels of scale |

## 4.8 Conclusion

The importance of the five challenges of the WFD discussed in this chapter is emphasised in both academic and practitioner literature detailing experience implementing earlier environmental and social policies. In order to achieve the ambitious goals of the WFD, the need for integrated planning, eco-systemic solutions, meaningful participation, capacity building and liking actions across scales is clear. What is less clear is how to achieve these broad ranging challenges. The following chapter explores possible ways of meeting these challenges through participatory planning.